APPENDIX 11: ACID SULFATE SOIL INVESTIGATION

ACID SULFATE SOIL INVESTIGATION, WESTERN EXTENTION OF KEYSBROOK MINERAL SANDS PROJECT

Prepared For:

KEYSBROOK LEUCOXENE PTY LTD

Report Number:

AB161

22-AUG-23

ABEC ENVIRONMENTAL CONSULTING PTY LTD

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DOCUMENT DETAILS

DOCUMENT ID	REPORT TITLE	REPORT NO	DATE	PREPARED FOR
DMS22-013_ASSMP_EP_001.DOCX	ACID SULFATE SOIL INVESTIGATION, WESTERN EXTENTION OF KEYSBROOK MINERAL SANDS PROJECT	AB161	22/08/2023	KEYSBROOK LEUCOXENE PTY LTD

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1. INTRODUCTION

Keysbrook Leucoxene Pty Ltd (KLPL), a subsidiary of Doral Mineral Sands Pty Ltd (Doral) commenced mining the Keysbrook Mineral Sands Mine in 2015. The Keysbrook Mineral Sands Mine, is located in the Shire of Serpentine Jarrahdale and Shire of Murray, 70km south of Perth (Figure 1).

Based on the mining schedule, the current ore reserve within the approved mine area as per Ministerial Statement 810 (MS810), are due to be exhausted by the end of 2024. In order for the continuation of the mine and workforce, KLPL have referred the Proposal as a significant amendment of an approved proposal under Section 40AA of the *Environmental Protection Act 1986* (EP Act). Specifically, KLPL are seeking to expand its current mining operation for the Keysbrook Mineral Sands Project, to include an additional ~511.64ha of mining area located immediately to the west of the current operations (Figure 2).

The deposit occurs in an area depicted on an Acid Sulfate Soil (ASS) risk map as Class II 'moderate to low risk of ASS occurring within 3m of natural soil surface'. Ore from the deposit will be mined progressively via a series of open-cut pits using dry mining techniques to an average depth of ~1-2mbgl, with some deeper areas of mining to ~5-6mbgl. Dewatering of groundwater inflows into the mine pits will be required in some areas during the winter months to enable dry mining to occur.

KLPL currently implement an Acid Sulfate Soil Management Plan (ASSMP) (KLPL, 2015) for the Project in accordance with MS810 Condition 12, which outlines soil, dewatering and groundwater monitoring, and management strategies to assess and manage potential exposure of ASS during mining operations.

As mining the Western Extension will involve the disturbance of greater than 100m^3 of soil or sediment from below the natural water table in a Class II ASS risk area and also the lowering of the water table in a Class II risk area, KLPL have undertaken a targeted ASS investigation (soil only) in accordance with the Department of Water and Environmental Regulation (DWER) guideline *Investigation and identification of acid sulfate soils and acidic landscapes* (DER, 2015a).

Consideration of groundwater quality and dewatering requirements do not form part of this ASS Investigation. These aspects have been considered by AQ2 in an updated groundwater model and Groundwater Licence Operating Strategy (GLOS).

1.1. OBJECTIVE

The objective of the ASS investigation is to identify the presence or absence of ASS within the Western Extension, and if present, characterise the nature and extent of ASS likely to be affected at the Site as a result of the Project works. If ASS is identified, determine whether the existing management and monitoring strategies for soil, dewatering effluent and groundwater, as detailed in the ASSMP (KLPL, 2015) remain appropriate for the Western Extension.

1.2. SCOPE OF WORK

To achieve the objective ABEC completed the following scope of work:

- Desktop review of Site and situation, proposed mining disturbance areas and depths, prior to planning targeted soil investigation;
- Drilling of 31 soil bores spaced evenly across the majority of the Western Extension area, with depths ranging from 3m to 9mbgl, considered to be at least 1m below the maximum depth of mining disturbance;

- Logging of soil profile and collection of soil samples at 0.5m depth intervals for field testing and laboratory analysis (including duplicate samples);
- Field testing of all soil samples for pH_F and pH_{FOX} (0.5m depth intervals);
- Laboratory analysis of 50% of samples collected (~1m depth intervals) via the CRS suite method to appropriately characterise Net Acidity of the soil profile;
- Assessment of field and laboratory results for the investigation locations in accordance with DWER ASS guidelines (DER, 2015a); and
- Preparation of an ASS investigation report detailing the results of the investigation.

2. SITE INFORMATION

2.1. SITE IDENTIFICATION

The subject area for the ASS investigation is the Western Extension, comprising the following Lots:

- Lot 201 Elliot Rd, Keysbrook;
- Lot 508 Elliot Rd, Keysbrook;
- Lot 62 Hopeland Rd, North Dandalup;
- Lot 63 Hopeland Rd, North Dandalup; and
- Lot 64 Elliot Rd, Keysbrook.

At the time of the ASS investigation, no access to Lots 507, and 20 were available, however it is considered that the results of this investigation will be applicable to these Lots, based on review of desktop information.

2.2. PROPOSED AMENDMENT

The Proposed Amendment is to extend the mine area of the Keysbrook Mineral Sands Mine. The Keysbrook Mine consists of a shallow, low grade ore deposit. The Mine operates 24 hours a day, 7 days a week, however during evening and night time periods (7pm-7am) all mining activities at the pits will stop and only the feed prep and wet Concentrator plant will remain in operation.

Specifically, the amendment to the approved Project is for the inclusion of the Western Extension, which comprises Lots 507, 508, 201, 64, 63, 62, and 20 totalling an additional ~511.64ha of mine area (Figures 2).

Ore from the deposit (proposed amendment area) will be mined progressively via a series of shallow open-cut pits using dry mining techniques to a maximum depth of ~5-6mbgl. The average depth of mining however for the proposed amendment area is ~1-2mbgl. Dewatering of groundwater inflows into the pit will be required to enable dry mining to occur during wetter times of the year. Mining will be progressively staged in order to minimise the area of disturbance (at any one time) and enable effective management of the environmental factors and including rehabilitation of mine voids.

Processing of ore will commence in-pit and then slurry will be pumped to the existing wet concentration plant for further processing. Waste clay and sand materials from processing of this ore will be combined and backfilled into the mine voids using co-flocculation (co-disposal system). The mined area will be rehabilitated back to pasture and native vegetation, consistent with the post-mine land use requirements.

HMC produced at the wet Concentrator plant will be stockpiled on site prior to road transport to Doral's Picton Dry Separation Plant, located ~120km south of the mine, for separation using magnetic and electrostatic processes. The Picton Dry Separation Plant has a licence to process HMC sourced from Doral's Mine's. Processing of HMC into products of zircon, ilmenite, and leucoxene has occurred since the Picton Dry Separation Plant was approved by Ministerial Statement No. 484 in 1998. Once processed, HMC products are hauled by truck to either the Bunbury Port or Fremantle Port for export. Processing activities at the Picton Dry Separation Plant and exporting of product remain unaffected by this Proposal and thus are not part of this request under Section 38.

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2.3. PREVIOUS INVESTIGATIONS

Two site specific ASS surveys were undertaken as part of baseline environmental surveys for the original Project, subject to MS810.

An initial survey was undertaken in 2005 over a range of different soil types, focusing on the identified high-risk sites as mapped in WAPC Bulletin 64 and on low-lying landforms that are the most likely sources of PASS. The results indicated PASS occurrence across the general area is as described in the WAPC Bulletin 64 maps, of low to moderate risk, with most results less than half the Action Criterion.

The assessment of the two high risk sites shown in the WAPC Bulletin 64 maps, demonstrated that they were not high-risk sites, with Titratable Peroxide Acidity (TPA) levels generally a quarter to half of the Action Criterion. An additional sampling program was undertaken to provide more detailed results on these two areas. The results of the additional sampling program were consistent with the first assessment and confirmed the low to moderate risk status of these sites.

Further field assessment sampling for ASS was undertaken in February 2007. Eighteen locations were drilled to depths of up to 4.6mbgl, using a Geoprobe Macro-core. The results of the sampling program were consistent with the previous assessments and confirm the general low to moderate risk status of the site.

Soil samples were tested in the field for field pH (pH_F) and pH after oxidation (pH_{FOX}). Results indicated PASS occurrence is of low to moderate risk.

Sixteen samples were selected and submitted for laboratory analysis. This confirmed that three samples, in two separate holes, exceeded the Action Criterion. Comparison with the geological database confirmed the elevated result for Hole 10 at 1.9m depth was below the base of the pit floor. Hole 8 at 2.4m depth however was within the mine profile, but the TPA value only just exceeded the Action Criteria.

To manage the minor occurrences of PASS at the Site, an ASS Management Plan (ASSMP) (KLPL, 2015) was prepared in accordance with MS810 Condition 12 which includes soil sampling (ore, tails and mine void), dewatering monitoring and groundwater monitoring. To date, no significant acid generating material has been encountered in mining in the Project area.

An additional ASS Investigation was undertaken by (ABEC, 2022) for inclusion of Lot 56 via a Section 45C application to the EPA.

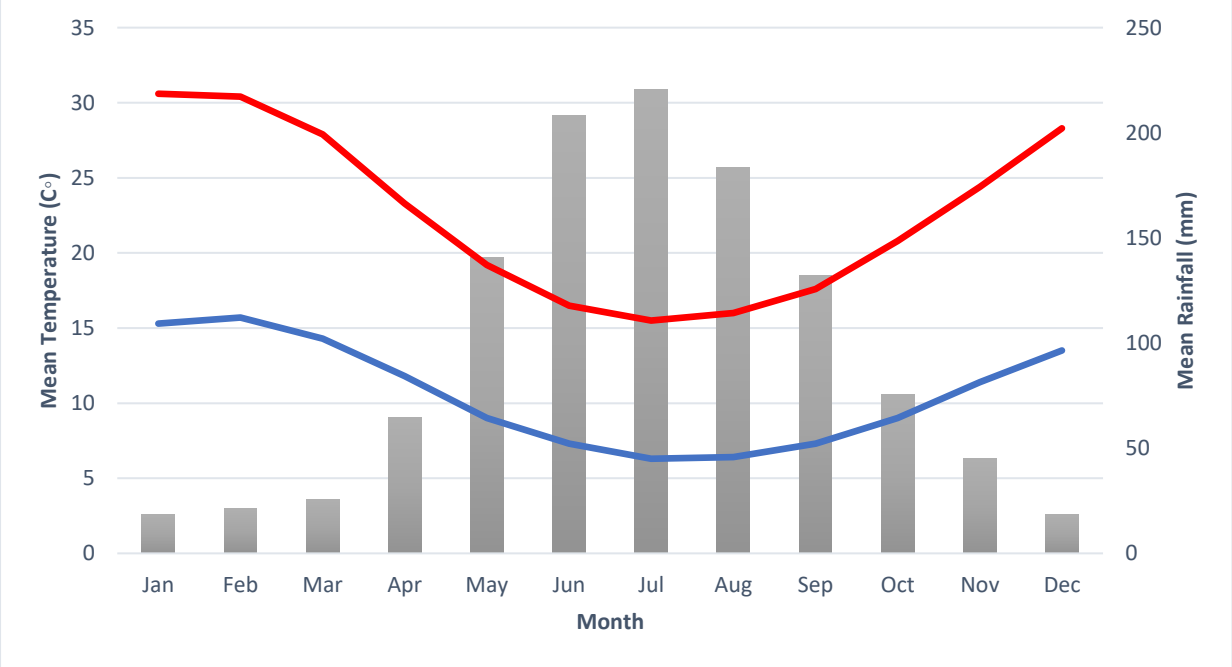
Results of the targeted ASS investigation for Lot 56, were very similar to the results from the historic ASS investigations conducted in 2005 and 2007, with only minor levels of actual acidity being detected within the soil profile, mostly below the base of the mine pits.

3. EXISTING ENVIRONMENT

3.1. CLIMATE AND RAINFALL

The Site is situated within the Keysbrook region which experiences a Mediterranean climate with warm to hot dry summers, and mild wet winters. High pressure cells dominate climatic patterns during summer and the passage of cold fronts and associated low pressure cells dominate during winter. Strong sea breezes and easterly winds occur from late November to early March. The annual rainfall generally falls within the 900mm and 1200mm range, peaking in June to August, as shown in Chart 1. In summer the average maximum temperature is 30.6°C with an average minimum temperature of 13.5°C. In winter the average maximum temperature is 16.5°C with an average minimum temperature of 6.4°C (Bureau of Meteorology, 2022).

CHART 1: ANNUAL AVERAGE CLIMATE DATA



Source: Bureau of Meteorology Karnet Station (Weather Station: 009111) located approximately 9.2km from the project area.

3.2. GEOLOGY

The general geology of the Site is described on the Geological Survey of Western Australia 1:50,000 Environmental Geology Series map of Serpentine (Jordan, 1986). A summary of the geology at each Lot is summarised in the table below and shown on Figure 3.

TABLE 1: DESCRIPTION OF GEOLOGICAL SOILS AT EACH LOT

LOCATION	GEOLOGY DESCRIPTION
Lot 201 Elliot Rd, Keysbrook	Half of the Lot is mapped as sand (S_8) described as white pale grey at surface, yellow at depth, fine to medium grained, moderately sorted, sub-angular to sub-rounded with minor heavy minerals and of eolian origin. The other half of the Lot is mapped as sand (S_{10}) described as S_8 over sandy clay to clayey sands of the Guilford Formation.

LOCATION	GEOLOGY DESCRIPTION
Lot 508 Elliot Rd, Keysbrook	The majority of the Lot is mapped as $S_{10,}$ as well as S_8 in a small portion of the north east corner of the Lot.
Lot 64 Elliot Rd, Keysbrook	The majority of the Lot is mapped as S_{10} with a small portion of S_8 and peaty sand (Sp_1) in the south west corner described as grey to black, fine to medium grained, moderately sorted, slightly peaty quartz sand of Lacustrine origin.
Lot 62 Hopeland Rd, North Dandalup	The majority of the Lot is mapped as S_{10} with sandy clays (Cs) through the middle described as white, grey to brown, fine to coarse grained, sub-angular to rounded clay of moderate plasticity with gravel and silt layers, and of Alluvial origin. A small patch of clayey sand (Sc) is present in the north western portion described as partly silty, pale grey-brown, medium to coarse grained poorly sorted, sub-angular to rounded with frequent heavy minerals and of Alluvial origin.
Lot 63 Hopeland Rd, Keysbrook	The majority of the Lot is mapped as S_{10} with a narrow area of Sp_1 in the north western portion of Lot, as well as patches of S_8 in the south east, south west and north eastern corners of the Lot.
Lot 507 Elliot Rd, Keysbrook	The entire Lot is mapped as S_{10}.
Lot 20 Hopeland Rd, Keysbrook	The majority of the Lot is as Cs with a small portion of S_{10} along the northern boundary.

3.2.1. ACID SULFATE RISK MAPPING

ASS risk mapping available via the Australian Government website nationalmap.gov.au (accessed 17/08/2022) shows the majority of the Proposal area is mapped as Class II '*moderate to low risk of ASS occurring within 3m of natural soil surface but high to moderate risk of ASS beyond 3m of natural soil surface*" (Figure 4).

3.3. HYDROGEOLOGY

The Site lies on the Swan Coastal Plain, approximately 3km west of the Darling Scarp, within the Serpentine and Murray groundwater management areas, west of the towns of Keysbrook and North Dandalup. Two major aquifers, the Superficial and Leederville, have been identified at the Site. A detailed description of the aquifers at the Site are summarised below (Rockwater, 2006) (Groundwater Resource Management, 2021).

3.3.1. SUPERFICIAL AQUIFER

The Bassendean Sand and Guildford Formation form an unconfined Superficial aquifer. The permeability of the superficial aquifer is variable and depends on sediment type, with saturated sands having higher permeability than clays. At the Site, the Bassendean Formation forms the main portion of the aquifer, with the upper 4 to 8m of this formation being moderately permeable, while the Guildford Formation is of lower permeability, owing to its more clayey nature. The high sand content in all the superficial units at the site mean they are in hydraulic connection and behave as a single aquifer unit.

The Bassendean Sand has a variable thickness (up to 5m), thickening to the west. Owing to the shallow base of the Bassendean Sand, this sand is in places fully unsaturated in summer/autumn, and partly-saturated in winter/spring; water levels fluctuate about 1m annually. In other areas, the formation extends below the

summer water table and is partly to fully saturated year-round. The underlying Guildford Formation extends to 9 to 15m below ground level (mbgl) and is mostly saturated, with the exception of the upper one metre or so where the Bassendean Sand is thinnest.

The groundwater level within the Superficial Aquifer varies from surface level to 5mbgl, with groundwater flow mainly to the west, under the prevailing hydraulic gradient. Groundwater salinity can be quite variable and is fresh to brackish, ranging from about 200 to 5,000mg/L total dissolved solids (TDS).

The groundwater in the Superficial aquifer is derived from recharge resulting from direct rainfall and the local stream runoff from ephemeral drainage networks.

3.3.2. LEEDERVILLE AQUIFER

The Leederville aquifer is a confined groundwater system, separated from the overlying Superficial aquifer by the confining Guildford Formation. The Leederville aquifer comprises interbedded sandstones and siltstones, which extend to at least 130mbgl and have a modest to high permeability in the vicinity of the Project. The Leederville aquifer receives groundwater from the Superficial aquifer and transmits it mainly westwards.

The groundwater quality of the Leederville Formation is fresh to brackish, reporting a salinity of less than 1,500 mg/L TDS.

3.4. SURFACE HYDROLOGY

Regional Hydrology

At a regional level, all surface drainage from the Project area ultimately flows to the Peel Inlet (Peel-Harvey Estuary). Streams from the Darling Scarp and foothills flow from east to west through the mine area (MBS Environmental, 2006b). MBS (MBS Environmental, 2006b) (MBS Environmental, 2015) provide details of regional streamflow monitoring stations.

Local Hydrology

The Proposal area and surrounds are characterised by low relief topography that results in a landscape that becomes flatter and increasingly poorly draining westward from the scarp. In the pastured areas, most of the low-lying areas, creeks and wetlands have been cleared and drained. Downstream of the Proposal, west of Hopeland Road, the low relief is even more pronounced, resulting in a wetland chain all the way to Peel Inlet (MBS Environmental, 2006b).

The watercourses flowing through, and adjacent to, the Proposal are discussed in (MBS Environmental, 2006b) and shown on Figure 5. The northern part of the Proposal is located within the Dirk Brook subcatchment, which flows to the Serpentine River and into Goegrup Lake and the Peel Inlet. The majority of the Proposal is located within the Nambeelup Brook subcatchment, which discharges to several lakes in the Serpentine River Catchment System and then into the Peel Inlet. The western section of Lot 507 drains into the Punrack Drain subcatchment, which flows into Lake Amarillo, one of the Serpentine Lakes.

The watercourses associated with each Section of the Proposal are discussed below.

Section 1

Two unnamed tributaries of Dirk Brook flow in a westerly direction as well-defined watercourses to the north of the proposed areas of disturbance within Section 1, but do not fall within their extent. A small unnamed

stream flows through the southern half of the Section and continues to the west to converge with other tributaries of Nambeelup Brook.

Section 2

Nambeelup Brook North Tributary flows through the south-eastern corner of Section 2 and continues to the west to converge with other tributaries and form Nambeelup Brook. A smaller unnamed tributary of Nambeelup Brook flows west through the centre of the Section.

Section 3

Nambeelup Brook North Tributary flows from Section 2 and continues south-westerly through the northern part of Section 3. A smaller unnamed tributary of Nambeelup Brook flows south-westerly through the Section.

Section 4

The largest tributary of Nambeelup Brook that crosses the Project, Balgobin Brook, flows westerly through Section 4, joining with Balgobin Brook South close to the centre of the Section which also flows westerly through the southern half of Section 4. A smaller unnamed tributary of Balgobin Brook flows westerly through the southern half of the Section.

Watercourse classifications reported by MBS (2006, 2015) are presented in Table 2, along with their management philosophies which are discussed in more detail in the following sections.

TABLE 2: WATERCOURSE CLASSIFICATIONS (MBS, 2006 and 2015)

WATERCOURSE CATEGORY	PEAK FLOWS (M^3/S)	WATERCOURSES	MANAGEMENT PHILOSOPHY	SECTION
Major	2-5	Balgobin Brook North Dandalup River Tributary	Watercourse buffers	4 -
Medium	1-2	Dirk Brook Tributary Nambeelup Brook North Tributary Balgobin Brook South Tributary Nambeelup Brook South Tributary	Watercourse buffers	1 2, 3 4 -
Minor	<1	Unnamed	Diversion of upstream catchments	All

Water Quality

The existing regional water quality relative to the Project was discussed by MBS (2006b and 2015). The Statewide River Water Quality Assessment (DoW 2007, in AQ2, 2022b) shows water quality data for Nambeelup Brook (Site 614063), located 10km downstream (southwest) of the Project was of neutral pH, with very high nitrogen and phosphorus concentrations and high turbidity. This shows water quality has been affected by historic and existing land uses prior to any mining taking place.

3.5. WETLANDS

A number of Conservation Category Wetlands (CCW) were identified to be located around the approved Mining Area of the Project, as shown in Figure 6. A summary of those that are located downslope of mine disturbance areas and potentially impacted by the Proposal is provided in Table 3. More details are to be found in Rockwater (2021) and (Ecoedge, 2021), (Ecoedge, 2022), (Ecoedge, 2023), all of which report that these monitored CCW areas were degraded due to clearing.

TABLE 3: SUMMARY OF CCW IN PROXIMITY TO PROPOSAL

SECTION	SUB CATCHMENT	CCW ID	TYPE	MANAGEMENT CATEGORY
1	Dirk Brook	14850 14887	Dampland	Seasonally waterlogged
	Punrack Drain	14760 7000 14472	Palusplain	Seasonally waterlogged
	Nambeelup Brook North	14825 14763	Palusplain	Seasonally waterlogged
		14798	Dampland	Seasonally waterlogged
2	Nambeelup Brook North	14807	Sumpland	Seasonally inundated
		14795	Palusplain	Seasonally waterlogged
3	Nambeelup Brook North	14870 14802 14803	Palusplain	Seasonally waterlogged
4	Nambeelup Brook North	14831 14804 14805 14806 14852 14465	Palusplain	Seasonally waterlogged

Section 1

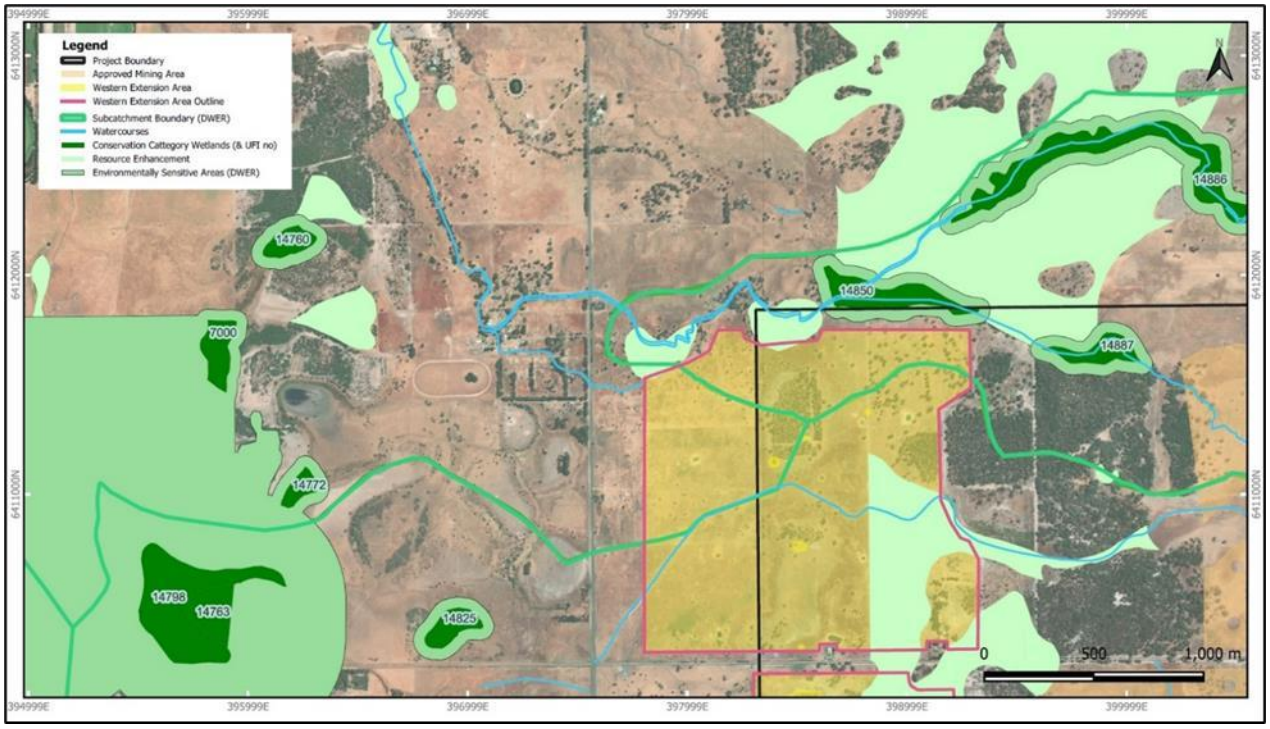
Two unnamed tributaries of Dirk Brook flow in a westerly direction as well-defined watercourses to the north of the proposed areas of disturbance within Lots 201, 507 & 508 (AQ2, 2023a). A small unnamed stream flows through the southern half of these lots and continues to the west to converge with other tributaries of Nambeelup Brook.

Two CCWs (ID 14850 & 14887), shown on image below (AQ2, 2023a) are located immediately upstream of Lot 201 along with an area of Resource Enhancement wetland (Ecoedge, 2022). These are all dampland wetlands (i.e., seasonally waterlogged), associated with the Dirk Brook Tributary.

Additionally, three CCWs (ID 14760, 14472 & 7000) lie approximately 1.6, 1.6 and 1.9km to the west of Lot 507, respectively, associated with palusplain of the Punrack Drain.

There are also three CCWs (ID 14825,14763 & 14798) located 0.75, 1.9 and 2km to the west of Lot 507, respectively, which are seasonally waterlogged wetlands associated with the Nambeelup Brook North.

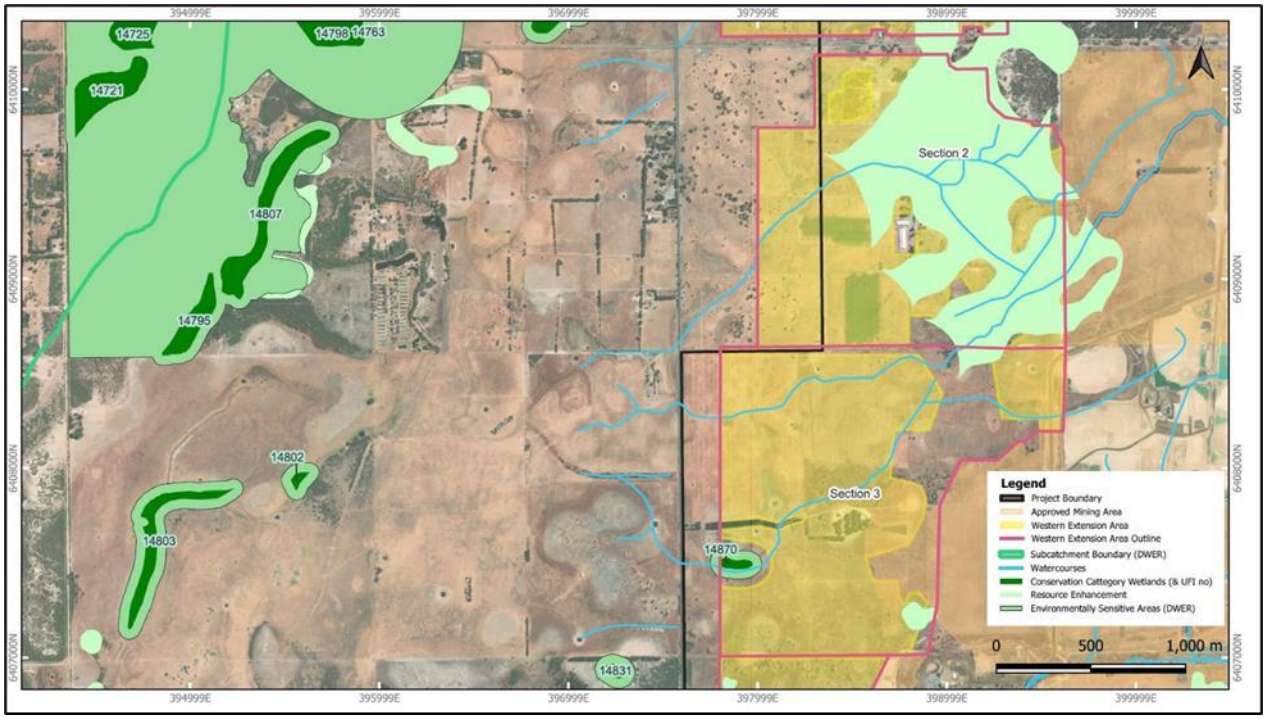
There are several Environmentally Sensitive Areas (ESAs) within and nearby the proposed Section 1 area, all of which are associated with CCWs, which occur near the northern and western boundaries of the Section 1 area.



Section 2

Nambeelup Brook North Tributary flows through the south-eastern corner of Lot 64 (Section 2) and continues to the west to converge with other tributaries and form Nambeelup Brook. A smaller unnamed tributary of Nambeelup Brook flows west through the centre of the Section 2.

There are two CCWs (ID 14807 & 14795) 2.3 and 2.9km to the west of Lot 64, respectively, which are associated with paulsplain and sumpland of the Nambeelup Brook North. There are also ESAs to the west of the proposed Section 2, which are associated with CCWs (see image below) (AQ2, 2023a).



Section 3

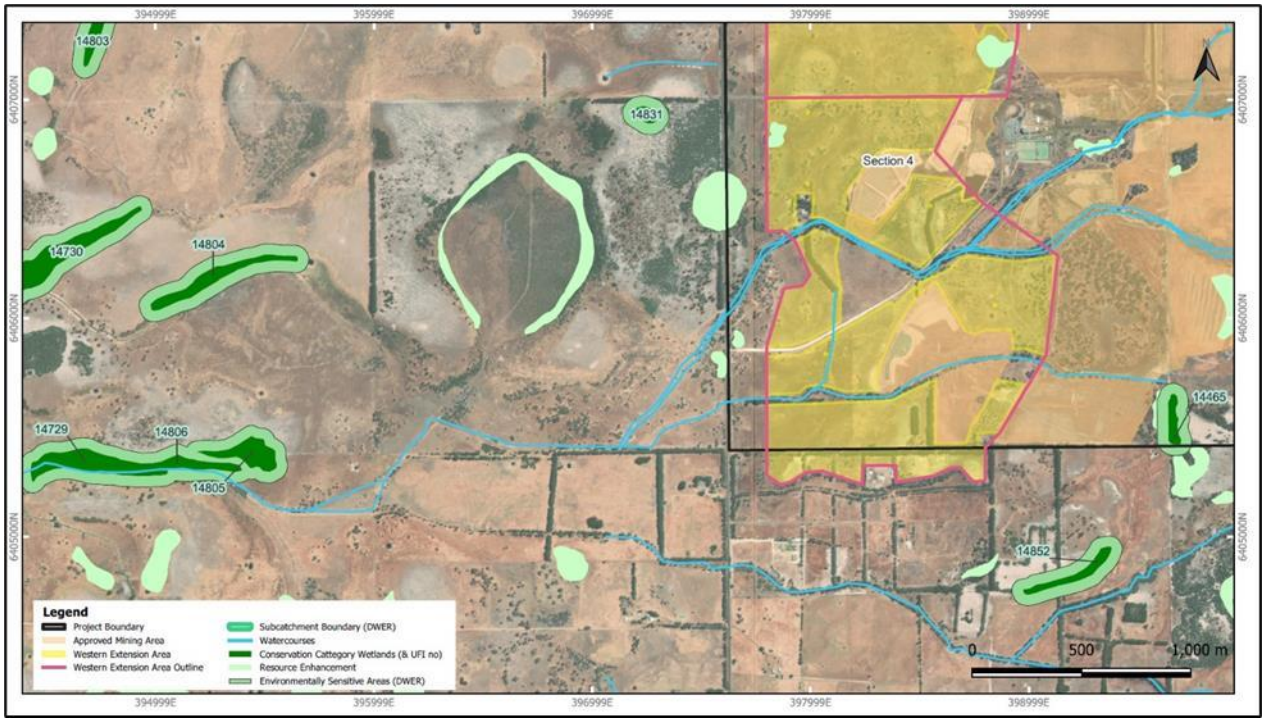
Nambeelup Brook North Tributary flows from Section 2 and continues south-westerly through the northern part of Section 3. A smaller unnamed tributary of Nambeelup Brook flows south-westerly through the Section (see image above, (AQ2, 2023a).

There is one CCW (ID 14870) located within the proposed Western Extension area, on the western boundary of Lot 63. This CCW is mapped as palusplain (seasonally waterlogged flat) wetland.

There are also two CCWs (ID 14802 & 14803), 2.2 and 2.6 km to the west of Lot 63, respectively, which are all associated with paulsplain flats of the Nambeelup Brook North. There are also ESAs to the west of the proposed Section 3, associated with CCWs.

Section 4 (Lots 20 and 62)

The largest tributary of Nambeelup Brook that crosses the Proposal area, Balgobin Brook, flows westerly through Section 4, joining with Balgobin Brook South close to the centre of the Section which also flows westerly through the southern half of Section 4. A smaller unnamed tributary of Balgobin Brook flows westerly through the southern half of the Section as shown on image below (AQ2, 2023a).



There are two CCWs (ID 114852 &4465) located 0.5 and 0.7km to the south east and east of Lots 20 and 62, respectively, which are seasonally waterlogged wetlands associated with the Nambeelup Brook North.

Additionally, there are five CCWs (ID 14831, 14804, 14805 & 14806) located between 0.5 and 2.4km from the western boundary of Lot 62.

Similar to other Sections, there are several ESAs identified nearby the proposed Section 4, associated with CCWs as shown above (AQ2, 2023a).

4. ACID SULFATE SOIL INVESTIGATION

4.1. SOIL SAMPLING METHODOLOGY

On 20 to 23 June 2022 and 9 May 2023, drilling was undertaken to characterise the ASS potential at the Site using direct push methods to collect continuous core samples (in single use plastic tubing). A total of 31 soil bores were sampled for ASS. Each soil bore was extended to a minimum of 1m below the maximum proposed excavation depth at each location. Locations were selected to provide coverage of the proposed disturbance footprint and are shown on Figure 7. Soil bore ID's and corresponding depths are provided in the table below.

TABLE 4: SOIL BORE DETAILS

SOIL BORE ID	LOCATION	MAX DEPTH (mBGL)
KL_PASS014	Lot 201 Elliot Rd, Keysbrook	8.7mbgl
KL_PASS015	Lot 201 Elliot Rd, Keysbrook	8.7mbgl
KL_PASS016	Lot 201 Elliot Rd, Keysbrook	8mbgl
KL_PASS017	Lot 62 Hopeland Rd, North Dandalup	3mbgl
KL_PASS018	Lot 62 Hopeland Rd, North Dandalup	6mbgl
KL_PASS019	Lot 62 Hopeland Rd, North Dandalup	3mbgl
KL_PASS020	Lot 62 Hopeland Rd, North Dandalup	4mbgl
KL_PASS021	Lot 62 Hopeland Rd, North Dandalup	6mbgl
KL_PASS022	Lot 62 Hopeland Rd, North Dandalup	3mbgl
KL_PASS023	Lot 62 Hopeland Rd, North Dandalup	3mbgl
KL_PASS024	Lot 63 Hopeland Rd, North Dandalup	3mbgl
KL_PASS025	Lot 63 Hopeland Rd, North Dandalup	3mbgl
KL_PASS026	Lot 63 Hopeland Rd, North Dandalup	3mbgl
KL_PASS027	Lot 63 Hopeland Rd, North Dandalup	6mbgl
KL_PASS028	Lot 63 Hopeland Rd, North Dandalup	6mbgl
KL_PASS029	Lot 63 Hopeland Rd, North Dandalup	6mbgl
KL_PASS030	Lot 63 Hopeland Rd, North Dandalup	3mbgl
KL_PASS031	Lot 63 Hopeland Rd, North Dandalup	3mbgl
KL_PASS032	Lot 63 Hopeland Rd, North Dandalup	3mbgl
KL_PASS033	Lot 64 Elliot Rd, Keysbrook	6mbgl
KL_PASS034	Lot 64 Elliot Rd, Keysbrook	3mbgl

SOIL BORE ID	LOCATION	MAX DEPTH (mBGL)
KL_PASS035	Lot 64 Elliot Rd, Keysbrook	6mbgl
KL_PASS036	Lot 64 Elliot Rd, Keysbrook	3mbgl
KL_PASS037	Lot 64 Elliot Rd, Keysbrook	6mbgl
KL_PASS038	Lot 64 Elliot Rd, Keysbrook	2.6mbgl
KL_PASS042	Lot 508 Elliot Rd, Keysbrook	6mbgl
KL_PASS043	Lot 508 Elliot Rd, Keysbrook	6mbgl
KL_PASS044	Lot 508 Elliot Rd, Keysbrook	6mbgl
KL_PASS045	Lot 201 Elliot Rd, Keysbrook	6mbgl
KL_PASS046	Lot 201 Elliot Rd, Keysbrook	6mbgl
KL_PASS047	Lot 201 Elliot Rd, Keysbrook	6mbgl

The soil profiles were logged prior to collection of soil samples for field screening and laboratory analysis. Soil samples were placed in individually labelled ziplock bags, excluding air, prior to being either subject to field pH measurements by ABEC on the day of collection, and/or stored and maintained chilled prior to being sent to Eurofins ARL Laboratory in Welshpool for analysis using industry standard Chain of Custody (CoC) protocols. Quality control sampling comprised the collection of duplicate samples at the rate of 1 per 20 primary samples.

4.2. SOIL SAMPLE SCREENING AND ANALYSIS

Soil samples were generally recovered at 0.5m intervals from all locations, with a total of 310 samples (including duplicates) collected from the 31 soil bores. Field pH (pH_F) was measured from 199 samples in the field (on the day of sample collection), while pH_{FOX} was subsequently completed by the analytical laboratory. Following completion of pH_F and pH_{FOX} results, 130 samples (including duplicates) were selected for laboratory analysis. Analysis of Net Acidity (NA) was conducted using the Chromium Reducible Sulfur (CRS) suite method, selected as being most appropriate for the Site and less prone to interference from organic acids or sulfate minerals such as gypsum (Sullivan et al., 1999; as cited in DER, 2015a).

4.2.1. FIELD TEST ASSESSMENT CRITERIA

Field screening of soil samples for ASS indicators is undertaken to provide information about existing soil acidity and assist in determining appropriate soil intervals for qualitative analysis. Field pH (pH_F) and oxidised field pH tests (pH_{FOX}) are conducted to collect data such as pH, reaction rates, and change (Δ) in pH_F and pH_{FOX}, which are used to asses soil conditions and select samples for analysis.

The following field test criteria (DER, 2015b) were used to identify potential ASS horizons at the Site:

- A $pH_F \leq 4$;
- A $pH_{FOX} \leq 3$;
- A change in pH value (ΔpH) of at least 3 units.

In addition, the reaction rate with hydrogen peroxide in the pH_{FOX} test is also a useful indicator for identifying potential ASS. The reactions rates are provided as follows:

- 1 = Slight Reaction
- 2 = Moderate Reaction
- 3 = Vigorous Reaction
- 4 = Very Vigorous Reaction

4.2.2. NET ACIDITY (NA) ASSESSMENT CRITERIA

The NA is calculated as the sum of actual acidity and potential acidity, as well as retained acidity (for low pH samples) and is used to characterise the current state and acid producing potential of the soils. Acid neutralising capacity is not included in the net acidity calculations, consistent with DER (2015a) guidance.

Actual acidity is available for release into the environment in the short term and is represented by Titratable Actual Acidity (TAA) values, using the CRS method, while potential acidity is represented by S_{CR} values. The pH_{KCl} of a sample is used to determine the net acidity equation, which varies for samples with alkaline pH (net acidity = potential acidity), near neutral pH (net acidity = actual + potential acidity), and acid pH (net acidity = actual + potential + retained acidity).

The NA results for the investigation are compared to the DER (2015a) Action Criterion of 0.03%S, based on the sandy clays and quartz rich sands identified at the Site and for non-linear projects where greater than 1,000m^3 of soil will be disturbed. If any sample exceeds the Action Criterion (0.03%S), the existing management measures documented in the ASSMP should be implemented for the proposed amendment.

5. RESULTS

The data obtained from the soil logs, field testing and laboratory analysis (CRS) for all soil bores is provided in Appendix 1. Chain of Custody (COC) documentation and laboratory certificates are provided in Appendix 2.

5.1. FIELD OBSERVATIONS

The following field observations were recorded during the field investigation:

- Groundwater was generally encountered between 0mbgl to 3.2mbgl;
- Mild sulfuric odours were noted at KL_PASS014 between 6.5mbgl and 8.5mbgl, and KL_PASS042 at 6mbgl;
- Soil profiles predominantly varying shades of browns, greys and cream fine to medium grained well sorted sands in the upper horizons, followed by red, grey, and orange mottled hard laterite rich well to poorly sorted gravelly sandy clays and clayey sands in the lower horizons.

5.2. FIELD TEST RESULTS

A total of 310 soil samples (including 11 duplicates) were recovered from 0.5m intervals from soil bores KL_PASS014 to KL_PASS038 and KL_PASS042 to KL_PASS047.

The field results are summarised as follows:

- Unoxidised field pH (pH_F) values range between 4.2 to 9.2;
- Oxidation pH (pH_{FOX}) values range between 2.3 to 7.6, with an average of 4.9;
- The change in pH (ΔpH) ranges between -0.6 to 4.8, with an average of 1.3; and
- The reaction rate was identified as ranging 1 (slight) to 4 (very vigorous) for samples, with the majority of samples having a reaction rate of 2 (moderate).

Comparison of the results to the assessment criteria indicates the following:

- No samples reported unoxidised field pH (pH_F) values ≤ 4;
- Oxidised pH (pH_{FOX}) values ≤ 3 were identified in 9 samples, at depths ranging from 3.5mBGL to 7mBGL (2.9% of all samples);
- ΔpH (pH_F minus pH_{FOX}) of >3pH units was reported in 16 samples (5.1% of all samples)
- 13 samples (all below 1m) recorded a very vigorous (4) oxidation rate (4.2% of all samples)

5.3. NET ACIDITY RESULTS

A total of 130 samples (including three duplicate) were selected for NA analysis by CRS suite method using field results to generally target samples with positive field indicators of ASS, whilst also providing coverage of the soil profile, such as:

- pH_{FOX} ≤ 3; and/or
- ΔpH (pH_F minus pH_{FOX}) >3pH units; and /or
- Where very rigorous reaction was reported.

A summary table of results is shown in Appendix 2 with details of the outcome provided below:

- Five samples contain actual acidity (as s-TAA) above the 0.03% Action Criterion;
- Actual acidity (s-TAA) ranged from <0.003%S to 0.14%S (location KL_PASS024, at 3m depth);
- Five samples contain potential acidity (as S_{CR}) equal to or greater than the 0.03%S Action Criterion;
- Potential acidity (S_{CR}) ranged from <0.005%S to 0.048%S (location KL_PASS033, at 6m depth);
- Using the appropriate NA equation, NA values ranged from <0.005%S to 0.138%S.

Comparison of the CRS results to the assessment criteria indicates the following:

- 19 of the 130 samples analysed contained NA in excess of the 0.03%S Action Criterion (~14.6% of all samples);
- Samples exceeding the NA criterion were identified at the following locations at depths ranging from 2mbgl to 7mbgl, and soils logged generally as clayey sands and sandy clays:
    - KL_PASS015 at 7m;
    - KL_PASS047 at 5m;
    - KL_PASS020 between 3m and 4m;
    - KL_PASS022 at 2m;
    - KL_PASS025 at 3m;
    - KL_PASS026 at 2m;
    - KL_PASS027 at 4.5m;
    - KL_PASS028 between 4m and 6m;
    - KL_PASS031 between 2m and 3m;
    - KL_PASS033 between 4m and 6m;
    - KL_PASS035 at 3.5m.

Based on the calculated NA values, using the appropriate NA equation based the pH_{KCL} results, there are a total of 19 samples (14.6%) which exceed the NA Action Criterion, however all samples are generally below the base of mining and will not be disturbed.

5.4. LABORATORY ANALYSIS DATA QUALITY ASSESSMENT

Duplicate samples were collected and analysed to assess the precision and accuracy of the soil sampling and analysis methodologies. A summary of the results is that:

- Eleven duplicates were collected and analysed within the project area.
- Review of the RPD's shows that they generally fall between the range of 30-50% (AS 4482.1-2005, 2005).

As such, based on this date quality assessment, it is considered the sampling and analysis methods are acceptable.

5.5. DISCUSSION AND INTERPRETATION OF SOIL RESULTS

Soil bore logs with field and laboratory results show that the lithological profiles at the Site were well sampled and can be considered to have comprehensively characterised potential ASS bearing portions of the disturbance footprint and profile. Furthermore, the data quality assessment demonstrates that sampling and analysis methods provide acceptable precision and accuracy.

The soil profiles predominantly comprised varying shades of browns and grey fine to medium grained well sorted sands and clayey sands in the upper horizons, followed by grey/red/orange mottled hard clayey sands and sandy clays, and varying shades of brown and grey fine to medium grained hard sandy clays and sandy clays.

Field testing results indicated the presence of potential acidity in 9 of 310 samples, with 9 samples exceeding the pH_{FOX} field test criterion of $\leq$3. A total of 19 samples from 130 analysed for CRS contained net acidity above the 0.03% Action Criterion. All samples however are generally located below the base of the mine void and will not be directly disturbed by mining.

Results of the targeted ASS investigation for the Western Extension proposal area, are very similar to the results from previous ASS investigations conducted in 2005 and 2007 for the original Keysbrook Project and in 2021 for the Lot 56 amendment area, with only minor levels of actual acidity being detected within the soil profile. Mining methods for the proposed amendment will be the same as for the existing areas of the Sites, comprising dry mining in the shallow Bassendean formation to an average depth of ~1-2mbgl, with minor dewatering required during winter periods. Given the targeted ASS investigation for the proposed amendment area has identified similar low risk results to previous ASS investigation across the Site, it is considered appropriate that the existing ASSMP required under MS810 Condition 12 is continued to be applied for the Western Extension and is sufficient to manage any minor occurrences of acidity at the Site.

Currently material samples are collected weekly from the mine pit and tailings areas for analysis of acid generating risk. Data indicates no significant acid generating material has been encountered in mining to date. This is consistent with the low to moderate risk identified during all ASS investigations, orebody geology and the limited depth of mining, which is confined to the upper, weathered part of the sand profile.

6. CONCLUSION

The targeted ASS investigation for the Western Extension amendment area was completed to identify the presence or absence of ASS, and if present, characterise the nature and extent of ASS likely to be affected at the Site as a result of the Project works. Results identified only minor levels of actual acidity present within the soil profile, at depths below the base of the mine pits. The results are similar to the findings of all previous ASS investigations completed for the Project, which demonstrate that the Project area is low to moderate risk of ASS.

In order to manage minor occurrences of actual acidity that may be encountered during mining, it is recommended that KLPL implement the existing management and monitoring strategies for soil, dewatering effluent and groundwater, as detailed in the ASSMP (KLPL, 2015).

7. REFERENCES

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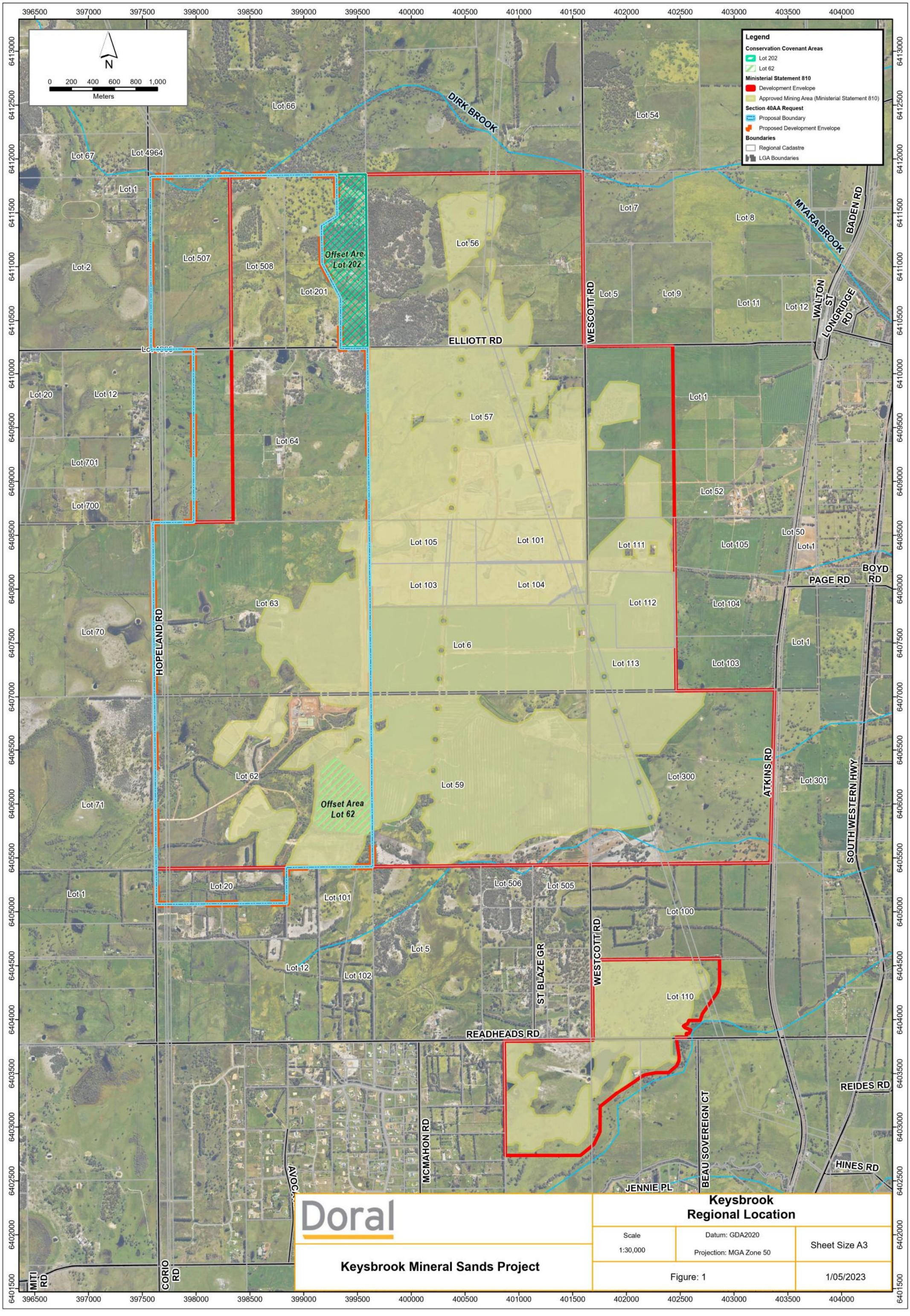
FIGURE 1: REGIONAL LOCATION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Legend
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Lot 62
Ministerial Statement 810
Development Envelope
Approved Mining Area (Ministerial Statement 810)
Section 40AA Request
Proposal Boundary
Proposed Development Envelope
Boundaries
Regional Cadastre
LGA Boundaries
DIRK BROOK
MYARA BROOK
BADEN RD
WESCOTT RD
ELLIOTT RD
WALTON ST
LONGRIDGE RD
HOPELAND RD
ATKINS RD
SOUTH WESTERN HWY
PAGE RD
BOYD RD
WESTCOTT RD
ST BLAZE GR
READHEADS RD
MCMAHON RD
BEAU SOVEREIGN CT
JENNIE PL
REIDES RD
HINES RD
MITI RD
CORIO RD
Offset Area Lot 202
Offset Area Lot 62
Lot 66
Lot 67
Lot 4964
Lot 1
Lot 2
Lot 507
Lot 508
Lot 201
Lot 56
Lot 54
Lot 7
Lot 8
Lot 5
Lot 9
Lot 11
Lot 12
Lot 20
Lot 701
Lot 700
Lot 64
Lot 57
Lot 52
Lot 105
Lot 101
Lot 111
Lot 50
Lot 103
Lot 104
Lot 112
Lot 63
Lot 70
Lot 6
Lot 113
Lot 62
Lot 59
Lot 300
Lot 301
Lot 71
Lot 506
Lot 505
Lot 100
Lot 102
Lot 110
Doral
Keysbrook Mineral Sands Project
Keysbrook
Regional Location
Scale
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Projection: MGA Zone 50
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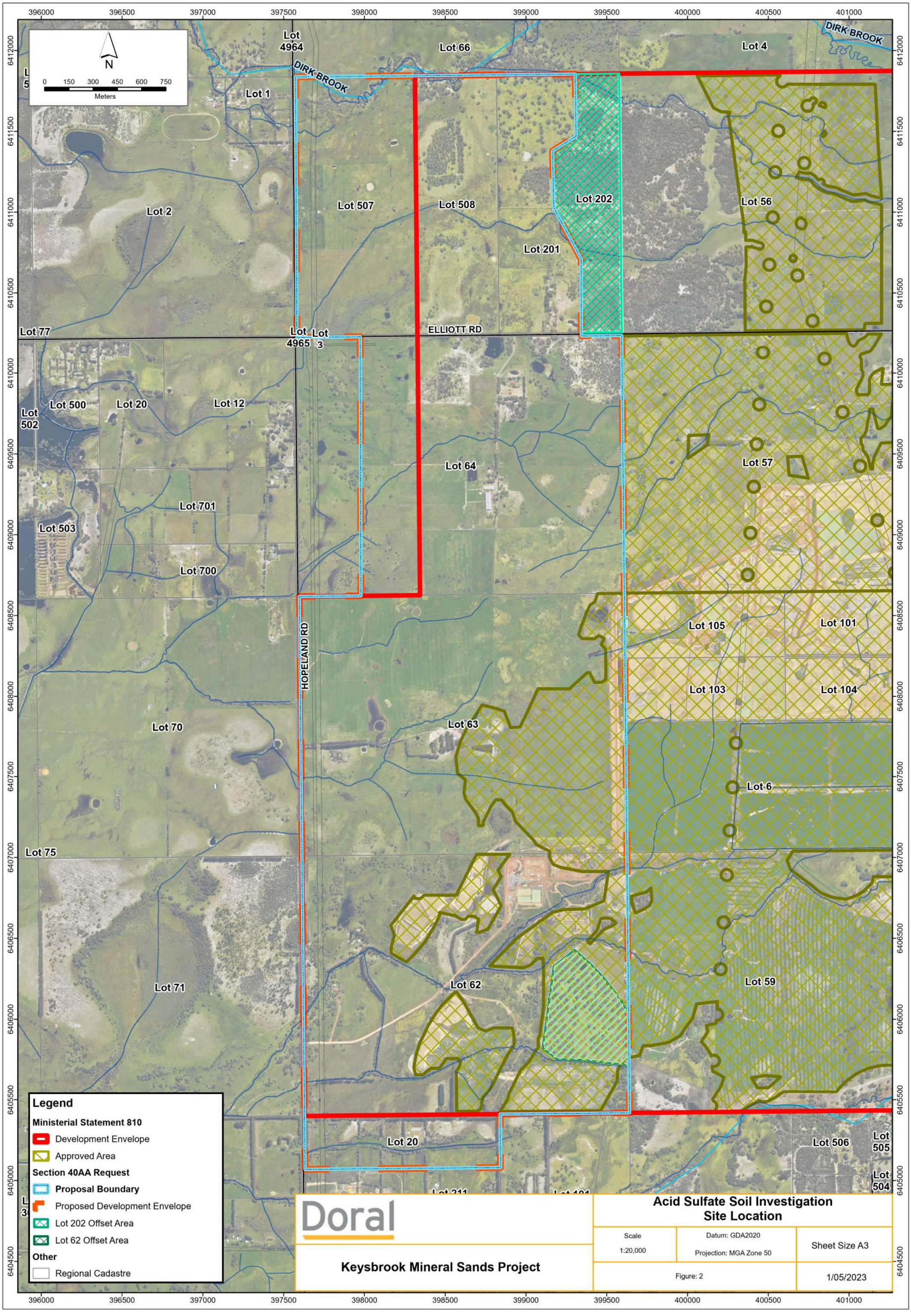
Figure: 1
1/05/2023

FIGURE 2: SITE LOCATION AND LAYOUT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Lot 508
Lot 202
Lot 201
Lot 56
Lot 77
Lot 4965
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Lot 500
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Lot 12
Lot 502
Lot 64
Lot 57
Lot 701
Lot 503
Lot 700
Lot 105
Lot 101
Lot 103
Lot 104
Lot 70
Lot 63
Lot 6
Lot 75
Lot 71
Lot 62
Lot 59
Lot 20
Lot 506
Lot 505
Lot 504
396000
396500
397000
397500
398000
398500
399000
399500
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400500
401000
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6411000
6410500
6410000
6409500
6409000
6408500
6408000
6407500
6407000
6406500
6406000
6405500
6405000
6404500
Legend
Ministerial Statement 810
Development Envelope
Approved Area
Section 40AA Request
Proposal Boundary
Proposed Development Envelope
Lot 202 Offset Area
Lot 62 Offset Area
Other
Regional Cadastre
Doral
Keysbrook Mineral Sands Project
Acid Sulfate Soil Investigation
Site Location
Scale
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Datum: GDA2020
Projection: MGA Zone 50
Sheet Size A3
Figure: 2
1/05/2023

FIGURE 3: SITE GEOLOGY

396500 397000 397500 398000 398500 399000 399500 400000 400500 401000

6411500 6411000 6410500 6410000 6409500 6409000 6408500 6408000 6407500 6407000 6406500 6406000 6405500 6405000 6404500

S8

ELLIOTT RD

Sp1

S10

Sc

Cs

Legend

Ministerial Statement 810

- Development Envelope
- Approved Area

Section 40AA Request

- Proposal Boundary
- Proposed Development Envelope

Geology

- Sandy Clays of Guildford Formation (Cs)
- Thin Bassendean Sand over Guildford Formation (S10)
- Bassendean Sand (S8)
- Clayey Sands of the Guildford Formation (Sc)
- Peaty Sands of Swamp Deposits (Sp1)

N

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Meters

Doral

Keysbrook Mineral Sands Project

Acid Sulfate Soil Investigation
Geology

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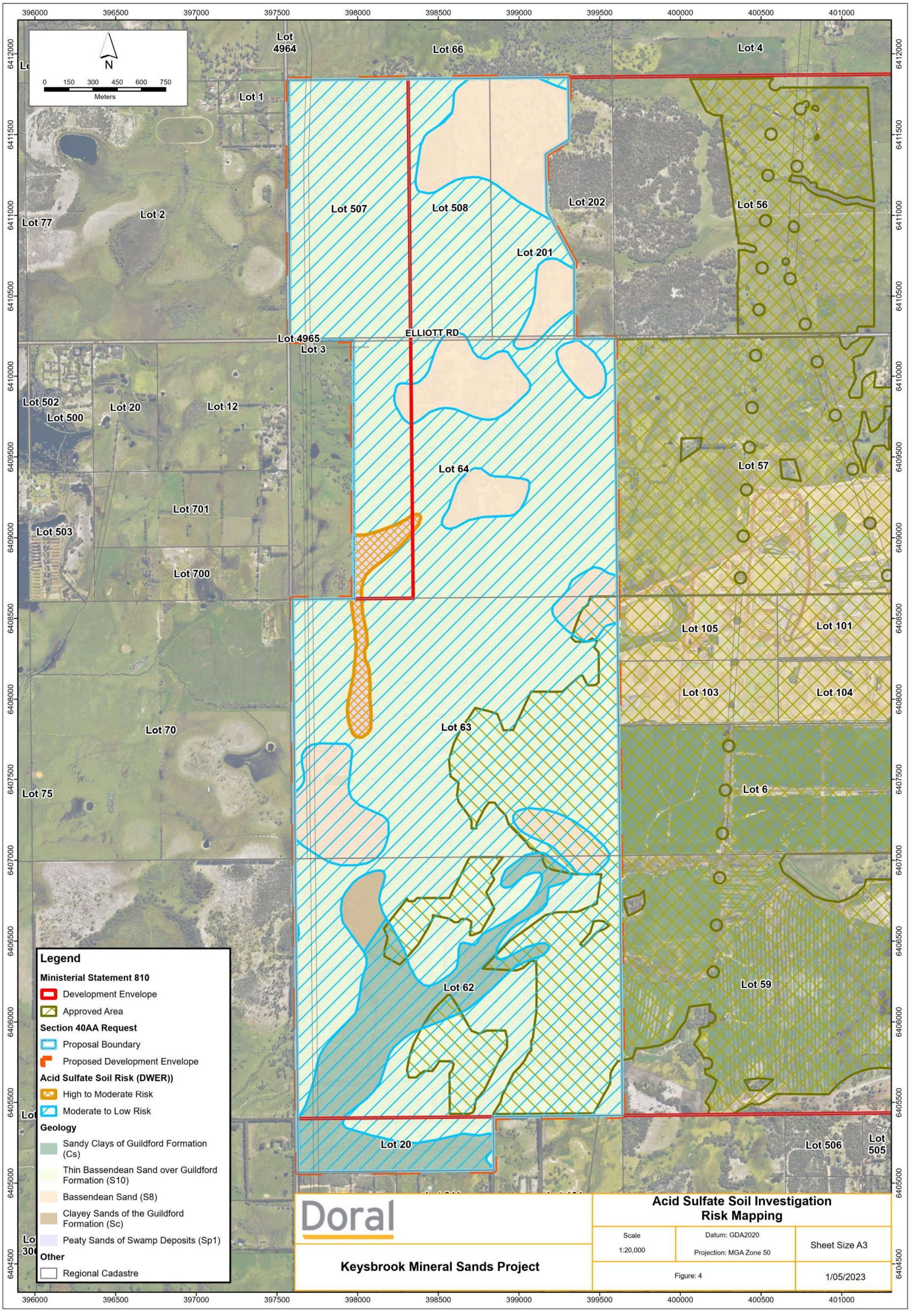
FIGURE 4: ASS RISK MAPPING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Lot 4
Lot 1
Lot 77
Lot 2
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Lot 508
Lot 202
Lot 56
Lot 201
Lot 4965
Lot 3
ELLIOTT RD
Lot 502
Lot 500
Lot 20
Lot 12
Lot 64
Lot 57
Lot 701
Lot 503
Lot 700
Lot 105
Lot 101
Lot 103
Lot 104
Lot 70
Lot 63
Lot 75
Lot 6
Lot 62
Lot 59
Lot 20
Lot 506
Lot 505
Legend
Ministerial Statement 810
Development Envelope
Approved Area
Section 40AA Request
Proposal Boundary
Proposed Development Envelope
Acid Sulfate Soil Risk (DWER))
High to Moderate Risk
Moderate to Low Risk
Geology
Sandy Clays of Guildford Formation (Cs)
Thin Bassendean Sand over Guildford Formation (S10)
Bassendean Sand (S8)
Clayey Sands of the Guildford Formation (Sc)
Peaty Sands of Swamp Deposits (Sp1)
Other
Regional Cadastre
Doral
Keysbrook Mineral Sands Project
Acid Sulfate Soil Investigation
Risk Mapping
Scale
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Datum: GDA2020
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1/05/2023
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6410500
6410000
6409500
6409000
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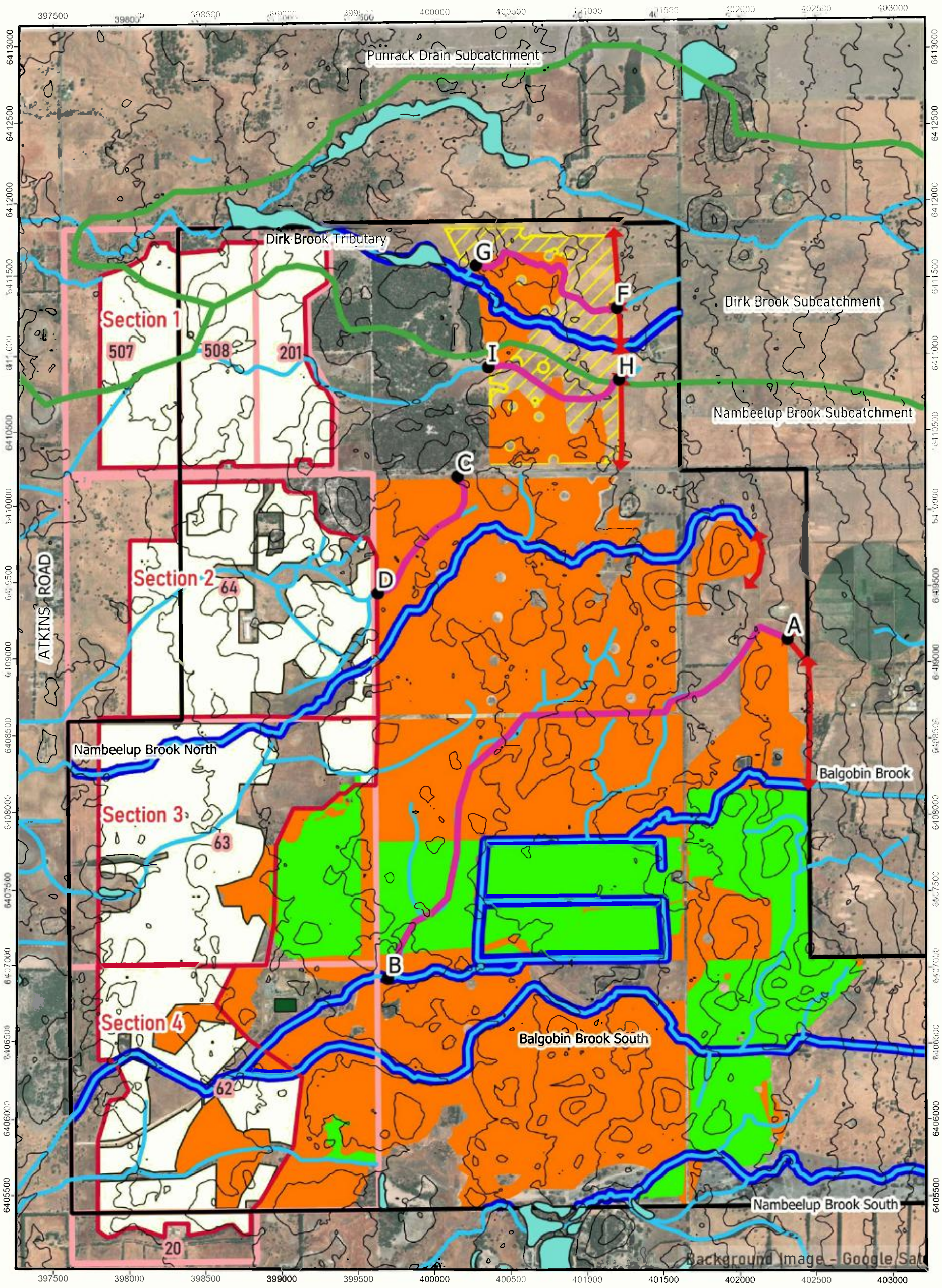
6405000
6404500

FIGURE 5: SURFACE WATER FEATURES



Legend

- Site Extent
- Approved Mining Area
- Rehabilitation Area
- Lot 56
- Proposed Western Extension Area
- Subcatchment Boundary (DWER)
- Conservation Category Wetlands
- Watercourse
- Protected Watercourse With Buffer
- Plant Water Ponds (Discharge Location)
- Flexible Diversion Around Disturbance Footprint
- Proposed Diversion Around Disturbance Footprint
- 2m Topographic Contours
- Lot 56 Amendment Area
- Western extension Lots
- Section Outlines

N

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Meters

Doral

Keysbrook Mineral Sands Project

Watercourses

Scale	Datum: GDA94	Sheet Size A3
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Figure: 7-4		18/08/2023

FIGURE 6: WETLANDS

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Dirk Brook

CCW 14760
CCW 14886
CCW 7000
CCW 14850
CCW 14772
CCW 14887
CCW 14798
CCW 14825
CCW 14763
CCW 14807
CCW 14795
CCW 14803
CCW 14802
CCW 14870
CCW 14831
CCW 14730
CCW 14804
CCW 14806
CCW 14805
Balgobin Brook
CCW 14729
CCW 14465
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CCW 7567
CCW 7604
CCW 7568
CCW 7605
CCW 7606

N

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Meters

Legend

Ministerial Statement 810
- Development Envelope
- Approved Area

Section 40AA Request
- Proposal Boundary
- Proposed Development Envelope

Hydrographic Feature
- Watercourse
- Watercourse Buffer

Geomorphic Wetlands Swan Coastal Plain (DBCA)
- Conservation Category Wetland

Doral

Keysbrook Mineral Sands Project

Acid Sulfate Soil Investigation
Wetland and Surface Water Features

Scale	Datum: GDA2020	Sheet Size A3
1:25,000	Projection: MGA Zone 50	
Figure: 6		1/05/2023

396000 397500 399000 400500

FIGURE 7: ASS INVESTIGATION LOCATIONS

N

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Meters

Legend

Ministerial Statement 810
- Development Envelope
- Approved Area

Section 40AA Request
- Proposal Boundary
- Proposed Development Envelope

ASS Investigation Locations
- Investigation Locations
- No Access

Boundaries
- Regional Cadastre

Lot 67
Lot 4964
DIRK BROOK
Lot 1
Lot 2
Lot 507
Lot 508
Lot 201
Lot 56
ELLIOTT RD
Lot 4965
Lot 20
Lot 12
Lot 57
Lot 64
Lot 701
Lot 700
HOPELAND RD
Lot 105
Lot 101
Lot 103
Lot 104
Lot 63
Lot 70
Lot 6
Lot 62
Lot 59
Lot 71
Lot 1
Lot 20
Lot 101
Lot 506

396000 396500 397000 397500 398000 398500 399000 399500 400000 400500 401000

6412000 6411500 6411000 6410500 6410000 6409500 6409000 6408500 6408000 6407500 6407000 6406500 6406000 6405500 6405000 6404500

Doral

Keysbrook Mineral Sands Project

Acid Sulfate Investigation Areas

Scale	Datum: GDA2020	Sheet Size A3
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Figure: 7		14/06/2022

APPENDIX 1: BORE LOGS, FIELD TESTING & SUMMARY OF RESULTS TABLE

Sample Location	Sample Interval (mbgl)	Soil Description							Field Results					Chromium Suite					
									pHf (Field)	pHf (Lab)	pH_{FOX}	pH_f - pH_{fox}	Reaction Rate	pH KCl	s-TAA	S_{CR}	s-S_{NAS}	NET ACIDITY	NA EQUATION
								Units							%S	%S	%S	%S	
		Colour	Grainsize	Sorting	Rounding/ Angularity	Soil Type	Comments	LOR	0.01	0.01	0.01		0	0.1	0.003	0.005	0.02		
								Criteria		≤4	≤3	≥3	0-4	-	0.03	0.03		0.03	
KL_PASS014	0.5	Medium Brown	Fine to medium	Well	Slightly rounded	Sand			4.52	5.5	4.3	1.2	1	4.9	0.008	0.005	-	0.013	S_{CR} + s-TAA
KL_PASS014	1	Light grey	Fine to medium	Well	Slightly rounded	Sand			4.55	5.6	4.4	1.2	1	-	-	-	-	-	-
KL_PASS014	1.5	Light grey	Fine to medium	Well	Slightly rounded	Sand	Damp		4.5	4.9	4.5	0.4	1	-	-	-	-	-	-
KL_PASS014	2	Light grey	Fine to medium	Well	Slightly rounded	Sand			5.32	4.8	4.6	0.2	1	5	0.007	0.005	-	0.012	S_{CR} + s-TAA
KL_PASS014	2.5	Light brown	Fine to medium	Well	Slightly rounded	Sand			5.3	5.9	5.2	0.7	1	-	-	-	-	-	-
KL_PASS014	3	Red brown	Coarse	Poor	Angular	Sandy Gravel	2-3cm laterite rocks		5.73	5.4	5.1	0.3	2	-	-	-	-	-	-
KL_PASS014	3.5	Light grey	Fine to medium	Well	Slightly rounded	Clay with some sand	with mottled orange		6.38	6.2	4.4	1.8	2	5	0.01	0.005	-	0.015	S_{CR} + s-TAA
KL_PASS014	4	Light grey	Fine to medium	Well	Slightly rounded	Clay with some sand	with mottled orange. Hard		6.46	6.1	5.3	0.8	2	-	-	-	-	-	-
KL_PASS014	4.5	Light grey	Fine to medium	Well	Slightly rounded	Clay with some sand	with mottled orange. Hard		6.38	6.7	5.9	0.8	2	-	-	-	-	-	-
KL_PASS014	5	Light grey	Fine to medium	Well	Slightly rounded	Sand with some clay	Saturated		6.5	6.2	5.5	0.7	2	5	0.01	0.005	-	0.015	S_{CR} + s-TAA
KL_PASS014	5.5	Light grey	Fine to medium	Well	Slightly rounded	Sand	Some organic matter		6.31	6.5	5.2	1.3	2	-	-	-	-	-	-
KL_PASS014	6	Light grey	Medium to coarse	Well	Slightly rounded	Sand	Some organic matter		6.08	6.5	5.1	1.4	2	-	-	-	-	-	-
KL_PASS014	6.5	Light grey	Medium to coarse	Well	Slightly rounded	Sand with some clay	Saturated. Mild sulfidic odour		6.27	6.6	5.1	1.5	2	5	0.012	0.005	-	0.017	S_{CR} + s-TAA
KL_PASS014	7	Grey brown	Medium to coarse	Well	Well rounded	Sand	Saturated. Mild sulfidic odour		6.17	6.7	5.1	1.6	2	-	-	-	-	-	-
KL_PASS014	7.5	Grey brown	Medium to coarse	Well	Well rounded	Sand with some clay	Saturated. Mild sulfidic odour		6.97	6.9	4.2	2.7	2	-	-	-	-	-	-
KL_PASS014	8	Grey brown	Medium to coarse	Well	Well rounded	Sand with some clay	Saturated. Mild sulfidic odour		6.22	6.7	4.6	2.1	2	5.1	0.01	0.005	-	0.015	S_{CR} + s-TAA
KL_PASS014	8.5	Grey brown	Medium to coarse	Well	Well rounded	Sand with some clay	Saturated. Mild sulfidic odour		6.3	6.3	5.1	1.2	2	-	-	-	-	-	-
KL_PASS015	0.5	Light orange brown	Fine to medium	Well	Well rounded	Sand			5.85	5.7	3.8	1.9	2	-	-	-	-	-	-
KL_PASS015	1	Light orange	Fine to medium	Well	Well rounded	Sand			5.61	5.7	4.4	1.3	2	5	0.014	0.005	-	0.019	S_{CR} + s-TAA
KL_PASS015	1.5	Orange yellow	Fine to medium	Well	Well rounded	Sand			5.53	5.9	4.9	1	2	-	-	-	-	-	-
KL_PASS015	2	Orange yellow	Fine to medium	Well	Well rounded	Sand			5.65	6	5	1	2	-	-	-	-	-	-
KL_PASS015	2.5	Orange yellow	Fine to medium	Well	Well rounded	Sand			5.71	6.1	5.1	1	2	5.4	0.01	0.005	-	0.015	S_{CR} + s-TAA
KL_PASS015	3	Orange yellow	Fine to medium	Well	Well rounded	Sand	Traces of laterite gravel		5.99	6.3	5.2	1.1	2	-	-	-	-	-	-
KL_PASS015	3.5	Light brown	Fine to medium	Well	Well rounded	Sand	Traces of laterite gravel		5.85	6.1	5.1	1	2	-	-	-	-	-	-
KL_PASS015	4	Red/grey mottled	Medium	Poor	Slightly Angular	Clayey sandy gravel	2-3cm laterite rocks		5.95	5.9	4.9	1	2	5.2	0.007	0.005	-	0.012	S_{CR} + s-TAA
KL_PASS015	4.5	Light brown	Fine to medium	Well	Slightly Angular	Sand			5.93	6	5	1	2	-	-	-	-	-	-
KL_PASS015	5	Light grey	Fine to medium	Well	Slightly Angular	Sand with some clay			5.83	5.7	5.1	0.6	2	-	-	-	-	-	-
KL_PASS015	5.5	Light grey	Fine to medium	Well	Slightly Angular	Sand			5.92	5.9	5.2	0.7	2	5.1	0.012	0.005	-	0.017	S_{CR} + s-TAA
KL_PASS015	6	Light grey	Fine to medium	Well	Slightly Angular	Sand			5.88	6	5.2	0.8	2	-	-	-	-	-	-
KL_PASS015	6.5	Light grey	Fine to medium	Well	Slightly Angular	Sand			6.04	6.1	5.3	0.8	2	-	-	-	-	-	-
KL_PASS015	7	Light grey	Fine to medium	Well	Slightly Angular	Clayey Sand			6.35	6.1	3	3.1	2	5.1	0.014	0.019	-	0.033	S_{CR} + s-TAA
KL_PASS015	7.5	Light grey	Fine to medium	Well	Slightly Angular	Sand with some clay			5.97	6.2	5.4	0.8	2	-	-	-	-	-	-
KL_PASS015	8	Light grey	Fine to medium	Well	Slightly Angular	Sand			6.11	6.4	5.4	1	2	-	-	-	-	-	-
KL_PASS015	8.5	Light grey	Fine to medium	Well	Slightly Angular	Sand			6.1	5.7	5	0.7	2	5.2	0.007	0.005	-	0.012	S_{CR} + s-TAA
KL_PASS016	0.5	Light grey	Fine to medium	Well	Slightly rounded	Sand			5.94	5.7	4.2	1.5	1	5	0.011	0.005	-	0.016	S_{CR} + s-TAA
KL_PASS016	1	Light grey	Fine to medium	Well	Slightly rounded	Sand			6.18	6.1	5.2	0.9	2	-	-	-	-	-	-
KL_PASS016	1.5	Light orange	Fine to medium	Well	Well rounded	Sand			6.2	6.2	5.2	1	2	-	-	-	-	-	-
KL_PASS016	2	Light brown	Fine to medium	Well	Well rounded	Sand			5.86	6	5.1	0.9	2	5.2	0.016	0.005	-	0.021	S_{CR} + s-TAA
KL_PASS016	2.5	Cream/orange mottled	Fine to medium	Moderate	Slightly rounded	Clay	Some laterite gravel		5.25	5.4	4.8	0.6	2	-	-	-	-	-	-
KL_PASS016	3	Cream/orange mottled	Fine to medium	Moderate	Slightly rounded	Clay	Some laterite gravel		5.3	4.7	4.5	0.2	2	-	-	-	-	-	-
KL_PASS016	3.5	Cream/orange mottled	Fine to medium	Moderate	Slightly rounded	Sandy Clay	Some laterite gravel		5.14	4.8	4.5	0.3	2	5	0.024	0.005	-	0.029	S_{CR} + s-TAA
KL_PASS016	4	Cream	Fine to medium	Well	Well rounded	Sand	Some 2-3cm red stained laterite rocks		5.44	5.5	4.5	1	2	-	-	-	-	-	-
KL_PASS016	4.5	Cream	Fine to medium	Well	Well rounded	Sand with some clay			5.82	5.1	4.3	0.8	2	-	-	-	-	-	-
KL_PASS016	5	Light grey	Fine to medium	Well	Well rounded	Sand			6.14	5.8	5.2	0.6	2	5.1	0.013	0.005	-	0.018	S_{CR} + s-TAA
KL_PASS016	5.5	Light grey	Fine to medium	Well	Well rounded	Clayey Sand			6.06	6.1	5.3	0.8	2	-	-	-	-	-	-
KL_PASS016	6	Light grey	Fine to medium	Well	Well rounded	Sand with some clay			6.09	6.1	5.4	0.7	2	-	-	-	-	-	-
KL_PASS016	6.5	Light grey	Fine to medium	Well	Well rounded	Sand	Saturated		5.76	6	5.3	0.7	2	5.3	0.007	0.005	-	0.012	S_{CR} + s-TAA
KL_PASS016	7	Light grey	Fine to medium	Well	Well rounded	Sand	Saturated		6.35	5.7	5.1	0.6	2	-	-	-	-	-	-
KL_PASS016	7.5	Light grey	Fine to medium	Well	Well rounded	Sand	Saturated		5.79	5.7	5.2	0.5	2	-	-	-	-	-	-
KL_PASS016	8	Light grey	Fine to medium	Well	Well rounded	Sand	Saturated		6.49	5.8	5.3	0.5	2	5.2	0.007	0.005	-	0.012	S_{CR} + s-TAA
KL_PASS045	0.5	Yellow orange	Fine to medium	Well	Slightly rounded	Sand			6.81	6	5.1	0.9	2	-	-	-	-	-	-
KL_PASS045	1	Yellow orange	Fine to medium	Well	Slightly rounded	Sand			6.33	6.5	5.4	1.1	2	5.2	0.01	0.005	-	0.015	S_{CR} + s-TAA
KL_PASS045	1.5	Yellow orange	Fine to medium	Well	Slightly rounded	Sand	Damp		5.43	5.2	4.6	0.6	2	-	-	-	-	-	-
KL_PASS045	2	Light brown	Fine to medium	Well	Slightly rounded	Sand	Damp		5.59	6.9	5.7	1.2	2	-	-	-	-	-	-
KL_PASS045	2.5	Light brown	Fine to medium	Well	Slightly rounded	Sand	Damp		6.36	6.6	5.4	1.2	2	5.1	0.007	0.005	-	0.012	S_{CR} + s-TAA
KL_PASS045	3	Light brown	Fine to medium	Well	Slightly rounded	Sand	Damp		NA	6.6	5.6	1	2	-	-	-	-	-	-
KL_PASS045	3.5	Red brown	Fine to coarse	Moderate	Slightly Angular	Gravelly sand	Some laterite gravel. Saturated		NA	6.2	5.3	0.9	2	-	-	-	-	-	-
KL_PASS045	4	Red brown	Fine to coarse	Poor	Slightly Angular	Sandy gravel			NA	6.3	5.4	0.9	2	5.7	0.01	0.005	-	0.005	S_{CR}
KL_PASS045	4.5	Light grey	Fine to medium	Well	Slightly rounded	Sand	Some mottled orange		NA	6	5.1	0.9	2	-	-	-	-	-	-
KL_PASS045	5	Light orange/grey	Fine to coarse	Well	Slightly rounded	Sand	Mottled. Saturated		NA	6.5	5.7	0.8	2	-	-	-	-	-	-
KL_PASS045	5.5	Light orange/grey	Fine to coarse	Well	Slightly rounded	Sand	Mottled. Saturated		NA	6.4	5.7	0.7	1	5.3	0.007	0.005	-	0.012	S_{CR} + s-TAA
KL_PASS045	6	Light grey	Fine to coarse	Well	Slightly rounded	Sand	Mottled orange. Saturated		NA	6.5	5.8	0.7	2	-	-	-	-	-	-

Sample Location	Sample Interval (mbgl)	Soil Description							Field Results					Chromium Suite					
									pHf (Field)	pHf (Lab)	pH_{FOX}	pH_f - pH_{fox}	Reaction Rate	pH KCl	s-TAA	S_{CR}	s-S_{NAS}	NET ACIDITY	NA EQUATION
								Units							%S	%S	%S	%S	
		Colour	Grainsize	Sorting	Rounding/ Angularity	Soil Type	Comments	LOR	0.01	0.01	0.01		0	0.1	0.003	0.005	0.02		
								Criteria		≤4	≤3	≥3	0-4	-	0.03	0.03		0.03	
KL_PASS046	0.5	Light grey	Fine to medium	Well	Well rounded	Sand			6.17	6.7	3.9	2.8	2	-	-	-	-	-	-
KL_PASS046	1	Light grey	Fine to medium	Well	Well rounded	Sand			6.34	6.1	3.9	2.2	2	5	0.009	0.005	-	0.014	S_{CR} + s-TAA
KL_PASS046	1.5	Red brown	Fine to medium	Well	Well rounded	Sand			NA	5.9	4.4	1.5	2	-	-	-	-	-	-
KL_PASS046	2	Light brown	Fine to medium	Well	Well rounded	Sand			NA	6.5	4.9	1.6	2	-	-	-	-	-	-
KL_PASS046	2.5	Grey/brown/red	Fine to coarse	Poor	Slightly Angular	Clayey gravelly sand	Mottled. Some organic matter		NA	6.5	3.3	3.2	2	5.2	0.013	0.009	-	0.022	S_{CR} + s-TAA
KL_PASS046	3	Red	Fine to coarse	Poor	Slightly Angular	Clayey sandy gravel	Laterite gravel. Mottled		NA	6	5.2	0.8	2	-	-	-	-	-	-
KL_PASS046	3.5	Light Grey	Fine to medium	Well	Slightly rounded	Clayey sand	Some laterite gravel		NA	5.9	4.8	1.1	2	-	-	-	-	-	-
KL_PASS046	4	Light Grey	Fine to medium	Well	Slightly rounded	Clayey sand			NA	6.3	5.7	0.6	2	5.1	0.014	0.005	-	0.019	S_{CR} + s-TAA
KL_PASS046	4.5	Light Grey	Fine to medium	Well	Slightly rounded	Clayey sand			NA	6.2	5.7	0.5	2	-	-	-	-	-	-
KL_PASS046	5	Light Grey	Fine to medium	Well	Slightly rounded	Clayey sand			NA	6.4	5.7	0.7	2	-	-	-	-	-	-
KL_PASS046	5.5	Light Grey	Fine to medium	Well	Slightly rounded	Sand with some clay			NA	6.5	6	0.5	2	5.1	0.013	0.005	-	0.018	S_{CR} + s-TAA
KL_PASS046	6	Light Grey	Fine to medium	Well	Slightly rounded	Sand with some clay			NA	6.5	6.3	0.2	2	-	-	-	-	-	-
KL_PASS047	0.5	Yellow orange	Fine to medium	Well	Well rounded	Sand			6.76	6.1	5.3	0.8	2	5.2	0.013	0.005	-	0.018	S_{CR} + s-TAA
KL_PASS047	1	Yellow orange	Fine to medium	Well	Well rounded	Sand			6.87	6.6	5.7	0.9	2	-	-	-	-	-	-
KL_PASS047	1.5	Yellow orange	Fine to medium	Well	Well rounded	Sand			6.57	6.4	5.4	1	2	-	-	-	-	-	-
KL_PASS047	2	Yellow orange	Fine to medium	Well	Well rounded	Sand			6.12	6.2	5.3	0.9	2	5.4	0.008	0.005	-	0.013	S_{CR} + s-TAA
KL_PASS047	2.5	Yellow orange	Fine to medium	Well	Well rounded	Sand			5.77	5.8	5.1	0.7	2	-	-	-	-	-	-
KL_PASS047	3	Light yellow orange	Fine to medium	Well	Well rounded	Sand with some clay	Traces of laterite gravel		5.98	6	5.2	0.8	2	-	-	-	-	-	-
KL_PASS047	3.5	Light grey	Fine to medium	Moderate	Slightly rounded	Clayey gravelly sand	Mottled orange		6.25	5.9	5.1	0.8	2	5.9	0.01	0.005	-	0.005	S_{CR}
KL_PASS047	4	Light grey	Fine to medium	Moderate	Slightly rounded	Clayey gravelly sand	Mottled orange		6.14	5.2	4.3	0.9	2	-	-	-	-	-	-
KL_PASS047	4.5	Light grey	Fine to medium	Moderate	Slightly rounded	Clayey sand	Traces of laterite gravel		6.18	4.8	3.5	1.3	2	-	-	-	-	-	-
KL_PASS047	5	Orange/red/grey	Fine to medium	Poor	Slightly Angular	Gravelly sandy clay	Mottled. Hard		6.1	4.8	3.9	0.9	2	4.7	0.045	0.005	-	0.050	S_{CR} + s-TAA
KL_PASS047	5.5	Orange/red/grey	Fine to medium	Poor	Slightly Angular	Gravelly sandy clay	Mottled. Hard		6.27	5.1	4.3	0.8	2	-	-	-	-	-	-
KL_PASS047	6	Orange/red/grey	Fine to medium	Poor	Slightly Angular	Gravelly sandy clay	Mottled. Hard		5.97	5.2	4.2	1	2	-	-	-	-	-	-
KL_PASS042	0.5	Light brown	Fine to medium	Well	Slightly Rounded	Sand			5.99	5.3	3.6	1.7	1	5	0.012	0.005	-	0.017	S_{CR} + s-TAA
KL_PASS042	1	Light yellow brown	Fine to medium	Well	Slightly Rounded	Sand	Wet		5.03	5	4.1	0.9	2	-	-	-	-	-	-
KL_PASS042	1.5	Light yellow	Fine to medium	Well	Slightly Rounded	Sand with some clay	Saturated		4.9	5.2	4.5	0.7	2	-	-	-	-	-	-
KL_PASS042	2	Light yellow	Fine to medium	Well	Slightly Rounded	Sand with some clay	Traces of laterite		5.92	6.1	5.3	0.8	2	5.4	0.006	0.005	-	0.011	S_{CR} + s-TAA
KL_PASS042	2.5	Light grey	Fine to medium	Well	Well rounded	Sand	Some organic matter		6.23	5.5	3.1	2.4	2	-	-	-	-	-	-
KL_PASS042	3	Light grey	Fine to medium	Well	Well rounded	Sand	Some organic matter		6.62	6.3	3.3	3	2	-	-	-	-	-	-
KL_PASS042	3.5	Light grey	Fine to medium	Well	Slightly Rounded	Clayey Sand	Hard		6.59	7.4	6.3	1.1	1	5.3	0.013	0.005	-	0.018	S_{CR} + s-TAA
KL_PASS042	4	Light grey	Fine to medium	Well	Slightly Rounded	Clayey Sand	Red mottled. Hard		6.64	7.1	7	0.1	2	-	-	-	-	-	-
KL_PASS042	4.5	Light grey	Fine to medium	Well	Slightly Rounded	Clayey Sand	Hard		6.77	6.8	6.1	0.7	2	-	-	-	-	-	-
KL_PASS042	5	Light grey	Fine to medium	Well	Slightly Rounded	Clayey Sand	Hard		6.78	6.5	5.8	0.7	2	5.2	0.014	0.005	-	0.019	S_{CR} + s-TAA
KL_PASS042	5.5	Light grey	Fine to medium	Well	Slightly Rounded	Clayey Sand	Hard		6.48	6.5	5.6	0.9	2	-	-	-	-	-	-
KL_PASS042	6	Light grey	Fine to medium	Well	Slightly Rounded	Clayey Sand	Some organic matter. Mild sulfidic odour		6.67	6.5	5.6	0.9	2	-	-	-	-	-	-
KL_PASS043	0.5	Medium brown	Fine to medium	Well	Slightly Rounded	Sand			5.49	5.8	4.5	1.3	2	-	-	-	-	-	-
KL_PASS043	1	Cream	Fine to medium	Well	Slightly Rounded	Sand with some clay	Wet		5.3	5.8	4.9	0.9	2	5.2	0.011	0.005	-	0.016	S_{CR} + s-TAA
KL_PASS043	1.5	Cream	Fine to medium	Well	Slightly Rounded	Sand with some clay	Wet		5.49	5.8	4.9	0.9	2	-	-	-	-	-	-
KL_PASS043	2	Cream	Fine to medium	Well	Slightly Rounded	Sand with some clay	Wet. Traces of laterite		5.87	5.9	5.1	0.8	2	-	-	-	-	-	-
KL_PASS043	2.5	Cream	Fine to medium	Well	Slightly Rounded	Sand with some clay	Wet. Traces of laterite		6.16	6.2	5.2	1	2	5.2	0.014	0.005	-	0.019	S_{CR} + s-TAA
KL_PASS043	3	Cream	Fine to medium	Well	Slightly Rounded	Sand with some clay	Wet. Traces of laterite		6.27	5.8	3.2	2.6	4	-	-	-	-	-	-
KL_PASS043	3.5	Pink brown	Fine to medium	Poor	Slightly angular	Clayey sandy gravel	Mottled. Wet. Laterite gravel		6.26	5.5	3.7	1.8	2	-	-	-	-	-	-
KL_PASS043	4	Grey/brown mottled	Fine to medium	Moderate	Slightly Rounded	Clayey Sand	Some organic matter		6.31	5.6	3.9	1.7	2	5	0.023	0.005	-	0.028	S_{CR} + s-TAA
KL_PASS043	4.5	Grey/brown mottled	Fine to medium	Moderate	Slightly Rounded	Clayey Sand	Some organic matter		6.36	6.2	5.1	1.1	2	-	-	-	-	-	-
KL_PASS043	5	Light grey	Fine to medium	Well	Well rounded	Clayey Sand	Hard		6.71	6.4	5.7	0.7	2	-	-	-	-	-	-
KL_PASS043	5.5	Dark brown	Fine to medium	Well	Well rounded	Clayey Sand	Hard		6.3	6.7	6.1	0.6	2	5.2	0.013	0.005	-	0.018	S_{CR} + s-TAA
KL_PASS043	6	Dark brown	Fine to medium	Well	Well rounded	Clayey Sand	Hard		6.74	6.7	6	0.7	2	-	-	-	-	-	-
KL_PASS044	0.5	Light brown	Fine to medium	Well	Well rounded	Sand			NA	6	3.9	2.1	1	5.3	0.007	0.005	-	0.012	S_{CR} + s-TAA
KL_PASS044	1	Light yellow brown	Fine to medium	Well	Well rounded	Sand			NA	5.7	4.9	0.8	2	-	-	-	-	-	-
KL_PASS044	1.5	Light yellow brown	Fine to medium	Well	Well rounded	Sand with some clay	wet		NA	5.3	5.2	0.1	2	-	-	-	-	-	-
KL_PASS044	2	Light brown orange	Fine to medium	Poor	Slightly angular	Gravelly sandy clay	Mottled. Hard, plasticy		NA	5.8	5.2	0.6	2	5.5	0.018	0.005	-	0.005	S_{CR}
KL_PASS044	2.5	Light brown orange	Fine to medium	Poor	Slightly angular	Gravelly sandy clay	Mottled. Hard, plasticy		NA	5.6	5.2	0.4	2	-	-	-	-	-	-
KL_PASS044	3	Light brown orange	Fine to medium	Poor	Slightly angular	Gravelly sandy clay	Mottled. Hard, plasticy		NA	5.6	5.1	0.5	2	-	-	-	-	-	-
KL_PASS044	3.5	Light brown orange	Fine to medium	Poor	Slightly angular	Gravelly sandy clay	Mottled. Hard, plasticy		NA	5.4	4.7	0.7	2	5	0.023	0.005	-	0.028	S_{CR} + s-TAA
KL_PASS044	4	Light brown orange	Fine to medium	Poor	Slightly angular	Gravelly sandy clay	Mottled. Hard, plasticy		NA	6.1	4.2	1.9	2	-	-	-	-	-	-
KL_PASS044	4.5	Light brown	Fine to medium	Well	Slightly Rounded	Clayey sand	Some organic matter		NA	5.8	4.8	1	2	-	-	-	-	-	-
KL_PASS044	5	Light brown	Fine to medium	Well	Slightly Rounded	Clayey sand	Some organic matter		NA	5.4	4.5	0.9	2	5	0.016	0.005	-	0.021	S_{CR} + s-TAA
KL_PASS044	5.5	Light grey	Fine to medium	Well	Slightly Rounded	Clayey sand	Some organic matter		NA	6.4	4.7	1.7	2	-	-	-	-	-	-
KL_PASS044	6	Light grey	Fine to medium	Well	Slightly Rounded	Clayey sand	Some organic matter		NA	5.9	5	0.9	2	-	-	-	-	-	-
KL_PASS017	0.5	Medium brown	Fine to medium	Well	Well rounded	Sand	Saturated. Some roots and organic matter		6.69	7.5	6.7	0.8	2	6.3	0.003	0.005	-	0.005	S_{CR}
KL_PASS017	1	Yellow brown	Fine to medium	Moderate	Slightly rounded	Clayey Sand	Some laterite gravel		7.01	8.3	7.3	1	2	-	-	-	-	-	-

Sample Location	Sample Interval (mbgl)	Soil Description							Field Results					Chromium Suite					
									pHf (Field)	pHf (Lab)	pH_{FOX}	pH_f - pH_{fox}	Reaction Rate	pH KCl	s-TAA	S_{CR}	$s\text{-}S_{NAS}$	NET ACIDITY	NA EQUATION
								Units							%S	%S	%S	%S	
		Colour	Grainsize	Sorting	Rounding/ Angularity	Soil Type	Comments	LOR	0.01	0.01	0.01		0	0.1	0.003	0.005	0.02		
								Criteria		≤4	≤3	≥3	0-4	-	0.03	0.03		0.03	
KL_PASS017	1.5	Yellow brown/orange	Fine to medium	Moderate	Slightly rounded	Clay with some sand	Some laterite gravel		6.93	7.7	7.2	0.5	4	5.8	0.012	0.006	-	0.006	S_{CR}
KL_PASS017	2	Yellow brown/orange	Fine to medium	Moderate	Slightly rounded	Clay with some sand	Mottled with some gravel		7.07	7.3	7.3	0	4	-	-	-	-	-	-
KL_PASS017	2.5	Yellow brown/orange	Fine to medium	Moderate	Slightly rounded	Clay with some sand	Mottled with some gravel		6.99	7.7	7.1	0.6	4	5.7	0.022	0.005	-	0.005	S_{CR}
KL_PASS017	3	Yellow brown/orange	Fine to medium	Moderate	Slightly rounded	Clay with some sand	Mottled with some gravel		7.2	7.6	6.8	0.8	2	-	-	-	-	-	-
KL_PASS018	0.5	Light orange	Fine to medium	Well	Well rounded	Sand			5.79	6.3	4.5	1.8	2	-	-	-	-	-	-
KL_PASS018	1	Orange	Fine to medium	Well	Well rounded	Sand			6.84	6.6	5.2	1.4	2	5.3	0.007	0.005	-	0.012	S_{CR} + s-TAA
KL_PASS018	1.5	Orange	Fine to medium	Well	Well rounded	Sand			6.67	6.4	5	1.4	2	-	-	-	-	-	-
KL_PASS018	2	Orange	Fine to medium	Well	Well rounded	Sand			6.4	6.6	5	1.6	2	-	-	-	-	-	-
KL_PASS018	2.5	Orange	Fine to medium	Well	Well rounded	Sand			6.42	6.1	5.1	1	2	5	0.009	0.005	-	0.014	S_{CR} + s-TAA
KL_PASS018	3	Orange	Fine to medium	Well	Well rounded	Sand			5.93	6.1	5	1.1	2	-	-	-	-	-	-
KL_PASS018	3.5	Red/orange/grey	Fine to coarse	Poor	Slightly angular	Clayey Sand	Mottled with some laterite gravel		6.05	6.8	6.5	0.3	2	-	-	-	-	-	-
KL_PASS018	4	Grey/brown	Fine to medium	Well	Well rounded	Sand with some clay	Mottled		6.41	9.2	6.8	2.4	2	6	0.003	0.005	-	0.005	S_{CR}
KL_PASS018	4.5	Grey	Fine to medium	Well	Well rounded	Clayey Sand	Hard		6.72	7.1	6.4	0.7	2	-	-	-	-	-	-
KL_PASS018	5	Grey	Fine to medium	Well	Well rounded	Clayey Sand	Hard		6.54	7.1	7.5	-0.4	2	-	-	-	-	-	-
KL_PASS018	5.5	Grey	Fine to medium	Well	Well rounded	Sand			6.27	7.6	5.8	1.8	2	5.4	0.009	0.005	-	0.014	S_{CR} + s-TAA
KL_PASS018	6	Grey	Fine to medium	Well	Well rounded	Sand			6.16	7.1	4.5	2.6	2	-	-	-	-	-	-
KL_PASS019	0.5	Light brown	Fine to medium	Well	Well rounded	Sand			6.15	5.7	4.6	1.1	1	-	-	-	-	-	-
KL_PASS019	1	Light brown	Fine to medium	Well	Well rounded	Sand	Damp		6.18	5.1	4.5	0.6	2	5	0.01	0.005	-	0.015	S_{CR} + s-TAA
KL_PASS019	1.5	Light brown	Fine to medium	Well	Well rounded	Sand	Wet		6.04	4.9	4.6	0.3	1	-	-	-	-	-	-
KL_PASS019	2	Light brown	Fine to medium	Well	Well rounded	Sand			6.34	6.8	5.9	0.9	1	5.2	0.009	0.005	-	0.014	S_{CR} + s-TAA
KL_PASS019	2.5	Grey/orange	Fine to medium	Well	Slightly rounded	Clayey Sand	Mottled. Hard		6.69	7	5.9	1.1	2	-	-	-	-	-	-
KL_PASS019	3	Orange/grey	Fine to medium	Well	Slightly rounded	Clayey Sand	Mottled. Hard		6.7	7.8	6.9	0.9	2	5.4	0.011	0.005	-	0.016	S_{CR} + s-TAA
KL_PASS020	0.5	Cream	Fine to medium	Well	Well rounded	Sand			NA	5.2	3.8	1.4	1	-	-	-	-	-	-
KL_PASS020	1	Cream	Fine to medium	Well	Well rounded	Sand			NA	5.3	3.9	1.4	1	7.5	0.003	0.005	-	0.005	S_{CR}
KL_PASS020	1.5	Cream	Fine to medium	Well	Well rounded	Sand			NA	5.6	3.8	1.8	2	-	-	-	-	-	-
KL_PASS020	2	Yellow cream	Fine to medium	Well	Well rounded	Sand			NA	5.7	4	1.7	2	9.3	0.003	0.005	-	0.005	S_{CR}
KL_PASS020	2.5	Yellow cream	Fine to medium	Well	Well rounded	Sand			NA	6.2	4.7	1.5	1	-	-	-	-	-	-
KL_PASS020	3	Grey/brown	Fine to medium	Moderate	Well rounded	Clayey Sand	Mottled		NA	6.7	4.2	2.5	2	4.2	0.063	0.005	0.07	0.138	S_{CR} + s-TAA + $s\text{-}S_{NAS}$
KL_PASS020	3.5	Dark brown/grey	Fine to medium	Moderate	Well rounded	Sandy Clay	Mottled. Hard		NA	7.1	5.7	1.4	2	-	-	-	-	-	-
KL_PASS020	4	brown/orange	Fine to medium	Moderate	Well rounded	Clayey Sand	Mottled with some laterite gravel		NA	6.7	5.1	1.6	2	4.7	0.025	0.005	-	0.03	S_{CR} + s-TAA
KL_PASS021	0.5	Cream	Fine to medium	Well	Well rounded	Sand			5.86	5.3	3.5	1.8	1	5	0.006	0.005	-	0.011	S_{CR} + s-TAA
KL_PASS021	1	Cream	Fine to medium	Well	Well rounded	Sand			5.56	5.4	3.5	1.9	1	-	-	-	-	-	-
KL_PASS021	1.5	Cream	Fine to medium	Well	Well rounded	Sand			5.93	5.3	3.8	1.5	1	-	-	-	-	-	-
KL_PASS021	2	Cream	Fine to medium	Well	Well rounded	Sand			5.45	5.5	3.5	2	1	5	0.008	0.005	-	0.013	S_{CR} + s-TAA
KL_PASS021	2.5	Cream	Fine to medium	Well	Well rounded	Sand			5.63	5.4	3.8	1.6	1	-	-	-	-	-	-
KL_PASS021	3	Cream	Fine to medium	Well	Well rounded	Sand			4.33	4.2	3.4	0.8	1	-	-	-	-	-	-
KL_PASS021	3.5	Cream	Fine to medium	Well	Well rounded	Sand	Saturated		4.95	5.7	2.9	2.8	2	5.3	0.004	0.006	-	0.01	S_{CR} + s-TAA
KL_PASS021	4	Red brown	Fine to medium	Well	Well rounded	Sand			5.39	6.3	3.8	2.5	2	-	-	-	-	-	-
KL_PASS021	4.5	Red brown	Fine to medium	Well	Well rounded	Sand with some clay			5.69	7.3	3.9	3.4	2	-	-	-	-	-	-
KL_PASS021	5	Red brown	Fine to medium	Well	Well rounded	Sandy Clay	Hard		5.82	6.8	6.2	0.6	2	5.3	0.009	0.005	-	0.014	S_{CR} + s-TAA
KL_PASS021	5.5	Red brown	Fine to medium	Well	Well rounded	Sandy Clay	Hard		5.94	7	6.6	0.4	2	-	-	-	-	-	-
KL_PASS021	6	white	Fine to medium	Well	Well rounded	Sand			5.79	6.8	5.2	1.6	1	-	-	-	-	-	-
KL_PASS022	0.5	Light brown	Fine to medium	Well	Well rounded	Sand	Wet		5.52	4.8	4.1	0.7	2	-	-	-	-	-	-
KL_PASS022	1	Light orange	Fine to medium	Well	Well rounded	Sand	Saturated		4.25	4.5	4.1	0.4	1	5	0.014	0.005	-	0.019	S_{CR} + s-TAA
KL_PASS022	1.5	Light brown	Fine to medium	Well	Well rounded	Sand	Saturated		4.35	5.5	4.6	0.9	1	-	-	-	-	-	-
KL_PASS022	2	Red/brown/orange	Fine to medium	Poor	Slightly rounded	Clayey Sand	Some laterite gravel		5.51	4.6	4	0.6	2	4.7	0.041	0.005	-	0.046	S_{CR} + s-TAA
KL_PASS022	2.5	Red/brown/orange	Fine to medium	Well	Well rounded	Clayey Sand	Mottled. Hard		5.82	4.9	4.3	0.6	2	-	-	-	-	-	-
KL_PASS022	3	Red/brown/orange	Fine to medium	Well	Well rounded	Clayey Sand	Mottled. Hard		5.97	6.9	5.8	1.1	2	5.2	0.01	0.005	-	0.015	S_{CR} + s-TAA
KL_PASS023	0.5	Light brown	Fine to medium	Well	Well rounded	Sand			5.89	6.7	5.4	1.3	2	-	-	-	-	-	-
KL_PASS023	1	Light brown	Fine to medium	Well	Well rounded	Sand			5.68	6.4	5.7	0.7	2	5.2	0.014	0.005	-	0.019	S_{CR} + s-TAA
KL_PASS023	1.5	Light brown	Fine to medium	Well	Well rounded	Clayey Sand	Wet		5.58	5.9	5.2	0.7	2	-	-	-	-	-	-
KL_PASS023	2	Light brown	Fine to medium	Well	Well rounded	Clayey Sand	Wet		6.32	6.7	5.7	1	2	5.2	0.012	0.005	-	0.017	S_{CR} + s-TAA
KL_PASS023	2.5	Light brown	Fine to medium	Well	Well rounded	Clayey Sand	Wet		6.3	6.8	5	1.8	2	-	-	-	-	-	-
KL_PASS023	3	Grey/brown	Fine to medium	Moderate	Slightly rounded	Sandy Clay	Mottled. Plasticy		6.4	7.3	6.3	1	2	5.3	0.018	0.005	-	0.023	S_{CR} + s-TAA
KL-PASS024	0.5	Light brown	Fine	Well sorted	Well-rounded	Sand			NA	6.7	5.3	1.4	1	-	-	-	-	-	-
KL-PASS024	1	Cream	Fine	Well sorted	Well-rounded	Sand	Sugarlike, slightly damp.		NA	7.5	6	1.5	2	5.7	0.008	0.005	-	0.005	S_{CR}
KL-PASS024	1.5	Cream	Fine	Well sorted	Well-rounded	Sand	Saturated.		NA	7.5	6.1	1.4	2	-	-	-	-	-	-
KL-PASS024	2	Light grey	Fine to medium	Well to medium	Well-rounded	Clayey sand	With some small yellow mottling. Some small fragments. Hard, damp.		NA	6.7	5.7	1.0	4	5.6	0.013	0.005	-	0.005	S_{CR}
KL-PASS024	2.5	Light grey	Fine to medium	Well to medium	Well-rounded	Clayey sand	With some small yellow mottling. Some small fragments. Hard, damp.		NA	6.7	6.1	0.6	4	-	-	-	-	-	-

Sample Location	Sample Interval (mbgl)	Soil Description							Field Results					Chromium Suite					
									pHf (Field)	pHf (Lab)	pH_{FOX}	pH_f - pH_{fox}	Reaction Rate	pH KCl	s-TAA	S_{CR}	s-S_{NAS}	NET ACIDITY	NA EQUATION
		Colour	Grainsize	Sorting	Rounding/ Angularity	Soil Type	Comments	Units							%S	%S	%S	%S	
								LOR	0.01	0.01	0.01		0	0.1	0.003	0.005	0.02		
								Criteria		≤4	≤3	≥3	0-4	-	0.03	0.03		0.03	
KL-PASS024	3	Light grey	Fine to medium	Well to medium	Well-rounded	Clayey sand	More mottling and gravel fragments, damp, hard plastic.		NA	7.3	6.8	0.5	2	5.6	0.14	0.005	-	0.005	S_{CR}
KL-PASS025	0.5	Light brown	Fine	Well	Well-rounded	Sand	Sugarlike.		NA	5.6	4.1	1.5	1	-	-	-	-	-	-
KL-PASS025	1	Brown	Fine	Well	Well-rounded	Sand	Sugarlike.		NA	5.1	3.9	1.2	1	5.3	0.023	0.005	-	0.028	S_{CR} + s-TAA
KL-PASS025	1.5	Light orange brown	Fine	Well	Well-rounded	Clayey sand	Saturated.		NA	5.7	4.6	1.1	2	-	-	-	-	-	-
KL-PASS025	2	Light orange brown	Fine	Well	Well-rounded	Clayey sand	Damp, mottled.		NA	5.8	4.3	1.5	2	5.2	0.021	0.005	-	0.026	S_{CR} + s-TAA
KL-PASS025	2.5	Light grey	Fine to medium	Well to medium	Well-rounded	Clayey sand	Damp.		NA	5.4	4	1.4	4	-	-	-	-	-	-
KL-PASS025	3	Light grey	Well to medium	Well to medium	Well-rounded to slightly rounded	Clayey sand	Gravel fragments.		NA	5.7	3.9	1.8	2	5.2	0.028	0.005	-	0.033	S_{CR} + s-TAA
KL-PASS026	0.5	Brown	Fine	Well	Well-rounded	Sand	Sugarlike		NA	5.3	3.2	2.1	2	-	-	-	-	-	-
KL-PASS026	1	Light brown	Fine	Well	Well-rounded	Sandy clay			NA	5	3.9	1.1	1	5.3	0.017	0.005	-	0.022	S_{CR} + s-TAA
KL-PASS026	1.5	Brown orange	Fine	Well	Well-rounded	Clayey sand	Soft clay, wet		NA	4.7	4.1	0.6	1	-	-	-	-	-	-
KL-PASS026	2	Grey	Fine	Well	Well-rounded	Clayey sand	Red mottle, saturated		NA	5.2	4.4	0.8	1	5	0.033	0.005	-	0.038	S_{CR} + s-TAA
KL-PASS026	2.5	Grey	Fine to medium	Medium	Slightly rounded	Clayey sand	Hard clay with gravel		NA	5.7	4.2	1.5	2	-	-	-	-	-	-
KL-PASS026	3	Mottled Grey	Fine to medium	Medium to well	Slightly rounded	Sandy clay / Clayey Sand	Damp, gravel fragments		NA	5.6	4	1.6	2	5.4	0.017	0.005	-	0.022	S_{CR} + s-TAA
KL-PASS027	0.5	Pale brown	Fine	Well	Well-rounded	Sand	Sugarlike, dry		NA	4.9	3.8	1.1	1	5.4	0.013	0.005	-	0.018	S_{CR} + s-TAA
KL-PASS027	1	Orange brown	Fine	Well	Well-rounded	Sandy with some clay	Damp		NA	5.3	4.5	0.8	2	-	-	-	-	-	-
KL-PASS027	1.5	Orange brown	Fine	Well	Well-rounded	Clayey sand	Saturated.		NA	6.4	5.1	1.3	2	5.5	0.011	0.005	-	0.005	S_{CR}
KL-PASS027	2	Grey	Fine	Well	Well-rounded	Sandy clay	Saturated.		NA	6.3	4.1	2.2	2	-	-	-	-	-	-
KL-PASS027	2.5	Yellow grey	Fine	Well	Well-rounded	Clayey Sand	Hard, damp		NA	6.5	4.4	2.1	2	5.5	0.014	0.006	-	0.006	S_{CR}
KL-PASS027	3	Mottled grey	Fine to coarse	Medium	Well-rounded	Clay	Mottled, hard, with some gravel		NA	6.7	5.9	0.8	4	-	-	-	-	-	-
KL-PASS027	3.5	Mottled Grey	Fine	Well	Well-rounded	Clay	Mottled, hard, with some gravel		NA	6.8	6.5	0.3	4	5.4	0.019	0.005	-	0.024	S_{CR} + s-TAA
KL-PASS027	4	Dark Grey	Fine	Well	Well-rounded	Clay	Hard, damp		NA	6.4	6	0.4	4	-	-	-	-	-	-
KL-PASS027	4.5	Light Grey	Fine	Well	Well-rounded	Clay	Hard, dry		NA	6.5	2.7	3.8	4	5.2	0.022	0.032	-	0.054	S_{CR} + s-TAA
KL-PASS027	5	Dark Purple Grey	Fine	Well	Well-rounded	Clay with some sand	Slightly damp		NA	6.7	6.1	0.6	2	-	-	-	-	-	-
KL-PASS027	5.5	Light Grey/ white	Fine	Well	Well-rounded	Sandy clay	Saturated.		NA	6.2	5.4	0.8	2	5.6	0.009	0.005	-	0.005	S_{CR}
KL-PASS027	6	Dark Grey	Fine	Well	Well-rounded	Sand	Damp, sugarlike		NA	6.2	4.9	1.3	1	-	-	-	-	-	-
KL-PASS028	0.5	Grey	Fine	Well	Well-rounded	Sand	Organic matter, sugarlike		NA	7.2	4.8	2.4	2	-	-	-	-	-	-
KL-PASS028	1	Pale brown	Fine	Well	Well-rounded	Sand	Sugarlike		NA	5.8	4.1	1.7	1	5.7	0.006	0.005	-	0.011	S_{CR}
KL-PASS028	1.5	Pale brown	Fine	Well	Well-rounded	Sand	Sugarlike		NA	6.3	4.6	1.7	2	-	-	-	-	-	-
KL-PASS028	2	Pale brown	Fine	Well	Well-rounded	Sand			NA	5.2	4.1	1.1	2	5.7	0.005	0.005	-	0.02	S_{CR}
KL-PASS028	2.5	Pale brown	Fine	Well	Well-rounded	Sandy clay	Slight clay, damp		NA	5	4	1.0	2	-	-	-	-	-	-
KL-PASS028	3	Pale brown	Fine	Well	Well-rounded	Sand	Damp		NA	6.8	4.6	2.2	2	5.5	0.008	0.006	-	0.02	S_{CR}
KL-PASS028	3.5	Pale brown	Fine	Well	Well-rounded	Sand	Sugary, damp		NA	6.9	3.7	3.2	2	-	-	-	-	-	-
KL-PASS028	4	Grey brown	Fine	Well	Well-rounded	Sand	Saturated.		NA	7.1	3.1	4.0	4	5.5	0.022	0.1	-	0.1	S_{CR}
KL-PASS028	4.5	Grey	Fine	Well	Well-rounded	Clay	Hard clay, slightly damp		NA	8.1	4.4	3.7	2	5.6	0.01	0.005	-	0.02	S_{CR}
KL-PASS028	5	Grey	Fine	Well	Well-rounded	Clay	Wet, hard clay		NA	8.4	4.1	4.3	2	5.6	0.007	0.005	-	0.02	S_{CR}
KL-PASS028	5.5	Grey	Fine	Well	Well-rounded	Clayey sand	Saturated, mostly clay		NA	7.6	2.8	4.8	2	5.6	0.007	0.021	-	0.021	S_{CR}
KL-PASS028	6	Grey brown	Fine	Well	Well-rounded	Clay sand	Saturated.		NA	7.7	3.2	4.5	4	5.6	0.006	0.031	-	0.031	S_{CR}
KL-PASS029	0.5	Grey	Fine	Well	Well-rounded	Sand			NA	5.2	3.1	2.1	2	-	-	-	-	-	-
KL-PASS029	1	Light grey brown	Fine	Well	Well-rounded	Sand			NA	4.6	3.8	0.8	1	5.6	0.004	0.005	-	0.005	S_{CR}
KL-PASS029	1.5	Light grey brown	Fine	Well	Well-rounded	Sand			NA	4.2	3.7	0.5	1	-	-	-	-	-	-
KL-PASS029	2	Pale brown	Fine	Well	Well-rounded	Sand	Damp		NA	4.6	4	0.6	1	5.7	0.004	0.005	-	0.005	S_{CR}
KL-PASS029	2.5	Yellow grey	Fine	Well	Well-rounded	Clayey sand	Damp		NA	7.1	6.1	1.0	2	-	-	-	-	-	-
KL-PASS029	3	Light grey	Fine	Well	Well-rounded	Clay	Plastic, some orange		NA	6.8	6.6	0.2	2	5.3	0.017	0.005	-	0.022	S_{CR} + s-TAA
KL-PASS029	3.5	Light grey	Fine	Well	Well-rounded	Clay	Hard plastic, dryish		NA	7.9	7.6	0.3	4	-	-	-	-	-	-
KL-PASS029	4	Light grey	Fine	Well	Well-rounded	Sandy clay / Clayey Sand	Slightly damp		NA	7.9	7.5	0.4	4	-	-	-	-	-	-
KL-PASS029	4.5	Light grey	Fine	Well	Well-rounded	Sandy clay / Clayey Sand	More damp		NA	7.7	4.1	3.6	2	5.6	0.01	0.005	-	0.005	S_{CR}
KL-PASS029	5	Light grey	Fine	Well	Well-rounded	Sand with some clay	Wet		NA	7.2	4.3	2.9	2	-	-	-	-	-	-
KL-PASS029	5.5	Darker grey	Fine	Well	Well-rounded	Sandy clay/Clayey Sand	Clayey, sticky		NA	6.7	3.1	3.6	2	5.6	0.012	0.017	-	0.017	S_{CR}
KL-PASS029	6	Darker grey/ brown	Fine	Well	Well-rounded	Sandy clay/Clayey Sand	Damp/moist		NA	6.4	3.6	2.8	2	5.6	0.011	0.005	-	0.005	S_{CR}
KL-PASS030	0.5	Light brown	Fine	Well	Well-rounded	Sand	Dry		NA	4.6	3.7	0.9	1	-	-	-	-	-	-
KL-PASS030	1	Light brown	Fine	Well	Well-rounded	Sand	Dry		NA	5.1	4.1	1.0	1	5.7	0.007	0.007	-	0.007	S_{CR}
KL-PASS030	1.5	Orangey brown	Fine	Well	Well-rounded	Sand	Dry		NA	4.9	4.2	0.7	2	-	-	-	-	-	-
KL-PASS030	2	Pale brown	Fine	Well	Well-rounded	Clayey sand	Wet/saturated		NA	6.1	5	1.1	2	5.5	0.011	0.005	-	0.005	S_{CR}
KL-PASS030	2.5	Pale brown	Fine	Well	Well-rounded	Clayey sand/ Sandy Clay	Wet/saturated		NA	6.1	5	1.1	2	-	-	-	-	-	-
KL-PASS030	3	Pale brown / grey	Fine	Well	Well-rounded	Clayey sand	Mottled, with some gravel fragments.		NA	5.4	4.2	1.2	2	5.3	0.018	0.005	-	0.023	S_{CR} + s-TAA

Sample Location	Sample Interval (mbgl)	Soil Description							Field Results					Chromium Suite					
									pHf (Field)	pHf (Lab)	pH_{FOX}	pH_f - pH_{fox}	Reaction Rate	pH KCl	s-TAA	S_{CR}	s-S_{NAS}	NET ACIDITY	NA EQUATION
								Units							%S	%S	%S	%S	
		Colour	Grainsize	Sorting	Rounding/ Angularity	Soil Type	Comments	LOR	0.01	0.01	0.01		0	0.1	0.003	0.005	0.02		
								Criteria		≤4	≤3	≥3	0-4	-	0.03	0.03		0.03	
KL-PASS031	0.5	Brown	Fine	Well	Well-rounded	Sand	Organic matter		NA	4.8	3.6	1.2	1	-	-	-	-	-	-
KL-PASS031	1	Brown	Fine	Well	Well-rounded	Sand			NA	4.6	4.1	0.5	1	5.6	0.011	0.005	-	0.005	S_{CR}
KL-PASS031	1.5	Wet cream	Fine	Well	Well-rounded	Sand	Saturated		NA	5.5	4.7	0.8	2	-	-	-	-	-	-
KL-PASS031	2	Grey mottled	Fine to medium	Medium	Well-rounded to slightly rounded	Clay	Wet, some gravel fragments		NA	5.4	3.8	1.6	2	5.1	0.027	0.01	-	0.037	S_{CR} + s-TAA
KL-PASS031	2.5	Grey mottled	Fine to medium	Medium	Well-rounded to slightly rounded	Clay	Damp, hard plastic, some gravel fragments		NA	5.3	4.4	0.9	2	-	-	-	-	-	-
KL-PASS031	3	Grey mottled	Fine to medium	Medium	Well-rounded to slightly rounded	Clay	Dry, hard, some gravel fragments		NA	5.6	4.8	0.8	2	5.2	0.023	0.01	-	0.033	S_{CR} + s-TAA
KL-PASS032	0.5	Pale brown	Fine	Well	Well-rounded	Sand	Sugarlike		NA	4.9	3.2	1.7	2	-	-	-	-	-	-
KL-PASS032	1	Pale brown	Fine	Well	Well-rounded	Sand	Sugarlike		NA	4.8	3.9	0.9	2	6	0.005	0.005	-	0.005	S_{CR}
KL-PASS032	1.5	Pale brown	Fine	Well	Well-rounded	Sand	Sugarlike		NA	5.1	4.4	0.7	2	-	-	-	-	-	-
KL-PASS032	2	Red, orangey brown	Fine to medium	Well to medium	Well-rounded to slightly angular	Sand	Gravel fragments, damp		NA	7.2	7.2	0.0	4	6.2	0.004	0.005	-	0.005	S_{CR}
KL-PASS032	2.5	Red, orangey brown	Fine to coarse	Poor	Well-rounded	Sand	More gravel fragments, damp		NA	6.9	7.5	-0.6	4	-	-	-	-	-	-
KL-PASS032	3	Red, orangey brown	Fine to coarse	Poor	Well-rounded	Sand	More gravel fragments, damp		NA	7.3	6.3	1.0	2	5.7	0.011	0.005	-	0.005	S_{CR}
KL_PASS033	0.5	Dark grey	Fine to medium	Well	Well rounded	Sand	Saturated		6.18	7.7	5.5	2.2	2	-	-	-	-	-	-
KL_PASS033	1	Medium brown	Fine to medium	Well	Well rounded	Sand	Saturated		6.62	7.6	5.8	1.8	2	6.5	0.003	0.005	-	0.005	S_{CR}
KL_PASS033	1.5	Medium brown	Fine to medium	Well	Well rounded	Sand	Saturated		6.74	7.4	5.2	2.2	2	-	-	-	-	-	-
KL_PASS033	2	Medium brown	Fine to medium	Well	Well rounded	Sand	Saturated		6.53	7.4	5.5	1.9	1	6.1	0.003	0.005	-	0.005	S_{CR}
KL_PASS033	2.5	Light grey	Fine to medium	Well	Well rounded	Sand	Saturated		6.51	7.2	4.4	2.8	2	-	-	-	-	-	-
KL_PASS033	3	Light grey	Fine to medium	Well	Well rounded	Clayey Sand	Wet. Hard. Plasticy		7.1	6.3	3.9	2.4	2	-	-	-	-	-	-
KL_PASS033	3.5	Light brown	Fine to medium	Well	Slightly rounded	Clayey Sand	Wet. Hard. Plasticy		7.23	6.5	4.1	2.4	2	-	-	-	-	-	-
KL_PASS033	4	Light brown	Fine to medium	Well	Slightly rounded	Clayey Sand	Wet. Hard. Plasticy		7.12	6.7	2.7	4	2	5.1	0.024	0.022	-	0.046	S_{CR} + s-TAA
KL_PASS033	4.5	Dark brown	Fine to medium	Well	Slightly rounded	Clayey Sand	Wet. Hard. Plasticy		7.1	7	3.5	3.5	2	5.2	0.02	0.026	-	0.046	S_{CR} + s-TAA
KL_PASS033	5	Dark brown	Fine to medium	Well	Slightly rounded	Sand with some clay	Saturated		7.13	6.5	2.7	3.8	2	5.1	0.016	0.015	-	0.031	S_{CR} + s-TAA
KL_PASS033	5.5	Dark brown	Fine to medium	Well	Slightly rounded	Sand with some clay	Saturated		6.65	6.5	2.4	4.1	4	5.1	0.015	0.03	-	0.045	S_{CR} + s-TAA
KL_PASS033	6	Dark brown	Fine to medium	Well	Slightly rounded	Sand with some clay	Saturated		6.75	6.6	2.3	4.3	2	5	0.017	0.048	-	0.065	S_{CR} + s-TAA
KL_PASS034	0.5	Light grey	Fine to medium	Well	Well rounded	Sand			7.15	6.5	4.7	1.8	2	-	-	-	-	-	-
KL_PASS034	1	Light grey	Fine to medium	Well	Well rounded	Sand			6.58	5.7	4	1.7	2	5	0.007	0.005	-	0.012	S_{CR} + s-TAA
KL_PASS034	1.5	Light grey	Fine to medium	Well	Well rounded	Sand			6.02	5.4	4.1	1.3	1	-	-	-	-	-	-
KL_PASS034	2	Light grey	Fine to medium	Well	Well rounded	Sand			6.32	6	4.2	1.8	1	5.1	0.006	0.005	-	0.011	S_{CR} + s-TAA
KL_PASS034	2.5	Yellow brown	Fine to medium	Well	Well rounded	Sand	Wet. Traces of laterite gravel		6.38	6.8	5.3	1.5	2	-	-	-	-	-	-
KL_PASS034	3	Grey/brown	Fine to medium	Well	Well rounded	Clayey Sand	Grey with mottled brown		6.7	7.1	5.4	1.7	2	4.9	0.022	0.005	-	0.027	S_{CR} + s-TAA
KL_PASS035	0.5	Medium grey	Fine to medium	Well	Well rounded	Sand	Damp		7.04	8.8	6	2.8	2	6.3	0.003	0.005	-	0.005	S_{CR}
KL_PASS035	1	Medium grey	Fine to medium	Well	Well rounded	Sand	Saturated		6.44	7.7	6.3	1.4	1	-	-	-	-	-	-
KL_PASS035	1.5	Medium grey	Fine to medium	Well	Well rounded	Sand	Saturated		7.09	7.6	6.2	1.4	2	-	-	-	-	-	-
KL_PASS035	2	Medium grey	Fine to medium	Well	Well rounded	Sand	Saturated		6.83	7.8	6.3	1.5	2	6.1	0.003	0.005	-	0.005	S_{CR}
KL_PASS035	2.5	Grey brown	Fine to medium	Moderate	Slightly angular	Sand	Some laterite gravel		6.72	7	4.9	2.1	2	-	-	-	-	-	-
KL_PASS035	3	Grey/brown/orange	Fine to medium	Moderate	Slightly angular	Sandy Clay	Mottled. Hard. Some laterite rocks		6.93	5.4	3.9	1.5	2	-	-	-	-	-	-
KL_PASS035	3.5	Grey/brown/orange	Fine to medium	Well	Slightly rounded	Clay with some sand	Hard		7.22	6	4.7	1.3	2	5	0.028	0.005	-	0.033	S_{CR} + s-TAA
KL_PASS035	4	Medium grey	Fine to medium	Well	Well rounded	Clayey Sand	Hard		7.16	6.1	5.6	0.5	3	-	-	-	-	-	-
KL_PASS035	4.5	Medium grey	Fine to medium	Well	Well rounded	Clayey Sand	Hard		7.11	6.4	3.7	2.7	2	-	-	-	-	-	-
KL_PASS035	5	Medium grey	Fine to medium	Well	Well rounded	Clayey Sand	Hard		6.84	6.3	5.5	0.8	2	5	0.018	0.005	-	0.023	S_{CR} + s-TAA
KL_PASS035	5.5	Grey/yellow	Fine to medium	Well	Well rounded	Sand with some clay	Mottled		6.85	5.8	5.3	0.5	2	-	-	-	-	-	-
KL_PASS035	6	Grey/yellow	Fine to medium	Well	Well rounded	Sand with some clay	Mottled		6.49	6.3	5.1	1.2	2	-	-	-	-	-	-
KL_PASS036	0.5	Light grey	Fine to medium	Well	Well rounded	Sand			6.74	6.1	4.8	1.3	1	-	-	-	-	-	-
KL_PASS036	1	Light grey	Fine to medium	Well	Well rounded	Sand			6.7	5.6	4.5	1.1	1	5.2	0.006	0.005	-	0.011	S_{CR} + s-TAA
KL_PASS036	1.5	Light grey	Fine to medium	Well	Well rounded	Sand			6.67	5.6	4.6	1	1	-	-	-	-	-	-
KL_PASS036	2	Light grey	Fine to medium	Well	Well rounded	Sand			6.53	5.3	4.7	0.6	1	5.1	0.005	0.005	-	0.01	S_{CR} + s-TAA
KL_PASS036	2.5	Medium brown	Fine to medium	Moderate	Slightly rounded	Sand	Some laterite gravel		6.59	6.5	5.5	1	2	-	-	-	-	-	-
KL_PASS036	3	Orange brown	Fine to medium	Poor	Slightly rounded	Gravel with some clay	Refusal due to hard ground		6.46	5.7	4.8	0.9	2	5.6	0.012	0.005	-	0.005	S_{CR}
KL_PASS037	0.5	Light grey	Fine to medium	Well	Well rounded	Sand			6.14	6.4	5	1.4	2	-	-	-	-	-	-
KL_PASS037	1	Light grey	Fine to medium	Well	Well rounded	Sand	Damp		6.22	6.2	5	1.2	2	5.3	0.006	0.005	-	0.011	S_{CR} + s-TAA
KL_PASS037	1.5	Cream/orange	Fine to medium	Well	Well rounded	Sand with some clay	Mottled. Some laterite gravel		5.99	6.6	5.7	0.9	2	-	-	-	-	-	-
KL_PASS037	2	Cream	Fine to medium	Well	Well rounded	Sand with some clay	Mottled. Some laterite gravel		6.17	6.7	5.7	1	2	-	-	-	-	-	-
KL_PASS037	2.5	Medium brown	Fine to medium	Moderate	Slightly angular	Clayey Sand	Some laterite gravel		6.49	6.9	5.7	1.2	2	5.8	0.009	0.005	-	0.005	S_{CR}
KL_PASS037	3	Medium brown/red	Fine to medium	Moderate	Slightly angular	Sandy Gravel	Mottled		6.41	6.7	4.9	1.8	2	-	-	-	-	-	-
KL_PASS037	3.5	Cream	Fine to medium	Well	Well rounded	Sand			6.35	6.6	4.3	2.3	2	-	-	-	-	-	-
KL_PASS037	4	Light grey	Fine to medium	Well	Well rounded	Sand with some clay			6.52	6.1	4.8	1.3	2	5.2	0.015	0.005	-	0.02	S_{CR} + s-TAA
KL_PASS037	4.5	Grey/red/orange	Fine to medium	Well	Well rounded	Clayey Sand	Mottled		6.53	6.3	5.3	1	2	-	-	-	-	-	-
KL_PASS037	5	Grey	Fine to medium	Well	Well rounded	Sandy Clay			7.01	6.7	5.7	1	2	-	-	-	-	-	-

Sample Location	Sample Interval (mbgl)	Soil Description							Field Results					Chromium Suite					
									pHf (Field)	pHf (Lab)	pH_{FOX}	pH_f - pH_{fox}	Reaction Rate	pH KCl	s-TAA	S_{CR}	$s\text{-}S_{NAS}$	NET ACIDITY	NA EQUATION
								Units							%S	%S	%S	%S	
		Colour	Grainsize	Sorting	Rounding/ Angularity	Soil Type	Comments	LOR	0.01	0.01	0.01		0	0.1	0.003	0.005	0.02		
								Criteria		≤4	≤3	≥3	0-4	-	0.03	0.03		0.03	
KL_PASS037	5.5	Grey	Fine to medium	Well	Well rounded	Sandy Clay	Some organic matter		6.89	6.7	5.3	1.4	1	5.2	0.01	0.005	-	0.015	S_{CR} + s-TAA
KL_PASS037	6	Grey	Fine to medium	Well	Well rounded	Sandy Clay	Some organic matter		6.55	7	6	1	2	-	-	-	-	-	-
KL_PASS038	0.5	Cream	Fine to medium	Well	Well rounded	Sand			6.4	6.8	6	0.8	2	-	-	-	-	-	-
KL_PASS038	1	Cream	Fine to medium	Well	Well rounded	Sand			6.81	7	6	1	1	5.5	0.003	0.005	-	0.005	S_{CR}
KL_PASS038	1.5	Cream	Fine to medium	Well	Well rounded	Sand			6.9	6.8	5.9	0.9	2	-	-	-	-	-	-
KL_PASS038	2	Cream	Fine to medium	Well	Well rounded	Sand			6.79	6.2	5.5	0.7	1	5.3	0.004	0.005	-	0.009	S_{CR} + s-TAA
KL_PASS038	2.5	Red orange	Fine to coarse	Poor	Slightly angular	Sandy Gravel	Hard. Laterite gravel. Refusal at 2.6m		6.72	5.7	5.7	0	4	-	-	-	-	-	-
DUP 1	0.5	Medium brown	Fine to medium	Well	Well rounded	Sand			7.01	7.3	6.6	0.7	2	5.7	0.003	0.005	-	0.005	S_{CR}
DUP 2	0.5	Light orange	Fine to medium	Well	Well rounded	Sand			NA	6.2	4.5	1.7	2	-	-	-	-	-	-
DUP 3	0.5	Light brown	Fine to medium	Well	Well rounded	Sand			6.05	5.8	4.4	1.4	2	-	-	-	-	-	-
DUP 4	0.5	Cream	Fine to medium	Well	Well rounded	Sand			NA	5.2	4.4	0.8	2	-	-	-	-	-	-
DUP 5	0.5	Cream	Fine to medium	Well	Well rounded	Sand			5.91	5.2	4.3	0.9	1	5.5	0.003	0.005	-	0.005	S_{CR}
DUP 6	0.5	Light brown	Fine to medium	Well	Well rounded	Sand	Wet		6.01	4.8	4.1	0.7	1	5.1	0.006	0.005	-	0.011	S_{CR} + s-TAA
DUP 7	0.5	Light brown	Fine to medium	Well	Well rounded	Sand			5.91	6.7	5.4	1.3	2	-	-	-	-	-	-
								Min	4.25	4.20	2.30	-0.60	1.00	4.20	0.00	0.01	-	0.01	
								Max	7.23	9.20	7.60	4.80	4.00	9.30	0.14	0.10	-	0.14	
								Mean	6.21	6.19	4.90	1.29	1.95	5.37	0.01	0.01	-	0.02	
								Samples	199	310	310	310	310	130	130	130	-	130	

Mean	0.018
Stand Dev.	0.017
Mean + Stand Dev.	0.036

Soil Bore

Borehole No: KL_PASS014

CLIENT:	Doral	**DATE COMMENCED:**	20/06/2022
PROJECT:	ASS Investigation	**DATE COMPLETED:**	23/06/2022
LOCATION:	Lot 201 Elliot Road, Keysbrook WA	**LOGGED BY:**	Elodie
JOB NUMBER:	DMS22-013	**CHECKED BY:**	

Drilling Co:	DPP	**Drilling Method:** Direct Push				**Easting:**	
Driller:	Aaron & Alec	**Weather:** Overcast, wet		**Surface RL:**	-	**Northing:**	
Class 18 PVC	-	**Total Depth of Hole:**	8.7mbgl	**Datum:**	-		
Bore diameter:	50mm	**Static Water Level:**	4.5mbgl	**Top of Casing RL:**	-		

Depth (mBGL)	GRAPHICAL LOG	LITHOGICAL DESCRIPTION
0.0		0-0.2mbgl Dark brown grey fine to medium grained organic rich TOPSOIL with some roots.
0.5		0.2-2.8mbgl Light grey fine to medium grained well sorted damp SAND.
1.0		
1.5		
2.0		
2.5		
3.0		2.8-3.1mbgl Red brown hard poorly sorted laterite rock GRAVEL with some sand
3.5		3.1-3.5mbgl Light brown fine to coarse grained well sorted SAND with some clay.
4.0		3.5-4mbgl Light grey with mottled orange fine to medium grained well sorted hard CLAYEY SAND
4.5		4-7mbgl Light grey coarse grained well sorted SAND with some clay and organic matter. Saturated from 4.5mbgl.
5.0		
5.5		
6.0		
6.5		
7.0		
7.5		7-8.7mbgl Grey brown coarse grained well sorted saturated SAND with some clay. Refusal at 8.7mbgl.
8.0		
8.7		

Soil Bore

ABEC ENVIRONMENTAL CONSULTING

Borehole No: KL_PASS015

CLIENT:	Doral	**DATE COMMENCED:**	20/06/2022
PROJECT:	ASS Investigation	**DATE COMPLETED:**	23/06/2022
LOCATION:	Lot 201 Elliot Road, Keysbrook WA	**LOGGED BY:**	Elodie
JOB NUMBER:	DMS22-013	**CHECKED BY:**	

Drilling Co:	DPP	**Drilling Method:** Direct Push				**Easting:**	
Driller:	Aaron & Alec	**Weather:** Overcast, wet		**Surface RL:**	-	**Northing:**	
Class 18 PVC	-	**Total Depth of Hole:**	8.7mbgl	**Datum:**	-		
Bore diameter:	50mm	**Static Water Level:**	3mbgl	**Top of Casing RL:**	-		

Depth (mBGL)	GRAPHICAL LOG	LITHOGICAL DESCRIPTION
0.0		0-0.2mbgl Medium brown grey organic rich fine to medium grained well sorted SAND with some roots
0.5		0.2-3mbgl Light orange brown becoming orange at 1m fine to medium grained well sorted SAND
1.0		
1.5		
2.0		
2.5		
3.0		
3.5		3-3.5mbgl Light brown fine to medium grained well sorted damp SAND
4.0		3.5-4.4mbgl Red with mottled light brown fine to medium grained poorly sorted SANDY GRAVEL with some clay.
4.5		4.4-5m Light grey fine to medium grained well sorted SANDY CLAY
5.0		
5.5		5-5.6mbgl Light grey fine to medium grained well sorted CLAYEY SAND
6.0		5.6-7.2 Light grey fine to medium grained well sorted SAND with some clay
6.5		
7.0		
7.5		
8.0		7.2-8.7mbgl Light grey fine to medium grained well sorted saturated SAND. Refusal at 8.7mbgl.
8.7		

Soil Bore

ABEC ENVIRONMENTAL CONSULTING

Borehole No: KL_PASS016

CLIENT:	Doral	**DATE COMMENCED:**	20/06/2022
PROJECT:	ASS Investigation	**DATE COMPLETED:**	23/06/2022
LOCATION:	Lot 201 Elliot Road, Keysbrook WA	**LOGGED BY:**	Elodie
JOB NUMBER:	DMS22-013	**CHECKED BY:**	

Drilling Co:	DPP	**Drilling Method:** Direct Push				**Easting:**	
Driller:	Aaron & Alec	**Weather:** Overcast, wet		**Surface RL:**	-	**Northing:**	
Class 18 PVC	-	**Total Depth of Hole:**	8mbgl	**Datum:**	-		
Bore diameter:	50mm	**Static Water Level:**	2mbgl	**Top of Casing RL:**	-		

Depth (mBGL)	GRAPHICAL LOG	LITHOGICAL DESCRIPTION
0.0		0-0.2mbgl Dark brown grey fine to medium grained well sorted organic rich TOPSOIL.
0.5		0.2-1mbgl Light grey fine to medium grained well sorted SAND
1.0		
1.5		1-1.7mbgl Light orange fine to medium grained well sorted SAND with traces of laterite gravel.
2.0		1.7-3.6mbgl Cream with mottled orange fine grained moderately sorted CLAY with some laterite gravel.
2.5		
3.0		
3.5		
4.0		3.6-4.5mbgl Cream fine to medium grained moderately sorted SAND with large 2-3cm laterite rocks.
4.5		
5.0		4.5-6.2mbgl Light grey fine to medium grained well sorted wet CLAYEY SAND
5.5		
6.0		
6.5		6.2-8mbgl Light grey fine to medium grained saturated SAND. Refusal at 8mbgl due to groundwater oversaturation.
7.0		
7.5		
8.0		

Soil Bore

ABEC ENVIRONMENTAL CONSULTING

Borehole No: KL_PASS017

CLIENT:	Doral	**DATE COMMENCED:**	20/06/2022
PROJECT:	ASS Investigation	**DATE COMPLETED:**	23/06/2022
LOCATION:	Lot 62 Hopeland Rd, North Dandalup	**LOGGED BY:**	Elodie
JOB NUMBER:	DMS22-013	**CHECKED BY:**	

Drilling Co:	DPP	**Drilling Method:** Direct Push				**Easting:**	
Driller:	Aaron & Alec	**Weather:** Overcast, wet		**Surface RL:**	-	**Northing:**	
Class 18 PVC	-	**Total Depth of Hole:**	3mbgl	**Datum:**	-		
Bore diameter:	50mm	**Static Water Level:**	0mbgl	**Top of Casing RL:**	-		

Depth (mBGL)	GRAPHICAL LOG	LITHOGICAL DESCRIPTION
0.0		0-0.8mbgl Medium brown fine to medium grained well sorted saturated SAND.
0.25		
0.75		
1.0		0.8-1.5mbgl Yellow brown fine to medium grained moderately sorted CLAYEY SAND with some laterite gravel.
1.25		
1.5		1.5-3mbgl Orange/brown mottled fine grained moderately sorted saturaetd CLAY with some sand and laterite gravel
1.75		
2.0		
2.25		
2.5		
2.75		
3.0		

Soil Bore

ABEC ENVIRONMENTAL CONSULTING

Borehole No: KL_PASS018

CLIENT:	Doral	**DATE COMMENCED:**	20/06/2022
PROJECT:	ASS Investigation	**DATE COMPLETED:**	23/06/2022
LOCATION:	Lot 62 Hopeland Rd, North Dandalup	**LOGGED BY:**	Elodie
JOB NUMBER:	DMS22-013	**CHECKED BY:**	

Drilling Co:	DPP	**Drilling Method:** Direct Push				**Easting:**	
Driller:	Aaron & Alec	**Weather:** Overcast, wet		**Surface RL:**	-	**Northing:**	
Class 18 PVC	-	**Total Depth of Hole:**	6mbgl	**Datum:**	-		
Bore diameter:	50mm	**Static Water Level:**	3.1mbgl	**Top of Casing RL:**	-		

Depth (mBGL)	GRAPHICAL LOG	LITHOGICAL DESCRIPTION
0.0		0-0.2mbgl Light brown grey fine to medium grained well sorted SAND with some roots and organic matter
0.5		
1.0		
1.5		0.2-3.2mbgl Light yellow fine to medium grained well sorted SAND. Groundwater at 3.1mbgl.
2.0		
2.5		
3.0		
3.5		3.2-4mbgl Red/orange/grey mottled fine to medium grained poorly sorted CLAYEY SAND with some laterite gravel
4.0		4-4.5 Grey fine to medium grained well soreted SAND with some clay
4.5		4.5-5.2mbgl Grey fine to medium graned well sorted hard plasticy SANDY CLAY
5.0		
5.5		5.2-6mbgl Grey fine to medium grained well sorted SAND with traces of clay
6.0		

Soil Bore

ABEC ENVIRONMENTAL CONSULTING

Borehole No: KL_PASS019

CLIENT:	Doral			**DATE COMMENCED:**	20/06/2022
PROJECT:	ASS Investigation			**DATE COMPLETED:**	23/06/2022
LOCATION:	Lot 62 Hopeland Rd, North Dandalup			**LOGGED BY:**	Elodie
JOB NUMBER:	DMS22-013			**CHECKED BY:**	
Drilling Co:	DPP	**Drilling Method:** Direct Push			**Easting:**
Driller:	Aaron & Alec	**Weather:** Overcast, wet		**Surface RL:** -	**Northing:**
Class 18 PVC	-	**Total Depth of Hole:**	3mbgl	**Datum:** -	
Bore diameter:	50mm	**Static Water Level:**	1.2mbgl	**Top of Casing RL:** -	

Depth (mBGL)	GRAPHICAL LOG	LITHOGICAL DESCRIPTION
0.0		0-0.2mbgl Dark brown grey fine to medium grained well sorted SAND with organic matter and roots
0.25		
0.75		
1.0		
1.25		0.2-2.1m Light brown fine to medium grained well sorted SAND. Saturated at 1.2mbgl
1.5		
1.75		
2.0		
2.25		
2.5		2.1-3mbgl Grey/orange mottled fine to medium grained well sorted SAND
2.75		
3.0		

Soil Bore

ABEC ENVIRONMENTAL CONSULTING

Borehole No: KL_PASS020

CLIENT:	Doral			**DATE COMMENCED:**	20/06/2022
PROJECT:	ASS Investigation			**DATE COMPLETED:**	23/06/2022
LOCATION:	Lot 62 Hopeland Rd, North Dandalup			**LOGGED BY:**	Elodie
JOB NUMBER:	DMS22-013			**CHECKED BY:**	
Drilling Co:	DPP	**Drilling Method:** Direct Push			**Easting:**
Driller:	Aaron & Alec	**Weather:** Overcast, wet		**Surface RL:** -	**Northing:**
Class 18 PVC	-	**Total Depth of Hole:**	4mbgl	**Datum:** -	
Bore diameter:	50mm	**Static Water Level:**	-	**Top of Casing RL:** -	

Depth (mBGL)	GRAPHICAL LOG	LITHOGICAL DESCRIPTION
0.0		0-0.2mbgl Grey fine to medium grained well sorted SAND with some organic matter and roots
0.25		
0.75		
1.0		
1.25		0.2-2.5mbgl Cream fine to medium grained well sorted SAND
1.5		
1.75		
2.0		
2.25		
2.5		
2.75		2.5-3.6mbgl Dark green/orange/brown mottled fine to medium grained moderately sorted hard damp CLAYEY SAND becoming more SANDY CLAY at 3.2mbgl
3.0		
3.25		
3.5		
3.75		3.6-4mbgl Orange/brown mottled moderately sorted fine to medium grained CLAYEY SAND with some laterite gravel
4.0		

Soil Bore

ABEC ENVIRONMENTAL CONSULTING

Borehole No: KL_PASS021

CLIENT:	Doral	**DATE COMMENCED:**	20/06/2022
PROJECT:	ASS Investigation	**DATE COMPLETED:**	23/06/2022
LOCATION:	Lot 62 Hopeland Rd, North Dandalup	**LOGGED BY:**	Elodie
JOB NUMBER:	DMS22-013	**CHECKED BY:**	

Drilling Co:	DPP	**Drilling Method:**	Direct Push				**Easting:**
Driller:	Aaron & Alec	**Weather:**	Overcast, wet		**Surface RL:**	-	**Northing:**
Class 18 PVC	-	**Total Depth of Hole:**		6mbgl	**Datum:**	-	
Bore diameter:	50mm	**Static Water Level:**		3.1mbgl	**Top of Casing RL:**	-	

Depth (mBGL)	GRAPHICAL LOG	LITHOGICAL DESCRIPTION
0.0		0-0.2mbgl Dark brown grey fine to medium grained well sorted TOPSOIL with organic matter and roots
0.5		0.2-4mbgl Cream fine to medium grained well sorted SAND. Saturated at 3.1mbgl
1.0		
1.5		
2.0		
2.5		
3.0		
3.5		
4.0		
4.5		4-4.5mbgl Red brown fine to medium grained well sorted wet SAND.
5.0		4.5-5.2mbgl Grey/brown/green mottled fine to medium grained well sorted CLAYEY SAND
5.5		5.2-5.6mbgl Green grey hard fine to medium grained well sorted damp CLAYEY SAND
6.0		5.6-6mbgl White fine to medium grained well sorted damp SAND

Soil Bore

ABEC ENVIRONMENTAL CONSULTING

Borehole No: KL_PASS022

CLIENT:	Doral			**DATE COMMENCED:**	20/06/2022
PROJECT:	ASS Investigation			**DATE COMPLETED:**	23/06/2022
LOCATION:	Lot 62 Hopeland Rd, North Dandalup			**LOGGED BY:**	Elodie
JOB NUMBER:	DMS22-013			**CHECKED BY:**	
Drilling Co:	DPP	**Drilling Method:** Direct Push			**Easting:**
Driller:	Aaron & Alec	**Weather:** Overcast, wet		**Surface RL:** -	**Northing:**
Class 18 PVC	-	**Total Depth of Hole:**	3mbgl	**Datum:** -	
Bore diameter:	50mm	**Static Water Level:**	0.6mbgl	**Top of Casing RL:** -	

Depth (mBGL)	GRAPHICAL LOG	LITHOGICAL DESCRIPTION
0.0		0-0.2mbgl Dark brown grey fine to medium grained organic rich TOPSOIL with some sand and roots
0.25		0.2-1.6mbgl Light brown orange fine to medium grained well sorted SAND. Saturated at 1.5mbgl.
0.75		
1.0		
1.25		
1.5		
1.75		1.6-1.7mbgl Red/brown/grey mottled poorly sorted CLAYEY SAND with a small pocket of laterite gravel
2.0		1.7-3mbgl Grey/red/orange mottled hard fine to medium grained moderately sorted SANDY CLAY
2.25		
2.5		
2.75		
3.0		

Soil Bore

Borehole No: KL_PASS023

CLIENT:	Doral			**DATE COMMENCED:**	20/06/2022
PROJECT:	ASS Investigation			**DATE COMPLETED:**	23/06/2022
LOCATION:	Lot 62 Hopeland Rd, North Dandalup			**LOGGED BY:**	Elodie
JOB NUMBER:	DMS22-013			**CHECKED BY:**	
Drilling Co:	DPP	**Drilling Method:** Direct Push			**Easting:**
Driller:	Aaron & Alec	**Weather:** Overcast, wet		**Surface RL:** -	**Northing:**
Class 18 PVC	-	**Total Depth of Hole:**	3mbgl	**Datum:** -	
Bore diameter:	50mm	**Static Water Level:**	1.5mbgl	**Top of Casing RL:** -	

Depth (mBGL)	GRAPHICAL LOG	LITHOGICAL DESCRIPTION
0.0		0-0.2mbgl Dark brown fine to medium grained well sorted organic rich TOPSOIL with some roots
0.25		0.2-1.5mbgl Light brown fine to medium grained well sorted SAND. Damp at 1.4mbgl.
0.75		
1.0		
1.25		
1.5		
1.75		1.5-2mbgl Light brown fine to medium grained well sorted saturated CLAYEY SAND
2.0		
2.25		2-3mbgl Grey/orange mottled fine to medium grained moderately sorted plasticy SANDY CLAY
2.5		
2.75		
3.0		

Soil Bore

ABEC ENVIRONMENTAL CONSULTING

Borehole No: KL_PASS033

CLIENT:	Doral	**DATE COMMENCED:**	20/06/2022
PROJECT:	ASS Investigation	**DATE COMPLETED:**	23/06/2022
LOCATION:	Lot 64 Elliot Road, Keysbrook	**LOGGED BY:**	Elodie
JOB NUMBER:	DMS22-013	**CHECKED BY:**	

Drilling Co:	DPP	**Drilling Method:**	Direct Push			**Easting:**	
Driller:	Aaron & Alec	**Weather:**	Fine, dry		**Surface RL:**	-	**Northing:**
Class 18 PVC	-	**Total Depth of Hole:**		6mbgl	**Datum:**	-	
Bore diameter:	50mm	**Static Water Level:**		0mbgl	**Top of Casing RL:**	-	

Depth (mBGL)	GRAPHICAL LOG	LITHOGICAL DESCRIPTION
0.0		0-0.2mbgl Dark grey black organic rich TOPSOIL with roots, grass and some sand
0.5		0.2-2.6mbgl Light brown becoming light grey at 2mbgl fine to medium grained well sorted SAND
1.0		
1.5		
2.0		
2.5		
3.0		2.6-4.5mbgl Light brown fine to medium grained well sorted hard CLAYEY SAND
3.5		
4.0		
4.5		4.5-6mbgl Dark brown fine to medium grained well sorted SAND with some clay.
5.0		
5.5		
6.0		

Soil Bore

ABEC ENVIRONMENTAL CONSULTING

Borehole No: KL_PASS034

CLIENT:	Doral			**DATE COMMENCED:**	20/06/2022
PROJECT:	ASS Investigation			**DATE COMPLETED:**	23/06/2022
LOCATION:	Lot 64 Elliot Road, Keysbrook			**LOGGED BY:**	Elodie
JOB NUMBER:	DMS22-013			**CHECKED BY:**	
Drilling Co:	DPP	**Drilling Method:** Direct Push			**Easting:**
Driller:	Aaron & Alec	**Weather:** Fine, dry		**Surface RL:** -	**Northing:**
Class 18 PVC	-	**Total Depth of Hole:**	3mbgl	**Datum:** -	
Bore diameter:	50mm	**Static Water Level:**	2.2mbgl	**Top of Casing RL:** -	

Depth (mBGL)	GRAPHICAL LOG	LITHOGICAL DESCRIPTION
0.0		0-0.2mbgl Dark grey organic rich TOPSOIL with some sand and roots
0.25		0.2-2.4mbgl Light grey fine to medium grained well sorted SAND
0.75		
1.0		
1.25		
1.5		
1.75		
2.0		
2.25		
2.5		2.4-2.8mbgl Light yellow brown fine to medium grained well sorted SAND with traces of laterite
2.75		
3.0		2.8-3m Grey with mottled brown fine to medium grained well sorted CLAYEY SAND. Wet from 2.2mbgl.

Soil Bore

ABEC ENVIRONMENTAL CONSULTING

Borehole No: KL_PASS035

CLIENT:	Doral	**DATE COMMENCED:**	20/06/2022
PROJECT:	ASS Investigation	**DATE COMPLETED:**	23/06/2022
LOCATION:	Lot 64 Elliot Road, Keysbrook	**LOGGED BY:**	Elodie
JOB NUMBER:	DMS22-013	**CHECKED BY:**	

Drilling Co:	DPP	**Drilling Method:**	Direct Push			**Easting:**	
Driller:	Aaron & Alec	**Weather:**	Fine, dry		**Surface RL:**	-	**Northing:**
Class 18 PVC	-	**Total Depth of Hole:**		6mbgl	**Datum:**	-	
Bore diameter:	50mm	**Static Water Level:**		0.8mbgl	**Top of Casing RL:**	-	

Depth (mBGL)	GRAPHICAL LOG	LITHOGICAL DESCRIPTION
0.0		0-0.2mbgl Dark brown organic rich fine to medium grained well sorted TOPSOIL with some sand and roots
0.5		0.2-2.5mbgl Medium grey fine to medium grained well sorted SAND. Groundwater ar 0.8mbgl
1.0		
1.5		
2.0		
2.5		2.5-2.6mbgl Dark brown pocket of poorly sorted GRAVELLY SAND with large 2-3cm laterite rocks
3.0		2.6-3.6mbgl Grey/orange/brown mottled fine to medium grained moderately sorted hard wet SANDY CLAY with some laterite gravel
3.5		
4.0		3.6-5m Medium grey fine to medium grained well sorted hard CLAYEY SAND with some organic matter and traces of laterite gravel
4.5		
5.0		
5.5		5-6mbgl Grey/light yellow mottled fine to medium grained well sorted hard CLAYEY SAND becoming more SAND with some clay at 5.5mbgl
6.0		

Soil Bore

ABEC ENVIRONMENTAL CONSULTING

Borehole No: KL_PASS036

CLIENT:	Doral	**DATE COMMENCED:**	20/06/2022
PROJECT:	ASS Investigation	**DATE COMPLETED:**	23/06/2022
LOCATION:	Lot 64 Elliot Road, Keysbrook	**LOGGED BY:**	Elodie
JOB NUMBER:	DMS22-013	**CHECKED BY:**	

Drilling Co:	DPP	**Drilling Method:** Direct Push				**Easting:**	
Driller:	Aaron & Alec	**Weather:** Fine, dry		**Surface RL:**	-	**Northing:**	
Class 18 PVC	-	**Total Depth of Hole:**	3mbgl	**Datum:**	-		
Bore diameter:	50mm	**Static Water Level:**	-	**Top of Casing RL:**	-		

Depth (mBGL)	GRAPHICAL LOG	LITHOGICAL DESCRIPTION
0.0		0-0.2mbgl Dark brown grey organic rich TOPSOIL with some roots and sand
0.25		0.2-2.4mbgl Light grey fine to medium grained well sorted SAND
0.75		
1.0		
1.25		
1.5		
1.75		
2.0		
2.25		
2.5		2.4-2.8mbgl Medium brown fine to medium grained moderately sorted SAND with some laterite gravel
2.75		
3.0		2.8-3mbgl Orange brown fine to medium grained poorly sorted SANDY GRAVEL. Refusal at 3mbgl.

Soil Bore

ABEC ENVIRONMENTAL CONSULTING

Borehole No: KL_PASS037

CLIENT:	Doral	**DATE COMMENCED:**	20/06/2022
PROJECT:	ASS Investigation	**DATE COMPLETED:**	23/06/2022
LOCATION:	Lot 64 Elliot Road, Keysbrook	**LOGGED BY:**	Elodie
JOB NUMBER:	DMS22-013	**CHECKED BY:**	

Drilling Co:	DPP	**Drilling Method:**	Direct Push			**Easting:**	
Driller:	Aaron & Alec	**Weather:**	Fine, dry		**Surface RL:**	-	**Northing:**
Class 18 PVC	-	**Total Depth of Hole:**		6mbgl	**Datum:**	-	
Bore diameter:	50mm	**Static Water Level:**		2.9mbgl	**Top of Casing RL:**	-	

Depth (mBGL)	GRAPHICAL LOG	LITHOGICAL DESCRIPTION
0.0		0-0.2mbgl Dark brown grey organic rich TOPSOIL with roots and some sand
0.5		0.2-1.1mbgl Light grey fine to medium grained well sorted SAND
1.0		
1.5		1.1-2.5mbgl Cream with mottled orange fine to medium grained well sorted SAND with some clay.
2.0		
2.5		
3.0		2.5-3mbgl Medium brown/orange mottled fine to medium grained poorly sorted clayey GRAVELLY SAND (laterite)
3.5		3-4mbgl Cream fine to medium grained well sorted saturated SAND with some organic matter.
4.0		
4.5		4-5.25mbgl Grey/red mottled fine to medium grained moderately sorted hard CLAYEY SAND with traces of laterite gravel
5.0		
5.5		5.25-6mbgl Medium grey fine to medium grained well sorted CLAYEY SAND with some organic matter.
6.0		

Soil Bore

ABEC ENVIRONMENTAL CONSULTING

Borehole No: KL_PASS038

CLIENT:	Doral	**DATE COMMENCED:**	20/06/2022
PROJECT:	ASS Investigation	**DATE COMPLETED:**	23/06/2022
LOCATION:	Lot 64 Elliot Road, Keysbrook	**LOGGED BY:**	Elodie
JOB NUMBER:	DMS22-013	**CHECKED BY:**	

Drilling Co:	DPP	**Drilling Method:**	Direct Push				**Easting:**
Driller:	Aaron & Alec	**Weather:**	Overcast, wet		**Surface RL:**	-	**Northing:**
Class 18 PVC	-	**Total Depth of Hole:**		2.6mbgl	**Datum:**	-	
Bore diameter:	50mm	**Static Water Level:**		-	**Top of Casing RL:**	-	

Depth (mBGL)	GRAPHICAL LOG	LITHOGICAL DESCRIPTION
0.0		0-0.2mbgl Dark brown grey organic rich TOPSOIL with some sand and roots
0.25		0.2-2.4mbgl Cream fine to medium grained well sorted SAND
0.75		
1.0		
1.25		
1.5		
1.75		
2.0		
2.25		
2.5		2.4-2.6mbgl Red orange fine to coarse grained poorly sorted SANDY GRAVEL (laterite). Refusal at 2.6mbgl.
2.60		

Soil Bore

Borehole No: KL_PASS042

CLIENT:	Doral	**DATE COMMENCED:**	20/06/2022
PROJECT:	ASS Investigation	**DATE COMPLETED:**	23/06/2022
LOCATION:	Lot 508 Elliot Road, Keysbrook WA	**LOGGED BY:**	Elodie
JOB NUMBER:	DMS22-013	**CHECKED BY:**	

Drilling Co:	DPP	**Drilling Method:**	Direct Push				**Easting:**
Driller:	Aaron & Alec	**Weather:**	Overcast, wet		**Surface RL:**	-	**Northing:**
Class 18 PVC	-	**Total Depth of Hole:**		6mbgl	**Datum:**	-	
Bore diameter:	50mm	**Static Water Level:**		1.2mbgl	**Top of Casing RL:**	-	

Depth (mBGL)	GRAPHICAL LOG	LITHOGICAL DESCRIPTION
0.0		0-0.2mbgl Medium brown grey fine to medium grained well sorted organic rich TOPSOIL with some sand and roots
0.5		0.2-1mbgl Light brown fine to medium grained well sorted SAND. Wet at 1mbgl.
1.0		
1.5		1-2.2mbgl Light yellow fine to medium grained well sorted SAND with some clay and traces of laterite gravel. Saturated from 1.2mbgl.
2.0		
2.5		2.2-3m Light grey fine to medium grained well sorted saturated SAND with some organic matter
3.0		
3.5		3-6mbgl Light grey with traces of red mottling fine to medium grained well sorted hard CLAYEY SAND. Some organic matter between 5.8-6mbgl with mild rotten egg odour.
4.0		
4.5		
5.0		
5.5		
6.0		

Soil Bore

ABEC ENVIRONMENTAL CONSULTING

Borehole No: KL_PASS043

CLIENT:	Doral	**DATE COMMENCED:**	20/06/2022
PROJECT:	ASS Investigation	**DATE COMPLETED:**	23/06/2022
LOCATION:	Lot 508 Elliot Road, Keysbrook WA	**LOGGED BY:**	Elodie
JOB NUMBER:	DMS22-013	**CHECKED BY:**	

Drilling Co:	DPP	**Drilling Method:**	Direct Push				**Easting:**
Driller:	Aaron & Alec	**Weather:**	Overcast, wet		**Surface RL:**	-	**Northing:**
Class 18 PVC	-	**Total Depth of Hole:**		6mbgl	**Datum:**	-	
Bore diameter:	50mm	**Static Water Level:**		1.5mbgl	**Top of Casing RL:**	-	

Depth (mBGL)	GRAPHICAL LOG	LITHOGICAL DESCRIPTION
0.0		0-0.2mbgl Dark brown grey fine to medium grained organic rich TOPOSOIL with some sand and roots
0.5		0.2-3.1mbgl Cream with orange mottled fine to mdium grained well sorted CLAYEY SAND with traces of laterite gravel. Wet from 1.5mbgl.
1.0		
1.5		
2.0		
2.5		
3.0		
3.5		3.1-3.6mbgl Pocket of pink grey with red and orange mottled fine to medium grained poorly sorted wet clayey SANDY GRAVEL
4.0		3.6-5.2mbgl Light grey with varying amounts of mottled brown fine to medium grained well sorted hard CLAYEY SAND with some organic matter throughout. Wet to 3.5mbgl. Mild rotten egg odour.
4.5		
5.0		
5.5		5.2-6mbgl Dark brown with mottled red fine to medium grained well sorted hard SANDY CLAY.
6.0		

Soil Bore

ABEC ENVIRONMENTAL CONSULTING

Borehole No: KL_PASS044

CLIENT:	Doral	**DATE COMMENCED:**	20/06/2022
PROJECT:	ASS Investigation	**DATE COMPLETED:**	23/06/2022
LOCATION:	Lot 508 Elliot Road, Keysbrook WA	**LOGGED BY:**	Elodie
JOB NUMBER:	DMS22-013	**CHECKED BY:**	

Drilling Co:	DPP	**Drilling Method:**	Direct Push			**Easting:**	
Driller:	Aaron & Alec	**Weather:**	Overcast, wet		**Surface RL:**	-	**Northing:**
Class 18 PVC	-	**Total Depth of Hole:**		6mbgl	**Datum:**	-	
Bore diameter:	50mm	**Static Water Level:**		3.2mbgl	**Top of Casing RL:**	-	

Depth (mBGL)	GRAPHICAL LOG	LITHOGICAL DESCRIPTION
0.0		0-0.2mbgl Dark brown grey fine to medium grained well sorted organic rich TOPSOIL with roots and some sand
0.5		0-2-1.6mbgl Light brown becoming light yellow brown fine to medium grained well sorted SAND. Wet at 1.5mbgl. Some clay between 1.5-1.6mbgl
1.0		
1.5		
2.0		1.6-4.3 Light grey with red and orange mottled fine to medium grained poorly sorted gravelly SANDY CLAY.
2.5		
3.0		
3.5		
4.0		
4.5		4.3-6mbgl Light brown becoming light grey at 5mbgl fine to medium grained well sorted hard wet CLAYEY SAND
5.0		
5.5		
6.0		

Soil Bore

ABEC ENVIRONMENTAL CONSULTING

Borehole No: KL_PASS045

CLIENT:	Doral	**DATE COMMENCED:**	20/06/2022
PROJECT:	ASS Investigation	**DATE COMPLETED:**	23/06/2022
LOCATION:	Lot 201 Elliot Road, Keysbrook WA	**LOGGED BY:**	Elodie
JOB NUMBER:	DMS22-013	**CHECKED BY:**	

Drilling Co:	DPP	**Drilling Method:** Direct Push					**Easting:**
Driller:	Aaron & Alec	**Weather:** Overcast, wet		**Surface RL:**	-		**Northing:**
Class 18 PVC	-	**Total Depth of Hole:**	6mbgl	**Datum:**	-		
Bore diameter:	50mm	**Static Water Level:**	4.5mbgl	**Top of Casing RL:**	-		

Depth (mBGL)	GRAPHICAL LOG	LITHOGICAL DESCRIPTION
0.0		0-0.2mbgl Dark brown grey fine to medium grained well sorted organic rich TOPSOIL with some roots
0.5		0.2-1.5mbgl Yellow orange fine to medium grained well sorted SAND
1.0		
1.5		
2.0		1.5-3.1mbgl Light brown fine to medium grained well sorted damp SAND
2.5		
3.0		
3.5		3.1-4.4mbgl Red with orange mottled fine to coarse graned poorly sorted SANDY GRAVEL (laterite)
4.0		
4.5		4.4-6mbgl Light grey with orangge mottled fine to medium grained well sorted SAND. Saturated from 4.5mbgl
5.0		
5.5		
6.0		

Soil Bore

ABEC ENVIRONMENTAL CONSULTING

Borehole No: KL_PASS046

CLIENT:	Doral	**DATE COMMENCED:**	20/06/2022
PROJECT:	ASS Investigation	**DATE COMPLETED:**	23/06/2022
LOCATION:	Lot 201 Elliot Road, Keysbrook WA	**LOGGED BY:**	Elodie
JOB NUMBER:	DMS22-013	**CHECKED BY:**	

Drilling Co:	DPP	**Drilling Method:** Direct Push				**Easting:**	
Driller:	Aaron & Alec	**Weather:** Overcast, wet		**Surface RL:**	-	**Northing:**	
Class 18 PVC	-	**Total Depth of Hole:**	6mbgl	**Datum:**	-		
Bore diameter:	50mm	**Static Water Level:**	1.2mbgl	**Top of Casing RL:**	-		

Depth (mBGL)	GRAPHICAL LOG	LITHOGICAL DESCRIPTION
0.0		0-0.2mbgl Dark grey fine to medium grained organic rich TOPSOIL with some roots
0.5		0.2-1mbgl Light grey fine to medium grained well sorted SAND
1.0		
		1-1.4mbgl Red poorly sorted fine to coarse grained SANDY GRAVEL (laterite)
1.5		1.4-2.4mbgl Light brown fine to medium grained well sorted damp SAND with soe organic matter and traces of laterite gravel
2.0		
2.5		2.4mbgl Grey/red/brown mottled poorly sorted fine to coarse grained clayey damp SANDY GRAVEL (laterite)
3.0		
3.5		3-6mbgl Light grey with traces of mottled red and orange fine to medium grained damp SANDY CLAYS and CLAYEY SANDS with some organic matter throughout.
4.0		
4.5		
5.0		
5.5		
6.0		

Soil Bore

ABEC ENVIRONMENTAL CONSULTING

Borehole No: KL_PASS047

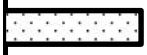
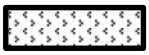
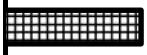
CLIENT:	Doral	**DATE COMMENCED:**	20/06/2022
PROJECT:	ASS Investigation	**DATE COMPLETED:**	23/06/2022
LOCATION:	Lot 201 Elliot Road, Keysbrook WA	**LOGGED BY:**	Elodie
JOB NUMBER:	DMS22-013	**CHECKED BY:**	

Drilling Co:	DPP	**Drilling Method:**	Direct Push				**Easting:**
Driller:	Aaron & Alec	**Weather:**	Overcast, wet		**Surface RL:**	-	**Northing:**
Class 18 PVC	-	**Total Depth of Hole:**		6mbgl	**Datum:**	-	
Bore diameter:	50mm	**Static Water Level:**		2.9mbgl	**Top of Casing RL:**	-	

Depth (mBGL)	GRAPHICAL LOG	LITHOGICAL DESCRIPTION
0.0		0-0.2mbgl Dark brown grey fine to medium grained well sorted organic rich TOPSOIL with some roots
0.5		0.2-2.9mbgl Yellow orange fine to mediun grained well sorted SAND
1.0		
1.5		
2.0		
2.5		
3.0		2.9-3.1mbgl Light yellow fine to medium grained moderately sorted SAND with some clay and laterite gravel.
3.5		3.1-4.6mbgl Light grey with mottled orange fine to medium grained moderately sorted wet SAND with some laterite gravel and traces of clay.
4.0		
4.5		
5.0		4.6-6mbgl Red/grey/orange mottled fine to medium grained poorly sorted hard and dry gravelly SANDY CLAY
5.5		
6.0		

Lithology and Construction Details

ABEC ENVIRONMENTAL CONSULTING

Lithology		Construction	
	Sand		cuttings
	Clayey Sand		bentonite
	Silty Sand		gravel
	Gravelly Sand		screen
	Clay		casing
	Sandy Clay		concrete/grout
	Silty Clay		
	Gravelly Clay		
	Gravel		
	Sandy Gravel		
	Organic Matter		
	Silt		
	Clayey Gravel		
	Topsoil		

APPENDIX 2: CHAIN OF CUSTODY DOCUMENTATION AND LABORATORY CERTIFICATES

ABEC Environmental Consutlting Pty Ltd
2/17 Inverness Ave
Dunsborough
WA 6281

Attention: **Elodie Payet**

Report **900869-S**
Project name DMS22-013
Project ID DMS22-013
Received Date Jun 24, 2022

Client Sample ID			KL_PASS016 1m	KL_PASS014 0.5	KL_PASS014 1	KL_PASS014 1.5
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**L22-Jn0059286**	**L22-Jn0059287**	**L22-Jn0059288**	**L22-Jn0059289**
Date Sampled			**Jun 22, 2022**	**Jun 23, 2022**	**Jun 23, 2022**	**Jun 23, 2022**
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	6.1	5.5	5.6	4.9
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	5.2	4.3	4.4	4.5
Reaction Ratings*[S05]	0	-	2.0	1.0	1.0	1.0

Client Sample ID			KL_PASS014 2	KL_PASS014 2.5	KL_PASS014 3	KL_PASS014 3.5
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**L22-Jn0059290**	**L22-Jn0059291**	**L22-Jn0059292**	**L22-Jn0059293**
Date Sampled			**Jun 23, 2022**	**Jun 23, 2022**	**Jun 23, 2022**	**Jun 23, 2022**
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	4.8	5.9	5.4	6.2
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	4.6	5.2	5.1	4.4
Reaction Ratings*[S05]	0	-	1.0	1.0	2.0	2.0

Client Sample ID			KL_PASS014 4	KL_PASS014 4.5	KL_PASS014 5	KL_PASS014 5.5
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**L22-Jn0059294**	**L22-Jn0059295**	**L22-Jn0059296**	**L22-Jn0059297**
Date Sampled			**Jun 23, 2022**	**Jun 23, 2022**	**Jun 23, 2022**	**Jun 23, 2022**
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	6.1	6.7	6.2	6.5
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	5.3	5.9	5.5	5.2
Reaction Ratings*[S05]	0	-	2.0	2.0	2.0	2.0

Client Sample ID			KL_PASS014 6	KL_PASS014 6.5	KL_PASS014 7	KL_PASS014 7.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L22-Jn0059298	L22-Jn0059299	L22-Jn0059300	L22-Jn0059301
Date Sampled			Jun 23, 2022	Jun 23, 2022	Jun 23, 2022	Jun 23, 2022
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	6.5	6.6	6.7	6.9
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	5.1	5.1	5.1	4.2
Reaction Ratings*[S05]	0	-	2.0	2.0	2.0	2.0

Client Sample ID			KL_PASS014 8	KL_PASS014 8.5	KL_PASS045 0.5	KL_PASS045 1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L22-Jn0059302	L22-Jn0059303	L22-Jn0059304	L22-Jn0059305
Date Sampled			Jun 23, 2022	Jun 23, 2022	Jun 23, 2022	Jun 23, 2022
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	6.7	6.3	6.0	6.5
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	4.6	5.1	5.1	5.4
Reaction Ratings*[S05]	0	-	2.0	2.0	2.0	2.0

Client Sample ID			KL_PASS045 1.5	KL_PASS045 2	KL_PASS045 2.5	KL_PASS045 3
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L22-Jn0059306	L22-Jn0059307	L22-Jn0059308	L22-Jn0059309
Date Sampled			Jun 23, 2022	Jun 23, 2022	Jun 23, 2022	Jun 23, 2022
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	5.2	6.9	6.6	6.6
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	4.6	5.7	5.4	5.6
Reaction Ratings*[S05]	0	-	2.0	2.0	2.0	2.0

Client Sample ID			KL_PASS045 3.5	KL_PASS045 4	KL_PASS045 4.5	KL_PASS045 5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L22-Jn0059310	L22-Jn0059311	L22-Jn0059312	L22-Jn0059313
Date Sampled			Jun 23, 2022	Jun 23, 2022	Jun 23, 2022	Jun 23, 2022
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	6.2	6.3	6.0	6.5
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	5.3	5.4	5.1	5.7
Reaction Ratings*[S05]	0	-	2.0	2.0	2.0	2.0

Client Sample ID			KL_PASS045 5.5	KL_PASS045 6
Sample Matrix			**Soil**	**Soil**
Eurofins Sample No.			**L22-Jn0059314**	**L22-Jn0059315**
Date Sampled			**Jun 23, 2022**	**Jun 23, 2022**
Test/Reference	LOR	Unit		
Acid Sulfate Soils Field pH Test				
pH-F (Field pH test)*	0.1	pH Units	6.4	6.5
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	5.7	5.8
Reaction Ratings*[S05]	0	-	1.0	2.0

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
Acid Sulfate Soils Field pH Test	Welshpool	Jun 27, 2022	7 Days

- Method: LTM-GEN-7060 Determination of field pH (pHF) and field pH peroxide (pHFOX) tests

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Company Name: ABEC Environmental Consulting Pty Ltd
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Project Name: DMS22-013
Project ID: DMS22-013

Order No.:
Report #: 900869
Phone: 0422 812 845
Fax:

Received: Jun 24, 2022 10:30 AM
Due: Jul 5, 2022
Priority: 7 Day
Contact Name: Elodie Payet

Eurofins Analytical Services Manager : Natalie Hill

Sample Detail						Acid Sulfate Soils Field pH Test
Perth Laboratory - NATA # 2377 Site # 2370						X
External Laboratory						
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**	
1	KL_PASS016 1m	Jun 22, 2022		Soil	L22-Jn0059286	X
2	KL_PASS014 0.5	Jun 23, 2022		Soil	L22-Jn0059287	X
3	KL_PASS014 1	Jun 23, 2022		Soil	L22-Jn0059288	X
4	KL_PASS014 1.5	Jun 23, 2022		Soil	L22-Jn0059289	X
5	KL_PASS014 2	Jun 23, 2022		Soil	L22-Jn0059290	X
6	KL_PASS014 2.5	Jun 23, 2022		Soil	L22-Jn0059291	X
7	KL_PASS014 3	Jun 23, 2022		Soil	L22-Jn0059292	X
8	KL_PASS014 3.5	Jun 23, 2022		Soil	L22-Jn0059293	X

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Eurofins Analytical Services Manager : Natalie Hill

Sample Detail						Acid Sulfate Soils Field pH Test
Perth Laboratory - NATA # 2377 Site # 2370						X
9	KL_PASS0144	Jun 23, 2022		Soil	L22-Jn0059294	X
10	KL_PASS0144.5	Jun 23, 2022		Soil	L22-Jn0059295	X
11	KL_PASS0145	Jun 23, 2022		Soil	L22-Jn0059296	X
12	KL_PASS0145.5	Jun 23, 2022		Soil	L22-Jn0059297	X
13	KL_PASS0146	Jun 23, 2022		Soil	L22-Jn0059298	X
14	KL_PASS0146.5	Jun 23, 2022		Soil	L22-Jn0059299	X
15	KL_PASS0147	Jun 23, 2022		Soil	L22-Jn0059300	X
16	KL_PASS0147.5	Jun 23, 2022		Soil	L22-Jn0059301	X
17	KL_PASS0148	Jun 23, 2022		Soil	L22-Jn0059302	X
18	KL_PASS014	Jun 23, 2022		Soil	L22-Jn0059303	X

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Eurofins Analytical Services Manager : Natalie Hill

Sample Detail						Acid Sulfate Soils Field pH Test
Perth Laboratory - NATA # 2377 Site # 2370						X
18	KL_PASS0148.5	Jun 23, 2022		Soil	L22-Jn0059303	
19	KL_PASS0450.5	Jun 23, 2022		Soil	L22-Jn0059304	X
20	KL_PASS0451	Jun 23, 2022		Soil	L22-Jn0059305	X
21	KL_PASS0451.5	Jun 23, 2022		Soil	L22-Jn0059306	X
22	KL_PASS0452	Jun 23, 2022		Soil	L22-Jn0059307	X
23	KL_PASS0452.5	Jun 23, 2022		Soil	L22-Jn0059308	X
24	KL_PASS0453	Jun 23, 2022		Soil	L22-Jn0059309	X
25	KL_PASS0453.5	Jun 23, 2022		Soil	L22-Jn0059310	X
26	KL_PASS0454	Jun 23, 2022		Soil	L22-Jn0059311	X
27	KL_PASS045	Jun 23, 2022		Soil	L22-Jn0059312	X

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Priority: 7 Day
Contact Name: Elodie Payet

Eurofins Analytical Services Manager : Natalie Hill

Sample Detail						Acid Sulfate Soils Field pH Test
Perth Laboratory - NATA # 2377 Site # 2370						X
	4.5					
28	KL_PASS0455	Jun 23, 2022		Soil	L22-Jn0059313	X
29	KL_PASS045 5.5	Jun 23, 2022		Soil	L22-Jn0059314	X
30	KL_PASS0456	Jun 23, 2022		Soil	L22-Jn0059315	X
Test Counts						30

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

Please refer to '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 prior to sample receipt deadlines as stated on the SRA.

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

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

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

Units

mg/kg: milligrams per kilogram
mg/L: milligrams per litre
µg/L: micrograms per litre
ppm: parts per million
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

Terms

APHA	American Public Health Association
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 a moisture has been determined on a solid sample the result is expressed on a dry 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 is representative of 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 like compound to the analyte target and reported as percentage recovery.
TBTO	Tributyltin oxide (*bis*-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 5.4
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 be used as a guide only 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

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.4 where no positive PFAS results have been reported have been reviewed and no data was affected.

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QC Data General Comments

1. Where a result is reported as a 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.
2. 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 is not data from your samples.
3. 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.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Acid Sulfate Soils Field pH Test				Result 1	Result 2	RPD			
pH-F (Field pH test)*	L22-Jn0059286	CP	pH Units	6.1	6.1	pass	20%	Pass	
Reaction Ratings*	L22-Jn0059286	CP	-	2.0	2.0	pass	30%	Pass	
Duplicate									
Acid Sulfate Soils Field pH Test				Result 1	Result 2	RPD			
pH-F (Field pH test)*	L22-Jn0059296	CP	pH Units	6.2	6.3	pass	20%	Pass	
Reaction Ratings*	L22-Jn0059296	CP	-	2.0	2.0	pass	30%	Pass	
Duplicate									
Acid Sulfate Soils Field pH Test				Result 1	Result 2	RPD			
pH-F (Field pH test)*	L22-Jn0059306	CP	pH Units	5.2	5.2	pass	20%	Pass	
Reaction Ratings*	L22-Jn0059306	CP	-	2.0	2.0	pass	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
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:

Natalie Hill — Analytical Services Manager

Kim Rodgers
Business Unit 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

ABEC Environmental Consutlting Pty Ltd
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Attention: **Elodie Payet**

Report **900883-S**
Project name DMS22-013
Project ID DMS22-013
Received Date Jun 24, 2022

Client Sample ID			KL_PASS044 0.5	KL_PASS044 1	KL_PASS044 1.5	KL_PASS044 2
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**L22-Jn0059365**	**L22-Jn0059366**	**L22-Jn0059367**	**L22-Jn0059368**
Date Sampled			**Jun 22, 2022**	**Jun 22, 2022**	**Jun 22, 2022**	**Jun 22, 2022**
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	6.0	5.7	5.3	5.8
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	3.9	4.9	5.2	5.2
Reaction Ratings*[S05]	0	-	1.0	2.0	2.0	2.0

Client Sample ID			KL_PASS044 2.5	KL_PASS044 3	KL_PASS044 3.5	KL_PASS044 4
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**L22-Jn0059369**	**L22-Jn0059370**	**L22-Jn0059371**	**L22-Jn0059372**
Date Sampled			**Jun 22, 2022**	**Jun 22, 2022**	**Jun 22, 2022**	**Jun 22, 2022**
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	5.6	5.6	5.4	6.1
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	5.2	5.1	4.7	4.2
Reaction Ratings*[S05]	0	-	2.0	2.0	2.0	2.0

Client Sample ID			KL_PASS044 4.5	KL_PASS044 5	KL_PASS044 5.5	KL_PASS044 6
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**L22-Jn0059373**	**L22-Jn0059374**	**L22-Jn0059375**	**L22-Jn0059376**
Date Sampled			**Jun 22, 2022**	**Jun 22, 2022**	**Jun 22, 2022**	**Jun 22, 2022**
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	5.8	5.4	6.4	5.9
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	4.8	4.5	4.7	5.0
Reaction Ratings*[S05]	0	-	2.0	2.0	2.0	2.0

Client Sample ID			KL_PASS043 0.5	KL_PASS043 1	KL_PASS043 1.5	KL_PASS043 2
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**L22-Jn0059377**	**L22-Jn0059378**	**L22-Jn0059379**	**L22-Jn0059380**
Date Sampled			**Jun 22, 2022**	**Jun 22, 2022**	**Jun 22, 2022**	**Jun 22, 2022**
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	5.8	5.8	5.8	5.9
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	4.5	4.9	4.9	5.1
Reaction Ratings*[S05]	0	-	2.0	2.0	2.0	2.0

Client Sample ID			KL_PASS043 2.5	KL_PASS043 3	KL_PASS043 3.5	KL_PASS043 4
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**L22-Jn0059381**	**L22-Jn0059382**	**L22-Jn0059383**	**L22-Jn0059384**
Date Sampled			**Jun 22, 2022**	**Jun 22, 2022**	**Jun 22, 2022**	**Jun 22, 2022**
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	6.2	5.8	5.5	5.6
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	5.2	3.2	3.7	3.9
Reaction Ratings*[S05]	0	-	2.0	4.0	2.0	2.0

Client Sample ID			KL_PASS043 4.5	KL_PASS043 5	KL_PASS043 5.5	KL_PASS043 6
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**L22-Jn0059385**	**L22-Jn0059386**	**L22-Jn0059387**	**L22-Jn0059388**
Date Sampled			**Jun 22, 2022**	**Jun 22, 2022**	**Jun 22, 2022**	**Jun 22, 2022**
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	6.2	6.4	6.7	6.7
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	5.1	5.7	6.1	6.0
Reaction Ratings*[S05]	0	-	2.0	2.0	2.0	2.0

Client Sample ID			KL_PASS042 0.5	KL_PASS042 1	KL_PASS042 1.5	KL_PASS042 2
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**L22-Jn0059389**	**L22-Jn0059390**	**L22-Jn0059391**	**L22-Jn0059392**
Date Sampled			**Jun 22, 2022**	**Jun 22, 2022**	**Jun 22, 2022**	**Jun 22, 2022**
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	5.3	5.0	5.2	6.1
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	3.6	4.1	4.5	5.3
Reaction Ratings*[S05]	0	-	1.0	2.0	2.0	2.0

Client Sample ID			KL_PASS042 2.5	KL_PASS042 3	KL_PASS042 3.5	KL_PASS042 4
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L22-Jn0059393	L22-Jn0059394	L22-Jn0059395	L22-Jn0059396
Date Sampled			Jun 22, 2022	Jun 22, 2022	Jun 22, 2022	Jun 22, 2022
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	5.5	6.3	7.4	7.1
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	3.1	3.3	6.3	7.0
Reaction Ratings*[S05]	0	-	2.0	2.0	1.0	2.0

Client Sample ID			KL_PASS042 4.5	KL_PASS042 5	KL_PASS042 5.5	KL_PASS042 6
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L22-Jn0059397	L22-Jn0059398	L22-Jn0059399	L22-Jn0059400
Date Sampled			Jun 22, 2022	Jun 22, 2022	Jun 22, 2022	Jun 22, 2022
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	6.8	6.5	6.5	6.5
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	6.1	5.8	5.6	5.6
Reaction Ratings*[S05]	0	-	2.0	2.0	2.0	2.0

Client Sample ID			KL_PASS047 0.5	KL_PASS047 1	KL_PASS047 1.5	KL_PASS047 2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L22-Jn0059401	L22-Jn0059402	L22-Jn0059403	L22-Jn0059404
Date Sampled			Jun 22, 2022	Jun 22, 2022	Jun 22, 2022	Jun 22, 2022
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	6.1	6.6	6.4	6.2
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	5.3	5.7	5.4	5.3
Reaction Ratings*[S05]	0	-	2.0	2.0	2.0	2.0

Client Sample ID			KL_PASS047 2.5	KL_PASS047 3	KL_PASS047 3.5	KL_PASS047 4
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L22-Jn0059405	L22-Jn0059406	L22-Jn0059407	L22-Jn0059408
Date Sampled			Jun 22, 2022	Jun 22, 2022	Jun 22, 2022	Jun 22, 2022
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	5.8	6.0	5.9	5.2
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	5.1	5.2	5.1	4.3
Reaction Ratings*[S05]	0	-	2.0	2.0	2.0	2.0

Client Sample ID			KL_PASS047 4.5	KL_PASS047 5	KL_PASS047 5.5	KL_PASS047 6
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L22-Jn0059409	L22-Jn0059410	L22-Jn0059411	L22-Jn0059412
Date Sampled			Jun 22, 2022	Jun 22, 2022	Jun 22, 2022	Jun 22, 2022
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	4.8	4.8	5.1	5.2
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	3.5	3.9	4.3	4.2
Reaction Ratings*[S05]	0	-	2.0	2.0	2.0	2.0

Client Sample ID			KL_PASS016 0.5	KL_PASS016 1.5	KL_PASS016 2	KL_PASS016 2.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L22-Jn0059413	L22-Jn0059415	L22-Jn0059416	L22-Jn0059417
Date Sampled			Jun 22, 2022	Jun 22, 2022	Jun 22, 2022	Jun 22, 2022
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	5.7	6.2	6.0	5.4
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	4.2	5.2	5.1	4.8
Reaction Ratings*[S05]	0	-	1.0	2.0	2.0	2.0

Client Sample ID			KL_PASS016 3	KL_PASS016 3.5	KL_PASS016 4	KL_PASS016 4.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L22-Jn0059418	L22-Jn0059419	L22-Jn0059420	L22-Jn0059421
Date Sampled			Jun 22, 2022	Jun 22, 2022	Jun 22, 2022	Jun 22, 2022
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	4.7	4.8	5.5	5.1
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	4.5	4.5	4.5	4.3
Reaction Ratings*[S05]	0	-	2.0	2.0	2.0	2.0

Client Sample ID			KL_PASS016 5	KL_PASS016 5.5	KL_PASS016 6	KL_PASS016 6.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L22-Jn0059422	L22-Jn0059423	L22-Jn0059424	L22-Jn0059425
Date Sampled			Jun 22, 2022	Jun 22, 2022	Jun 22, 2022	Jun 22, 2022
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	5.8	6.1	6.1	6.0
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	5.2	5.3	5.4	5.3
Reaction Ratings*[S05]	0	-	2.0	2.0	2.0	2.0

Client Sample ID			KL_PASS016 7	KL_PASS016 7.5	KL_PASS016 8	KL_PASS015 0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L22-Jn0059426	L22-Jn0059427	L22-Jn0059428	L22-Jn0059429
Date Sampled			Jun 22, 2022	Jun 22, 2022	Jun 22, 2022	Jun 22, 2022
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	5.7	5.7	5.8	5.7
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	5.1	5.2	5.3	3.8
Reaction Ratings*[S05]	0	-	2.0	2.0	2.0	2.0

Client Sample ID			KL_PASS015 1	KL_PASS015 1.5	KL_PASS015 2	KL_PASS015 2.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L22-Jn0059430	L22-Jn0059431	L22-Jn0059432	L22-Jn0059433
Date Sampled			Jun 22, 2022	Jun 22, 2022	Jun 22, 2022	Jun 22, 2022
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	5.7	5.9	6.0	6.1
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	4.4	4.9	5.0	5.1
Reaction Ratings*[S05]	0	-	2.0	2.0	2.0	2.0

Client Sample ID			KL_PASS015 3	KL_PASS015 3.5	KL_PASS015 4	KL_PASS015 4.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L22-Jn0059434	L22-Jn0059435	L22-Jn0059436	L22-Jn0059437
Date Sampled			Jun 22, 2022	Jun 22, 2022	Jun 22, 2022	Jun 22, 2022
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	6.3	6.1	5.9	6.0
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	5.2	5.1	4.9	5.0
Reaction Ratings*[S05]	0	-	2.0	2.0	2.0	2.0

Client Sample ID			KL_PASS015 5	KL_PASS015 5.5	KL_PASS015 6	KL_PASS015 6.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L22-Jn0059438	L22-Jn0059439	L22-Jn0059440	L22-Jn0059441
Date Sampled			Jun 22, 2022	Jun 22, 2022	Jun 22, 2022	Jun 22, 2022
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	5.7	5.9	6.0	6.1
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	5.1	5.2	5.2	5.3
Reaction Ratings*[S05]	0	-	2.0	2.0	2.0	2.0

Client Sample ID			KL_PASS015 7	KL_PASS015 7.5	KL_PASS015 8	KL_PASS015 8.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L22-Jn0059442	L22-Jn0059443	L22-Jn0059444	L22-Jn0059445
Date Sampled			Jun 22, 2022	Jun 22, 2022	Jun 22, 2022	Jun 22, 2022
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	5.7
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	3.0	5.4	5.4	5.0
Reaction Ratings*[S05]	0	-	2.0	2.0	2.0	2.0

Client Sample ID			KL_PASS046 0.5	KL_PASS046 1	KL_PASS046 1.5	KL_PASS046 2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L22-Jn0059446	L22-Jn0059447	L22-Jn0059448	L22-Jn0059449
Date Sampled			Jun 22, 2022	Jun 22, 2022	Jun 22, 2022	Jun 22, 2022
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	6.7	6.1	5.9	6.5
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	3.9	3.9	4.4	4.9
Reaction Ratings*[S05]	0	-	2.0	2.0	2.0	2.0

Client Sample ID			KL_PASS046 2.5	KL_PASS046 3	KL_PASS046 3.5	KL_PASS046 4
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L22-Jn0059450	L22-Jn0059451	L22-Jn0059452	L22-Jn0059453
Date Sampled			Jun 22, 2022	Jun 22, 2022	Jun 22, 2022	Jun 22, 2022
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	6.5	6.0	5.9	6.3
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	3.3	5.2	4.8	5.7
Reaction Ratings*[S05]	0	-	2.0	2.0	2.0	2.0

Client Sample ID			KL_PASS046 4.5	KL_PASS046 5	KL_PASS046 5.5	KL_PASS046 6
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L22-Jn0059454	L22-Jn0059455	L22-Jn0059456	L22-Jn0059457
Date Sampled			Jun 22, 2022	Jun 22, 2022	Jun 22, 2022	Jun 22, 2022
Test/Reference	LOR	Unit				
Acid Sulfate Soils Field pH Test						
pH-F (Field pH test)*	0.1	pH Units	6.2	6.4	6.5	6.5
pH-FOX (Field pH Peroxide test)*	0.1	pH Units	5.7	5.7	6.0	6.3
Reaction Ratings*[S05]	0	-	2.0	2.0	2.0	2.0

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
Acid Sulfate Soils Field pH Test	Welshpool	Jun 27, 2022	7 Days

- Method: LTM-GEN-7060 Determination of field pH (pHF) and field pH peroxide (pHFOX) tests

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Project Name: DMS22-013
Project ID: DMS22-013

Order No.:
Report #: 900883
Phone: 0422 812 845
Fax:

Received: Jun 24, 2022 10:30 AM
Due: Jul 5, 2022
Priority: 7 Day
Contact Name: Elodie Payet

Eurofins Analytical Services Manager : Natalie Hill

Sample Detail						Acid Sulfate Soils Field pH Test
Perth Laboratory - NATA # 2377 Site # 2370						X
External Laboratory						
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**	
1	KL_PASS0440.5	Jun 22, 2022		Soil	L22-Jn0059365	X
2	KL_PASS0441	Jun 22, 2022		Soil	L22-Jn0059366	X
3	KL_PASS0441.5	Jun 22, 2022		Soil	L22-Jn0059367	X
4	KL_PASS0442	Jun 22, 2022		Soil	L22-Jn0059368	X
5	KL_PASS0442.5	Jun 22, 2022		Soil	L22-Jn0059369	X
6	KL_PASS0443	Jun 22, 2022		Soil	L22-Jn0059370	X
7	KL_PASS0443.5	Jun 22, 2022		Soil	L22-Jn0059371	X
8	KL_PASS0444	Jun 22, 2022		Soil	L22-Jn0059372	X

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Eurofins Analytical Services Manager : Natalie Hill

Sample Detail						Acid Sulfate Soils Field pH Test
Perth Laboratory - NATA # 2377 Site # 2370						X
9	KL_PASS0444.5	Jun 22, 2022		Soil	L22-Jn0059373	X
10	KL_PASS0445	Jun 22, 2022		Soil	L22-Jn0059374	X
11	KL_PASS0445.5	Jun 22, 2022		Soil	L22-Jn0059375	X
12	KL_PASS0446	Jun 22, 2022		Soil	L22-Jn0059376	X
13	KL_PASS0430.5	Jun 22, 2022		Soil	L22-Jn0059377	X
14	KL_PASS0431	Jun 22, 2022		Soil	L22-Jn0059378	X
15	KL_PASS0431.5	Jun 22, 2022		Soil	L22-Jn0059379	X
16	KL_PASS0432	Jun 22, 2022		Soil	L22-Jn0059380	X
17	KL_PASS0432.5	Jun 22, 2022		Soil	L22-Jn0059381	X
18	KL_PASS043	Jun 22, 2022		Soil	L22-Jn0059382	X

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Eurofins Analytical Services Manager : Natalie Hill

Sample Detail						Acid Sulfate Soils Field pH Test
Perth Laboratory - NATA # 2377 Site # 2370						X
18	KL_PASS0433	Jun 22, 2022		Soil	L22-Jn0059382	
19	KL_PASS0433.5	Jun 22, 2022		Soil	L22-Jn0059383	X
20	KL_PASS0434	Jun 22, 2022		Soil	L22-Jn0059384	X
21	KL_PASS0434.5	Jun 22, 2022		Soil	L22-Jn0059385	X
22	KL_PASS0435	Jun 22, 2022		Soil	L22-Jn0059386	X
23	KL_PASS0435.5	Jun 22, 2022		Soil	L22-Jn0059387	X
24	KL_PASS0436	Jun 22, 2022		Soil	L22-Jn0059388	X
25	KL_PASS0420.5	Jun 22, 2022		Soil	L22-Jn0059389	X
26	KL_PASS0421	Jun 22, 2022		Soil	L22-Jn0059390	X
27	KL_PASS042	Jun 22, 2022		Soil	L22-Jn0059391	X

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Project ID: DMS22-013

Order No.:
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Phone: 0422 812 845
Fax:

Received: Jun 24, 2022 10:30 AM
Due: Jul 5, 2022
Priority: 7 Day
Contact Name: Elodie Payet

Eurofins Analytical Services Manager : Natalie Hill

Sample Detail						Acid Sulfate Soils Field pH Test
Perth Laboratory - NATA # 2377 Site # 2370						X
	1.5					
28	KL_PASS0422	Jun 22, 2022		Soil	L22-Jn0059392	X
29	KL_PASS0422.5	Jun 22, 2022		Soil	L22-Jn0059393	X
30	KL_PASS0423	Jun 22, 2022		Soil	L22-Jn0059394	X
31	KL_PASS0423.5	Jun 22, 2022		Soil	L22-Jn0059395	X
32	KL_PASS0424	Jun 22, 2022		Soil	L22-Jn0059396	X
33	KL_PASS0424.5	Jun 22, 2022		Soil	L22-Jn0059397	X
34	KL_PASS0425	Jun 22, 2022		Soil	L22-Jn0059398	X
35	KL_PASS0425.5	Jun 22, 2022		Soil	L22-Jn0059399	X
36	KL_PASS0426	Jun 22, 2022		Soil	L22-Jn0059400	X

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Perth Laboratory - NATA # 2377 Site # 2370						X
37	KL_PASS047 0.5	Jun 22, 2022		Soil	L22-Jn0059401	X
38	KL_PASS047 1	Jun 22, 2022		Soil	L22-Jn0059402	X
39	KL_PASS047 1.5	Jun 22, 2022		Soil	L22-Jn0059403	X
40	KL_PASS047 2	Jun 22, 2022		Soil	L22-Jn0059404	X
41	KL_PASS047 2.5	Jun 22, 2022		Soil	L22-Jn0059405	X
42	KL_PASS047 3	Jun 22, 2022		Soil	L22-Jn0059406	X
43	KL_PASS047 3.5	Jun 22, 2022		Soil	L22-Jn0059407	X
44	KL_PASS047 4	Jun 22, 2022		Soil	L22-Jn0059408	X
45	KL_PASS047 4.5	Jun 22, 2022		Soil	L22-Jn0059409	X
46	KL_PASS047	Jun 22, 2022		Soil	L22-Jn0059410	X

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Perth Laboratory - NATA # 2377 Site # 2370						X
	5					
47	KL_PASS0475.5	Jun 22, 2022		Soil	L22-Jn0059411	X
48	KL_PASS0476	Jun 22, 2022		Soil	L22-Jn0059412	X
49	KL_PASS0160.5	Jun 22, 2022		Soil	L22-Jn0059413	X
50	KL_PASS0161.5	Jun 22, 2022		Soil	L22-Jn0059415	X
51	KL_PASS0162	Jun 22, 2022		Soil	L22-Jn0059416	X
52	KL_PASS0162.5	Jun 22, 2022		Soil	L22-Jn0059417	X
53	KL_PASS0163	Jun 22, 2022		Soil	L22-Jn0059418	X
54	KL_PASS0163.5	Jun 22, 2022		Soil	L22-Jn0059419	X
55	KL_PASS0164	Jun 22, 2022		Soil	L22-Jn0059420	X

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Perth Laboratory - NATA # 2377 Site # 2370						X
56	KL_PASS0164.5	Jun 22, 2022		Soil	L22-Jn0059421	X
57	KL_PASS0165	Jun 22, 2022		Soil	L22-Jn0059422	X
58	KL_PASS0165.5	Jun 22, 2022		Soil	L22-Jn0059423	X
59	KL_PASS0166	Jun 22, 2022		Soil	L22-Jn0059424	X
60	KL_PASS0166.5	Jun 22, 2022		Soil	L22-Jn0059425	X
61	KL_PASS0167	Jun 22, 2022		Soil	L22-Jn0059426	X
62	KL_PASS0167.5	Jun 22, 2022		Soil	L22-Jn0059427	X
63	KL_PASS0168	Jun 22, 2022		Soil	L22-Jn0059428	X
64	KL_PASS0150.5	Jun 22, 2022		Soil	L22-Jn0059429	X
65	KL_PASS015	Jun 22, 2022		Soil	L22-Jn0059430	X

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Sample Detail						Acid Sulfate Soils Field pH Test
Perth Laboratory - NATA # 2377 Site # 2370						X
	1					
66	KL_PASS0151.5	Jun 22, 2022		Soil	L22-Jn0059431	X
67	KL_PASS0152	Jun 22, 2022		Soil	L22-Jn0059432	X
68	KL_PASS0152.5	Jun 22, 2022		Soil	L22-Jn0059433	X
69	KL_PASS0153	Jun 22, 2022		Soil	L22-Jn0059434	X
70	KL_PASS0153.5	Jun 22, 2022		Soil	L22-Jn0059435	X
71	KL_PASS0154	Jun 22, 2022		Soil	L22-Jn0059436	X
72	KL_PASS0154.5	Jun 22, 2022		Soil	L22-Jn0059437	X
73	KL_PASS0155	Jun 22, 2022		Soil	L22-Jn0059438	X
74	KL_PASS0155.5	Jun 22, 2022		Soil	L22-Jn0059439	X

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Perth Laboratory - NATA # 2377 Site # 2370						X
75	KL_PASS0156	Jun 22, 2022		Soil	L22-Jn0059440	X
76	KL_PASS0156.5	Jun 22, 2022		Soil	L22-Jn0059441	X
77	KL_PASS0157	Jun 22, 2022		Soil	L22-Jn0059442	X
78	KL_PASS0157.5	Jun 22, 2022		Soil	L22-Jn0059443	X
79	KL_PASS0158	Jun 22, 2022		Soil	L22-Jn0059444	X
80	KL_PASS0158.5	Jun 22, 2022		Soil	L22-Jn0059445	X
81	KL_PASS0460.5	Jun 22, 2022		Soil	L22-Jn0059446	X
82	KL_PASS0461	Jun 22, 2022		Soil	L22-Jn0059447	X
83	KL_PASS0461.5	Jun 22, 2022		Soil	L22-Jn0059448	X
84	KL_PASS046	Jun 22, 2022		Soil	L22-Jn0059449	X

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Perth Laboratory - NATA # 2377 Site # 2370						X
	2					
85	KL_PASS0462.5	Jun 22, 2022		Soil	L22-Jn0059450	X
86	KL_PASS04623	Jun 22, 2022		Soil	L22-Jn0059451	X
87	KL_PASS0463.5	Jun 22, 2022		Soil	L22-Jn0059452	X
88	KL_PASS04624	Jun 22, 2022		Soil	L22-Jn0059453	X
89	KL_PASS0464.5	Jun 22, 2022		Soil	L22-Jn0059454	X
90	KL_PASS04625	Jun 22, 2022		Soil	L22-Jn0059455	X
91	KL_PASS0465.5	Jun 22, 2022		Soil	L22-Jn0059456	X
92	KL_PASS04626	Jun 22, 2022		Soil	L22-Jn0059457	X
Test Counts						92

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

Please refer to '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 prior to sample receipt deadlines as stated on the SRA.

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

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

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

Units

mg/kg: milligrams per kilogram
mg/L: milligrams per litre
µg/L: micrograms per litre
ppm: parts per million
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

Terms

APHA	American Public Health Association
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 a moisture has been determined on a solid sample the result is expressed on a dry 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 is representative of 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 like compound to the analyte target and reported as percentage recovery.
TBTO	Tributyltin oxide (*bis*-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 5.4
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 be used as a guide only 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

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.4 where no positive PFAS results have been reported have been reviewed and no data was affected.

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QC Data General Comments

1. Where a result is reported as a 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.
2. 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 is not data from your samples.
3. 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.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Acid Sulfate Soils Field pH Test				Result 1	Result 2	RPD			
pH-F (Field pH test)*	L22-Jn0059365	CP	pH Units	6.0	5.9	pass	20%	Pass	
Reaction Ratings*	L22-Jn0059365	CP	-	1.0	1.0	pass	30%	Pass	
Duplicate									
Acid Sulfate Soils Field pH Test				Result 1	Result 2	RPD			
pH-F (Field pH test)*	L22-Jn0059375	CP	pH Units	6.4	6.5	pass	20%	Pass	
Reaction Ratings*	L22-Jn0059375	CP	-	2.0	2.0	pass	30%	Pass	
Duplicate									
Acid Sulfate Soils Field pH Test				Result 1	Result 2	RPD			
pH-F (Field pH test)*	L22-Jn0059385	CP	pH Units	6.2	6.1	pass	20%	Pass	
Reaction Ratings*	L22-Jn0059385	CP	-	2.0	2.0	pass	30%	Pass	
Duplicate									
Acid Sulfate Soils Field pH Test				Result 1	Result 2	RPD			
pH-F (Field pH test)*	L22-Jn0059395	CP	pH Units	7.4	7.3	pass	20%	Pass	
Reaction Ratings*	L22-Jn0059395	CP	-	1.0	1.0	pass	30%	Pass	
Duplicate									
Acid Sulfate Soils Field pH Test				Result 1	Result 2	RPD			
pH-F (Field pH test)*	L22-Jn0059405	CP	pH Units	5.8	5.8	pass	20%	Pass	
Reaction Ratings*	L22-Jn0059405	CP	-	2.0	2.0	pass	30%	Pass	
Duplicate									
Acid Sulfate Soils Field pH Test				Result 1	Result 2	RPD			
pH-F (Field pH test)*	L22-Jn0059416	CP	pH Units	6.0	6.0	pass	20%	Pass	
Reaction Ratings*	L22-Jn0059416	CP	-	2.0	2.0	pass	30%	Pass	
Duplicate									
Acid Sulfate Soils Field pH Test				Result 1	Result 2	RPD			
pH-F (Field pH test)*	L22-Jn0059426	CP	pH Units	5.7	5.7	pass	20%	Pass	
Reaction Ratings*	L22-Jn0059426	CP	-	2.0	2.0	pass	30%	Pass	
Duplicate									
Acid Sulfate Soils Field pH Test				Result 1	Result 2	RPD			
pH-F (Field pH test)*	L22-Jn0059436	CP	pH Units	5.9	5.9	pass	20%	Pass	
Reaction Ratings*	L22-Jn0059436	CP	-	2.0	2.0	pass	30%	Pass	
Duplicate									
Acid Sulfate Soils Field pH Test				Result 1	Result 2	RPD			
pH-F (Field pH test)*	L22-Jn0059446	CP	pH Units	6.7	6.7	pass	20%	Pass	
Reaction Ratings*	L22-Jn0059446	CP	-	2.0	2.0	pass	30%	Pass	
Duplicate									
Acid Sulfate Soils Field pH Test				Result 1	Result 2	RPD			
pH-F (Field pH test)*	L22-Jn0059456	CP	pH Units	6.5	6.3	pass	20%	Pass	
Reaction Ratings*	L22-Jn0059456	CP	-	2.0	2.0	pass	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
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:

Natalie Hill — Analytical Services Manager

Kim Rodgers
Business Unit 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

ABEC Environmental Consutlting Pty Ltd
2/17 Inverness Ave
Dunsborough
WA 6281

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: **Elodie Payet**

Report **910002-S**
Project name DMS22-013
Project ID DMS22-013
Received Date Jul 29, 2022

Client Sample ID			**KL_PASS044_0.5**	**KL_PASS044_2.0**	**KL_PASS044_3.5**	**KL_PASS044_5.0**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**L22-JI0061176**	**L22-JI0061177**	**L22-JI0061178**	**L22-JI0061179**
Date Sampled			**Jun 22, 2022**	**Jun 22, 2022**	**Jun 22, 2022**	**Jun 22, 2022**
Test/Reference	LOR	Unit				
Actual Acidity (NLM-3.2)						
pH-KCL (NLM-3.1)	0.1	pH Units	5.3	5.5	5.0	5.0
Titratable Actual Acidity (NLM-3.2)	2	mol H+/t	4.6	11	14	9.8
Titratable Actual Acidity (NLM-3.2)	0.003	% pyrite S	0.007	0.018	0.023	0.016
Potential Acidity - Chromium Reducible Sulfur						
Chromium Reducible Sulfur (s-SCr) (NLM-2.1)[S04]	0.005	% S	< 0.005	< 0.005	< 0.005	< 0.005
Chromium Reducible Sulfur (a-SCr) (NLM-2.1)	3	mol H+/t	< 3	< 3	< 3	< 3
Extractable Sulfur						
Sulfur - KCl Extractable	0.005	% S	N/A	N/A	N/A	N/A
HCl Extractable Sulfur	0.005	% S	N/A	N/A	N/A	N/A
Retained Acidity (S-NAS)						
Net Acid soluble sulfur (SNAS) NLM-4.1	0.02	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (s-SNAS) NLM-4.1[S02]	0.02	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (a-SNAS) NLM-4.1	10	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
Acid Neutralising Capacity (ANCbt)						
Acid Neutralising Capacity - (ANCbt) (NLM-5.2)	0.01	% CaCO3	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (s-ANCbt) (NLM-5.2)[S03]	0.02	% S	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (a-ANCbt) (NLM-5.2)	2	mol H+/t	N/A	N/A	N/A	N/A
ANC Fineness Factor		factor	1.5	1.5	1.5	1.5
Net Acidity (Including ANC)						
CRS Suite - Net Acidity - NASSG (Including ANC)	0.02	% S	< 0.02	< 0.02	0.02	< 0.02
CRS Suite - Net Acidity - NASSG (Including ANC)	10	mol H+/t	< 10	11	14	< 10
CRS Suite - Liming Rate - NASSG (Including ANC)[S01]	1	kg CaCO3/t	< 1	< 1	1.1	< 1
Extraneous Material						
<2mm Fraction	0.005	g	33	34	40	41
>2mm Fraction	0.005	g	< 0.005	< 0.005	2.7	< 0.005
Analysed Material	0.1	%	100	100	94	100
Extraneous Material	0.1	%	< 0.1	< 0.1	6.2	< 0.1
% Moisture	1	%	5.4	13	15	14

Client Sample ID			KL_PASS043_1.0	KL_PASS043_2.5	KL_PASS043_4.0	KL_PASS043_5.5
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**L22-JI0061180**	**L22-JI0061181**	**L22-JI0061182**	**L22-JI0061183**
Date Sampled			**Jun 22, 2022**	**Jun 22, 2022**	**Jun 22, 2022**	**Jun 22, 2022**
Test/Reference	LOR	Unit				
Actual Acidity (NLM-3.2)						
pH-KCL (NLM-3.1)	0.1	pH Units	5.2	5.2	5.0	5.2
Titratable Actual Acidity (NLM-3.2)	2	mol H+/t	7.0	8.9	14	8.4
Titratable Actual Acidity (NLM-3.2)	0.003	% pyrite S	0.011	0.014	0.023	0.013
Potential Acidity - Chromium Reducible Sulfur						
Chromium Reducible Sulfur (s-SCr) (NLM-2.1)[S04]	0.005	% S	< 0.005	< 0.005	< 0.005	< 0.005
Chromium Reducible Sulfur (a-SCr) (NLM-2.1)	3	mol H+/t	< 3	< 3	< 3	< 3
Extractable Sulfur						
Sulfur - KCl Extractable	0.005	% S	N/A	N/A	N/A	N/A
HCl Extractable Sulfur	0.005	% S	N/A	N/A	N/A	N/A
Retained Acidity (S-NAS)						
Net Acid soluble sulfur (SNAS) NLM-4.1	0.02	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (s-SNAS) NLM-4.1[S02]	0.02	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (a-SNAS) NLM-4.1	10	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
Acid Neutralising Capacity (ANCbt)						
Acid Neutralising Capacity - (ANCbt) (NLM-5.2)	0.01	% CaCO3	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (s-ANCbt) (NLM-5.2)[S03]	0.02	% S	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (a-ANCbt) (NLM-5.2)	2	mol H+/t	N/A	N/A	N/A	N/A
ANC Fineness Factor		factor	1.5	1.5	1.5	1.5
Net Acidity (Including ANC)						
CRS Suite - Net Acidity - NASSG (Including ANC)	0.02	% S	< 0.02	< 0.02	0.02	< 0.02
CRS Suite - Net Acidity - NASSG (Including ANC)	10	mol H+/t	< 10	< 10	14	< 10
CRS Suite - Liming Rate - NASSG (Including ANC)[S01]	1	kg CaCO3/t	< 1	< 1	1.1	< 1
Extraneous Material						
<2mm Fraction	0.005	g	40	24	41	46
>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
% Moisture	1	%	16	15	14	11

Client Sample ID			KL_PASS042_0.5	KL_PASS042_2.0	KL_PASS042_3.5	KL_PASS042_5.0
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**L22-JI0061184**	**L22-JI0061185**	**L22-JI0061186**	**L22-JI0061187**
Date Sampled			**Jun 22, 2022**	**Jun 22, 2022**	**Jun 22, 2022**	**Jun 22, 2022**
Test/Reference	LOR	Unit				
Actual Acidity (NLM-3.2)						
pH-KCL (NLM-3.1)	0.1	pH Units	5.0	5.4	5.3	5.2
Titratable Actual Acidity (NLM-3.2)	2	mol H+/t	7.8	3.8	8.3	8.5
Titratable Actual Acidity (NLM-3.2)	0.003	% pyrite S	0.012	0.006	0.013	0.014
Potential Acidity - Chromium Reducible Sulfur						
Chromium Reducible Sulfur (s-SCr) (NLM-2.1)[S04]	0.005	% S	< 0.005	< 0.005	< 0.005	< 0.005
Chromium Reducible Sulfur (a-SCr) (NLM-2.1)	3	mol H+/t	< 3	< 3	< 3	< 3
Extractable Sulfur						
Sulfur - KCl Extractable	0.005	% S	N/A	N/A	N/A	N/A
HCl Extractable Sulfur	0.005	% S	N/A	N/A	N/A	N/A

Client Sample ID			KL_PASS042_0.5	KL_PASS042_2.0	KL_PASS042_3.5	KL_PASS042_5.0
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**L22-JI0061184**	**L22-JI0061185**	**L22-JI0061186**	**L22-JI0061187**
Date Sampled			**Jun 22, 2022**	**Jun 22, 2022**	**Jun 22, 2022**	**Jun 22, 2022**
Test/Reference	LOR	Unit				
Retained Acidity (S-NAS)						
Net Acid soluble sulfur (SNAS) NLM-4.1	0.02	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (s-SNAS) NLM-4.1[S02]	0.02	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (a-SNAS) NLM-4.1	10	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
Acid Neutralising Capacity (ANCbt)						
Acid Neutralising Capacity - (ANCbt) (NLM-5.2)	0.01	% CaCO3	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (s-ANCbt) (NLM-5.2)[S03]	0.02	% S	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (a-ANCbt) (NLM-5.2)	2	mol H+/t	N/A	N/A	N/A	N/A
ANC Fineness Factor		factor	1.5	1.5	1.5	1.5
Net Acidity (Including ANC)						
CRS Suite - Net Acidity - NASSG (Including ANC)	0.02	% S	< 0.02	< 0.02	< 0.02	< 0.02
CRS Suite - Net Acidity - NASSG (Including ANC)	10	mol H+/t	< 10	< 10	< 10	< 10
CRS Suite - Liming Rate - NASSG (Including ANC)[S01]	1	kg CaCO3/t	< 1	< 1	< 1	< 1
Extraneous Material						
<2mm Fraction	0.005	g	38	42	31	44
>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
% Moisture	1	%	5.9	15	14	13

Client Sample ID			KL_PASS047_0.5	KL_PASS047_2.0	KL_PASS047_3.5	KL_PASS047_5.0
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**L22-JI0061188**	**L22-JI0061189**	**L22-JI0061190**	**L22-JI0061191**
Date Sampled			**Jun 22, 2022**	**Jun 22, 2022**	**Jun 22, 2022**	**Jun 22, 2022**
Test/Reference	LOR	Unit				
Actual Acidity (NLM-3.2)						
pH-KCL (NLM-3.1)	0.1	pH Units	5.2	5.4	5.9	4.7
Titratable Actual Acidity (NLM-3.2)	2	mol H+/t	8.0	4.8	6.4	28
Titratable Actual Acidity (NLM-3.2)	0.003	% pyrite S	0.013	0.008	0.010	0.045
Potential Acidity - Chromium Reducible Sulfur						
Chromium Reducible Sulfur (s-SCr) (NLM-2.1)[S04]	0.005	% S	< 0.005	< 0.005	< 0.005	< 0.005
Chromium Reducible Sulfur (a-SCr) (NLM-2.1)	3	mol H+/t	< 3	< 3	< 3	< 3
Extractable Sulfur						
Sulfur - KCl Extractable	0.005	% S	N/A	N/A	N/A	N/A
HCl Extractable Sulfur	0.005	% S	N/A	N/A	N/A	N/A
Retained Acidity (S-NAS)						
Net Acid soluble sulfur (SNAS) NLM-4.1	0.02	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (s-SNAS) NLM-4.1[S02]	0.02	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (a-SNAS) NLM-4.1	10	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
Acid Neutralising Capacity (ANCbt)						
Acid Neutralising Capacity - (ANCbt) (NLM-5.2)	0.01	% CaCO3	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (s-ANCbt) (NLM-5.2)[S03]	0.02	% S	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (a-ANCbt) (NLM-5.2)	2	mol H+/t	N/A	N/A	N/A	N/A
ANC Fineness Factor		factor	1.5	1.5	1.5	1.5

Client Sample ID			KL_PASS047_0.5	KL_PASS047_2.0	KL_PASS047_3.5	KL_PASS047_5.0
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**L22-JI0061188**	**L22-JI0061189**	**L22-JI0061190**	**L22-JI0061191**
Date Sampled			**Jun 22, 2022**	**Jun 22, 2022**	**Jun 22, 2022**	**Jun 22, 2022**
Test/Reference	LOR	Unit				
Net Acidity (Including ANC)						
CRS Suite - Net Acidity - NASSG (Including ANC)	0.02	% S	< 0.02	< 0.02	< 0.02	0.05
CRS Suite - Net Acidity - NASSG (Including ANC)	10	mol H+/t	< 10	< 10	< 10	28
CRS Suite - Liming Rate - NASSG (Including ANC)[S01]	1	kg CaCO3/t	< 1	< 1	< 1	2.1
Extraneous Material						
<2mm Fraction	0.005	g	25	26	27	32
>2mm Fraction	0.005	g	< 0.005	< 0.005	6.2	< 0.005
Analysed Material	0.1	%	100	100	81	100
Extraneous Material	0.1	%	< 0.1	< 0.1	19	< 0.1
% Moisture	1	%	6.2	6.8	9.4	14

Client Sample ID			KL_PASS016_0.5	KL_PASS016_2.0	KL_PASS016_3.5	KL_PASS016_5.0
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**L22-JI0061192**	**L22-JI0061193**	**L22-JI0061194**	**L22-JI0061195**
Date Sampled			**Jun 22, 2022**	**Jun 22, 2022**	**Jun 22, 2022**	**Jun 22, 2022**
Test/Reference	LOR	Unit				
Actual Acidity (NLM-3.2)						
pH-KCL (NLM-3.1)	0.1	pH Units	5.0	5.2	5.0	5.1
Titratable Actual Acidity (NLM-3.2)	2	mol H+/t	6.9	9.8	15	8.3
Titratable Actual Acidity (NLM-3.2)	0.003	% pyrite S	0.011	0.016	0.024	0.013
Potential Acidity - Chromium Reducible Sulfur						
Chromium Reducible Sulfur (s-SCr) (NLM-2.1)[S04]	0.005	% S	< 0.005	< 0.005	< 0.005	< 0.005
Chromium Reducible Sulfur (a-SCr) (NLM-2.1)	3	mol H+/t	< 3	< 3	< 3	< 3
Extractable Sulfur						
Sulfur - KCl Extractable	0.005	% S	N/A	N/A	N/A	N/A
HCl Extractable Sulfur	0.005	% S	N/A	N/A	N/A	N/A
Retained Acidity (S-NAS)						
Net Acid soluble sulfur (SNAS) NLM-4.1	0.02	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (s-SNAS) NLM-4.1[S02]	0.02	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (a-SNAS) NLM-4.1	10	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
Acid Neutralising Capacity (ANCbt)						
Acid Neutralising Capacity - (ANCbt) (NLM-5.2)	0.01	% CaCO3	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (s-ANCbt) (NLM-5.2)[S03]	0.02	% S	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (a-ANCbt) (NLM-5.2)	2	mol H+/t	N/A	N/A	N/A	N/A
ANC Fineness Factor		factor	1.5	1.5	1.5	1.5
Net Acidity (Including ANC)						
CRS Suite - Net Acidity - NASSG (Including ANC)	0.02	% S	< 0.02	< 0.02	0.02	< 0.02
CRS Suite - Net Acidity - NASSG (Including ANC)	10	mol H+/t	< 10	< 10	15	< 10
CRS Suite - Liming Rate - NASSG (Including ANC)[S01]	1	kg CaCO3/t	< 1	< 1	1.1	< 1
Extraneous Material						
<2mm Fraction	0.005	g	28	32	38	35
>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
% Moisture	1	%	5.0	10	12	14

Client Sample ID			KL_PASS016_6.5	KL_PASS016_8.0	KL_PASS015_1.0	KL_PASS015_2.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L22-JI0061196	L22-JI0061197	L22-JI0061198	L22-JI0061199
Date Sampled			Jun 22, 2022	Jun 22, 2022	Jun 22, 2022	Jun 22, 2022
Test/Reference	LOR	Unit				
Actual Acidity (NLM-3.2)						
pH-KCL (NLM-3.1)	0.1	pH Units	5.3	5.2	5.0	5.4
Titratable Actual Acidity (NLM-3.2)	2	mol H+/t	4.4	4.2	8.8	6.4
Titratable Actual Acidity (NLM-3.2)	0.003	% pyrite S	0.007	0.007	0.014	0.010
Potential Acidity - Chromium Reducible Sulfur						
Chromium Reducible Sulfur (s-SCr) (NLM-2.1)[S04]	0.005	% S	< 0.005	< 0.005	< 0.005	< 0.005
Chromium Reducible Sulfur (a-SCr) (NLM-2.1)	3	mol H+/t	< 3	< 3	< 3	< 3
Extractable Sulfur						
Sulfur - KCl Extractable	0.005	% S	N/A	N/A	N/A	N/A
HCl Extractable Sulfur	0.005	% S	N/A	N/A	N/A	N/A
Retained Acidity (S-NAS)						
Net Acid soluble sulfur (SNAS) NLM-4.1	0.02	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (s-SNAS) NLM-4.1[S02]	0.02	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (a-SNAS) NLM-4.1	10	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
Acid Neutralising Capacity (ANCbt)						
Acid Neutralising Capacity - (ANCbt) (NLM-5.2)	0.01	% CaCO3	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (s-ANCbt) (NLM-5.2)[S03]	0.02	% S	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (a-ANCbt) (NLM-5.2)	2	mol H+/t	N/A	N/A	N/A	N/A
ANC Fineness Factor		factor	1.5	1.5	1.5	1.5
Net Acidity (Including ANC)						
CRS Suite - Net Acidity - NASSG (Including ANC)	0.02	% S	< 0.02	< 0.02	< 0.02	< 0.02
CRS Suite - Net Acidity - NASSG (Including ANC)	10	mol H+/t	< 10	< 10	< 10	< 10
CRS Suite - Liming Rate - NASSG (Including ANC)[S01]	1	kg CaCO3/t	< 1	< 1	< 1	< 1
Extraneous Material						
<2mm Fraction	0.005	g	52	35	26	29
>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
% Moisture	1	%	15	13	7.2	8.5

Client Sample ID			KL_PASS015_4.0	KL_PASS015_5.5	KL_PASS015_7.0	KL_PASS015_8.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L22-JI0061200	L22-JI0061201	L22-JI0061202	L22-JI0061203
Date Sampled			Jun 22, 2022	Jun 22, 2022	Jun 22, 2022	Jun 22, 2022
Test/Reference	LOR	Unit				
Actual Acidity (NLM-3.2)						
pH-KCL (NLM-3.1)	0.1	pH Units	5.2	5.1	5.1	5.2
Titratable Actual Acidity (NLM-3.2)	2	mol H+/t	4.3	7.6	8.6	4.2
Titratable Actual Acidity (NLM-3.2)	0.003	% pyrite S	0.007	0.012	0.014	0.007
Potential Acidity - Chromium Reducible Sulfur						
Chromium Reducible Sulfur (s-SCr) (NLM-2.1)[S04]	0.005	% S	< 0.005	< 0.005	0.019	< 0.005
Chromium Reducible Sulfur (a-SCr) (NLM-2.1)	3	mol H+/t	< 3	< 3	12	< 3
Extractable Sulfur						
Sulfur - KCl Extractable	0.005	% S	N/A	N/A	N/A	N/A
HCl Extractable Sulfur	0.005	% S	N/A	N/A	N/A	N/A

Client Sample ID			KL_PASS015_4.0	KL_PASS015_5.5	KL_PASS015_7.0	KL_PASS015_8.5
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**L22-JI0061200**	**L22-JI0061201**	**L22-JI0061202**	**L22-JI0061203**
Date Sampled			**Jun 22, 2022**	**Jun 22, 2022**	**Jun 22, 2022**	**Jun 22, 2022**
Test/Reference	LOR	Unit				
Retained Acidity (S-NAS)						
Net Acid soluble sulfur (SNAS) NLM-4.1	0.02	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (s-SNAS) NLM-4.1[S02]	0.02	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (a-SNAS) NLM-4.1	10	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
Acid Neutralising Capacity (ANCbt)						
Acid Neutralising Capacity - (ANCbt) (NLM-5.2)	0.01	% CaCO3	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (s-ANCbt) (NLM-5.2)[S03]	0.02	% S	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (a-ANCbt) (NLM-5.2)	2	mol H+/t	N/A	N/A	N/A	N/A
ANC Fineness Factor		factor	1.5	1.5	1.5	1.5
Net Acidity (Including ANC)						
CRS Suite - Net Acidity - NASSG (Including ANC)	0.02	% S	< 0.02	< 0.02	0.03	< 0.02
CRS Suite - Net Acidity - NASSG (Including ANC)	10	mol H+/t	< 10	< 10	20	< 10
CRS Suite - Liming Rate - NASSG (Including ANC)[S01]	1	kg CaCO3/t	< 1	< 1	1.5	< 1
Extraneous Material						
<2mm Fraction	0.005	g	47	41	36	35
>2mm Fraction	0.005	g	18	< 0.005	< 0.005	< 0.005
Analysed Material	0.1	%	72	100	100	100
Extraneous Material	0.1	%	28	< 0.1	< 0.1	< 0.1
% Moisture	1	%	7.8	12	13	12

Client Sample ID			KL_PASS046_1.0	KL_PASS046_2.5	KL_PASS046_4.0	KL_PASS046_5.5
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**L22-JI0061204**	**L22-JI0061205**	**L22-JI0061206**	**L22-JI0061207**
Date Sampled			**Jun 22, 2022**	**Jun 22, 2022**	**Jun 22, 2022**	**Jun 22, 2022**
Test/Reference	LOR	Unit				
Actual Acidity (NLM-3.2)						
pH-KCL (NLM-3.1)	0.1	pH Units	5.0	5.2	5.1	5.1
Titratable Actual Acidity (NLM-3.2)	2	mol H+/t	5.5	8.0	8.6	8.2
Titratable Actual Acidity (NLM-3.2)	0.003	% pyrite S	0.009	0.013	0.014	0.013
Potential Acidity - Chromium Reducible Sulfur						
Chromium Reducible Sulfur (s-SCr) (NLM-2.1)[S04]	0.005	% S	< 0.005	0.009	< 0.005	< 0.005
Chromium Reducible Sulfur (a-SCr) (NLM-2.1)	3	mol H+/t	< 3	5.7	< 3	< 3
Extractable Sulfur						
Sulfur - KCl Extractable	0.005	% S	N/A	N/A	N/A	N/A
HCl Extractable Sulfur	0.005	% S	N/A	N/A	N/A	N/A
Retained Acidity (S-NAS)						
Net Acid soluble sulfur (SNAS) NLM-4.1	0.02	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (s-SNAS) NLM-4.1[S02]	0.02	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (a-SNAS) NLM-4.1	10	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
Acid Neutralising Capacity (ANCbt)						
Acid Neutralising Capacity - (ANCbt) (NLM-5.2)	0.01	% CaCO3	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (s-ANCbt) (NLM-5.2)[S03]	0.02	% S	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (a-ANCbt) (NLM-5.2)	2	mol H+/t	N/A	N/A	N/A	N/A
ANC Fineness Factor		factor	1.5	1.5	1.5	1.5

Client Sample ID			KL_PASS046_1.0	KL_PASS046_2.5	KL_PASS046_4.0	KL_PASS046_5.5
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**L22-JI0061204**	**L22-JI0061205**	**L22-JI0061206**	**L22-JI0061207**
Date Sampled			**Jun 22, 2022**	**Jun 22, 2022**	**Jun 22, 2022**	**Jun 22, 2022**
Test/Reference	LOR	Unit				
Net Acidity (Including ANC)						
CRS Suite - Net Acidity - NASSG (Including ANC)	0.02	% S	< 0.02	0.02	< 0.02	< 0.02
CRS Suite - Net Acidity - NASSG (Including ANC)	10	mol H+/t	< 10	14	< 10	< 10
CRS Suite - Liming Rate - NASSG (Including ANC)[S01]	1	kg CaCO3/t	< 1	1.0	< 1	< 1
Extraneous Material						
<2mm Fraction	0.005	g	33	20	50	35
>2mm Fraction	0.005	g	< 0.005	34	< 0.005	< 0.005
Analysed Material	0.1	%	100	36	100	100
Extraneous Material	0.1	%	< 0.1	64	< 0.1	< 0.1
% Moisture	1	%	7.2	10	10	13

Client Sample ID			KL_PASS014_0.5	KL_PASS014_2.0	KL_PASS014_3.5	KL_PASS014_5.0
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**L22-JI0061208**	**L22-JI0061209**	**L22-JI0061210**	**L22-JI0061211**
Date Sampled			**Jun 23, 2022**	**Jun 23, 2022**	**Jun 23, 2022**	**Jun 23, 2022**
Test/Reference	LOR	Unit				
Actual Acidity (NLM-3.2)						
pH-KCL (NLM-3.1)	0.1	pH Units	4.9	5.0	5.0	5.0
Titratable Actual Acidity (NLM-3.2)	2	mol H+/t	5.0	4.6	6.4	6.2
Titratable Actual Acidity (NLM-3.2)	0.003	% pyrite S	0.008	0.007	0.010	0.010
Potential Acidity - Chromium Reducible Sulfur						
Chromium Reducible Sulfur (s-SCr) (NLM-2.1)[S04]	0.005	% S	< 0.005	< 0.005	< 0.005	< 0.005
Chromium Reducible Sulfur (a-SCr) (NLM-2.1)	3	mol H+/t	< 3	< 3	< 3	< 3
Extractable Sulfur						
Sulfur - KCl Extractable	0.005	% S	N/A	N/A	N/A	N/A
HCl Extractable Sulfur	0.005	% S	N/A	N/A	N/A	N/A
Retained Acidity (S-NAS)						
Net Acid soluble sulfur (SNAS) NLM-4.1	0.02	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (s-SNAS) NLM-4.1[S02]	0.02	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (a-SNAS) NLM-4.1	10	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
Acid Neutralising Capacity (ANCbt)						
Acid Neutralising Capacity - (ANCbt) (NLM-5.2)	0.01	% CaCO3	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (s-ANCbt) (NLM-5.2)[S03]	0.02	% S	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (a-ANCbt) (NLM-5.2)	2	mol H+/t	N/A	N/A	N/A	N/A
ANC Fineness Factor		factor	1.5	1.5	1.5	1.5
Net Acidity (Including ANC)						
CRS Suite - Net Acidity - NASSG (Including ANC)	0.02	% S	< 0.02	< 0.02	< 0.02	< 0.02
CRS Suite - Net Acidity - NASSG (Including ANC)	10	mol H+/t	< 10	< 10	< 10	< 10
CRS Suite - Liming Rate - NASSG (Including ANC)[S01]	1	kg CaCO3/t	< 1	< 1	< 1	< 1
Extraneous Material						
<2mm Fraction	0.005	g	44	41	41	39
>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
% Moisture	1	%	4.9	14	12	12

Client Sample ID			KL_PASS014_6.5	KL_PASS014_8.0	KL_PASS045_1.0	KL_PASS045_2.5
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**L22-JI0061212**	**L22-JI0061213**	**L22-JI0061214**	**L22-JI0061215**
Date Sampled			**Jun 23, 2022**	**Jun 23, 2022**	**Jun 23, 2022**	**Jun 23, 2022**
Test/Reference	LOR	Unit				
Actual Acidity (NLM-3.2)						
pH-KCL (NLM-3.1)	0.1	pH Units	5.0	5.1	5.2	5.1
Titratable Actual Acidity (NLM-3.2)	2	mol H+/t	7.3	6.3	6.3	4.3
Titratable Actual Acidity (NLM-3.2)	0.003	% pyrite S	0.012	0.010	0.010	0.007
Potential Acidity - Chromium Reducible Sulfur						
Chromium Reducible Sulfur (s-SCr) (NLM-2.1)[S04]	0.005	% S	< 0.005	< 0.005	< 0.005	< 0.005
Chromium Reducible Sulfur (a-SCr) (NLM-2.1)	3	mol H+/t	< 3	< 3	< 3	< 3
Extractable Sulfur						
Sulfur - KCl Extractable	0.005	% S	N/A	N/A	N/A	N/A
HCl Extractable Sulfur	0.005	% S	N/A	N/A	N/A	N/A
Retained Acidity (S-NAS)						
Net Acid soluble sulfur (SNAS) NLM-4.1	0.02	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (s-SNAS) NLM-4.1[S02]	0.02	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (a-SNAS) NLM-4.1	10	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
Acid Neutralising Capacity (ANCbt)						
Acid Neutralising Capacity - (ANCbt) (NLM-5.2)	0.01	% CaCO3	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (s-ANCbt) (NLM-5.2)[S03]	0.02	% S	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (a-ANCbt) (NLM-5.2)	2	mol H+/t	N/A	N/A	N/A	N/A
ANC Fineness Factor		factor	1.5	1.5	1.5	1.5
Net Acidity (Including ANC)						
CRS Suite - Net Acidity - NASSG (Including ANC)	0.02	% S	< 0.02	< 0.02	< 0.02	< 0.02
CRS Suite - Net Acidity - NASSG (Including ANC)	10	mol H+/t	< 10	< 10	< 10	< 10
CRS Suite - Liming Rate - NASSG (Including ANC)[S01]	1	kg CaCO3/t	< 1	< 1	< 1	< 1
Extraneous Material						
<2mm Fraction	0.005	g	47	47	33	38
>2mm Fraction	0.005	g	< 0.005	< 0.005	< 0.005	0.31
Analysed Material	0.1	%	100	100	100	99
Extraneous Material	0.1	%	< 0.1	< 0.1	< 0.1	0.8
% Moisture	1	%	16	13	5.6	13

Client Sample ID			KL_PASS045_4.0	KL_PASS045_5.5	KL_PASS021_0.5	KL_PASS021_2.0
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**L22-JI0061216**	**L22-JI0061217**	**L22-JI0061218**	**L22-JI0061219**
Date Sampled			**Jun 23, 2022**	**Jun 23, 2022**	**Jun 20, 2022**	**Jun 20, 2022**
Test/Reference	LOR	Unit				
Actual Acidity (NLM-3.2)						
pH-KCL (NLM-3.1)	0.1	pH Units	5.7	5.3	5.0	5.0
Titratable Actual Acidity (NLM-3.2)	2	mol H+/t	6.3	4.5	4.0	5.2
Titratable Actual Acidity (NLM-3.2)	0.003	% pyrite S	0.010	0.007	0.006	0.008
Potential Acidity - Chromium Reducible Sulfur						
Chromium Reducible Sulfur (s-SCr) (NLM-2.1)[S04]	0.005	% S	< 0.005	< 0.005	< 0.005	< 0.005
Chromium Reducible Sulfur (a-SCr) (NLM-2.1)	3	mol H+/t	< 3	< 3	< 3	< 3
Extractable Sulfur						
Sulfur - KCl Extractable	0.005	% S	N/A	N/A	N/A	N/A
HCl Extractable Sulfur	0.005	% S	N/A	N/A	N/A	N/A

Client Sample ID			KL_PASS045_4.0	KL_PASS045_5.5	KL_PASS021_0.5	KL_PASS021_2.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L22-JI0061216	L22-JI0061217	L22-JI0061218	L22-JI0061219
Date Sampled			Jun 23, 2022	Jun 23, 2022	Jun 20, 2022	Jun 20, 2022
Test/Reference	LOR	Unit				
Retained Acidity (S-NAS)						
Net Acid soluble sulfur (SNAS) NLM-4.1	0.02	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (s-SNAS) NLM-4.1[S02]	0.02	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (a-SNAS) NLM-4.1	10	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
Acid Neutralising Capacity (ANCbt)						
Acid Neutralising Capacity - (ANCbt) (NLM-5.2)	0.01	% CaCO3	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (s-ANCbt) (NLM-5.2)[S03]	0.02	% S	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (a-ANCbt) (NLM-5.2)	2	mol H+/t	N/A	N/A	N/A	N/A
ANC Fineness Factor		factor	1.5	1.5	1.5	1.5
Net Acidity (Including ANC)						
CRS Suite - Net Acidity - NASSG (Including ANC)	0.02	% S	< 0.02	< 0.02	< 0.02	< 0.02
CRS Suite - Net Acidity - NASSG (Including ANC)	10	mol H+/t	< 10	< 10	< 10	< 10
CRS Suite - Liming Rate - NASSG (Including ANC)[S01]	1	kg CaCO3/t	< 1	< 1	< 1	< 1
Extraneous Material						
<2mm Fraction	0.005	g	21	40	33	33
>2mm Fraction	0.005	g	20	< 0.005	< 0.005	< 0.005
Analysed Material	0.1	%	51	100	100	100
Extraneous Material	0.1	%	49	< 0.1	< 0.1	< 0.1
% Moisture	1	%	16	17	4.4	6.1

Client Sample ID			KL_PASS021_5.0	KL_PASS020_1.0	KL_PASS020_2.0	KL_PASS020_3.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L22-JI0061220	L22-JI0061221	L22-JI0061222	L22-JI0061223
Date Sampled			Jun 20, 2022	Jun 20, 2022	Jun 20, 2022	Jun 20, 2022
Test/Reference	LOR	Unit				
Actual Acidity (NLM-3.2)						
pH-KCL (NLM-3.1)	0.1	pH Units	5.3	7.5	9.3	4.2
Titratable Actual Acidity (NLM-3.2)	2	mol H+/t	5.7	< 2	< 2	39
Titratable Actual Acidity (NLM-3.2)	0.003	% pyrite S	0.009	< 0.003	< 0.003	0.063
Potential Acidity - Chromium Reducible Sulfur						
Chromium Reducible Sulfur (s-SCr) (NLM-2.1)[S04]	0.005	% S	< 0.005	< 0.005	< 0.005	< 0.005
Chromium Reducible Sulfur (a-SCr) (NLM-2.1)	3	mol H+/t	< 3	< 3	< 3	< 3
Extractable Sulfur						
Sulfur - KCl Extractable	0.005	% S	N/A	N/A	N/A	0.010
HCl Extractable Sulfur	0.005	% S	N/A	N/A	N/A	0.014
Retained Acidity (S-NAS)						
Net Acid soluble sulfur (SNAS) NLM-4.1	0.02	% S	N/A	N/A	N/A	< 0.02
Net Acid soluble sulfur (s-SNAS) NLM-4.1[S02]	0.02	% S	N/A	N/A	N/A	< 0.02
Net Acid soluble sulfur (a-SNAS) NLM-4.1	10	mol H+/t	N/A	N/A	N/A	< 10
HCl Extractable Sulfur Correction Factor	1	factor	2.0	2.0	2.0	2.0
Acid Neutralising Capacity (ANCbt)						
Acid Neutralising Capacity - (ANCbt) (NLM-5.2)	0.01	% CaCO3	N/A	0.14	1.1	N/A
Acid Neutralising Capacity - (s-ANCbt) (NLM-5.2)[S03]	0.02	% S	N/A	0.05	0.34	N/A
Acid Neutralising Capacity - (a-ANCbt) (NLM-5.2)	2	mol H+/t	N/A	29	210	N/A
ANC Fineness Factor		factor	1.5	1.5	1.5	1.5

Client Sample ID			KL_PASS021_5.0	KL_PASS020_1.0	KL_PASS020_2.0	KL_PASS020_3.0
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**L22-JI0061220**	**L22-JI0061221**	**L22-JI0061222**	**L22-JI0061223**
Date Sampled			**Jun 20, 2022**	**Jun 20, 2022**	**Jun 20, 2022**	**Jun 20, 2022**
Test/Reference	LOR	Unit				
Net Acidity (Including ANC)						
CRS Suite - Net Acidity - NASSG (Including ANC)	0.02	% S	< 0.02	< 0.02	< 0.02	0.07
CRS Suite - Net Acidity - NASSG (Including ANC)	10	mol H+/t	< 10	< 10	< 10	43
CRS Suite - Liming Rate - NASSG (Including ANC)[S01]	1	kg CaCO3/t	< 1	< 1	< 1	3.2
Extraneous Material						
<2mm Fraction	0.005	g	52	29	35	29
>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
% Moisture	1	%	13	4.5	12	19

Client Sample ID			KL_PASS020_4.0	DUP 1	DUP 5	DUP 6
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**L22-JI0061224**	**L22-JI0061225**	**L22-JI0061226**	**L22-JI0061227**
Date Sampled			**Jun 20, 2022**	**Jun 20, 2022**	**Jun 20, 2022**	**Jun 20, 2022**
Test/Reference	LOR	Unit				
Actual Acidity (NLM-3.2)						
pH-KCL (NLM-3.1)	0.1	pH Units	4.7	5.7	5.5	5.1
Titratable Actual Acidity (NLM-3.2)	2	mol H+/t	16	< 2	< 2	3.4
Titratable Actual Acidity (NLM-3.2)	0.003	% pyrite S	0.025	< 0.003	< 0.003	0.006
Potential Acidity - Chromium Reducible Sulfur						
Chromium Reducible Sulfur (s-SCr) (NLM-2.1)[S04]	0.005	% S	< 0.005	< 0.005	< 0.005	< 0.005
Chromium Reducible Sulfur (a-SCr) (NLM-2.1)	3	mol H+/t	< 3	< 3	< 3	< 3
Extractable Sulfur						
Sulfur - KCl Extractable	0.005	% S	N/A	N/A	N/A	N/A
HCl Extractable Sulfur	0.005	% S	N/A	N/A	N/A	N/A
Retained Acidity (S-NAS)						
Net Acid soluble sulfur (SNAS) NLM-4.1	0.02	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (s-SNAS) NLM-4.1[S02]	0.02	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (a-SNAS) NLM-4.1	10	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
Acid Neutralising Capacity (ANCbt)						
Acid Neutralising Capacity - (ANCbt) (NLM-5.2)	0.01	% CaCO3	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (s-ANCbt) (NLM-5.2)[S03]	0.02	% S	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (a-ANCbt) (NLM-5.2)	2	mol H+/t	N/A	N/A	N/A	N/A
ANC Fineness Factor		factor	1.5	1.5	1.5	1.5
Net Acidity (Including ANC)						
CRS Suite - Net Acidity - NASSG (Including ANC)	0.02	% S	0.03	< 0.02	< 0.02	< 0.02
CRS Suite - Net Acidity - NASSG (Including ANC)	10	mol H+/t	16	< 10	< 10	< 10
CRS Suite - Liming Rate - NASSG (Including ANC)[S01]	1	kg CaCO3/t	1.2	< 1	< 1	< 1
Extraneous Material						
<2mm Fraction	0.005	g	29	36	30	50
>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
% Moisture	1	%	21	17	4.7	14

Client Sample ID			KL_PASS017_0.5	KL_PASS017_1.5	KL_PASS017_2.5	KL_PASS018_1.0
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**L22-JI0061228**	**L22-JI0061229**	**L22-JI0061230**	**L22-JI0061231**
Date Sampled			**Jun 20, 2022**	**Jun 20, 2022**	**Jun 20, 2022**	**Jun 20, 2022**
Test/Reference	LOR	Unit				
Actual Acidity (NLM-3.2)						
pH-KCL (NLM-3.1)	0.1	pH Units	6.3	5.8	5.7	5.3
Titratable Actual Acidity (NLM-3.2)	2	mol H+/t	< 2	7.7	13	4.3
Titratable Actual Acidity (NLM-3.2)	0.003	% pyrite S	< 0.003	0.012	0.022	0.007
Potential Acidity - Chromium Reducible Sulfur						
Chromium Reducible Sulfur (s-SCr) (NLM-2.1)[S04]	0.005	% S	< 0.005	0.006	< 0.005	< 0.005
Chromium Reducible Sulfur (a-SCr) (NLM-2.1)	3	mol H+/t	< 3	3.8	< 3	< 3
Extractable Sulfur						
Sulfur - KCl Extractable	0.005	% S	N/A	N/A	N/A	N/A
HCl Extractable Sulfur	0.005	% S	N/A	N/A	N/A	N/A
Retained Acidity (S-NAS)						
Net Acid soluble sulfur (SNAS) NLM-4.1	0.02	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (s-SNAS) NLM-4.1[S02]	0.02	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (a-SNAS) NLM-4.1	10	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
Acid Neutralising Capacity (ANCbt)						
Acid Neutralising Capacity - (ANCbt) (NLM-5.2)	0.01	% CaCO3	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (s-ANCbt) (NLM-5.2)[S03]	0.02	% S	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (a-ANCbt) (NLM-5.2)	2	mol H+/t	N/A	N/A	N/A	N/A
ANC Fineness Factor		factor	1.5	1.5	1.5	1.5
Net Acidity (Including ANC)						
CRS Suite - Net Acidity - NASSG (Including ANC)	0.02	% S	< 0.02	< 0.02	0.02	< 0.02
CRS Suite - Net Acidity - NASSG (Including ANC)	10	mol H+/t	< 10	11	13	< 10
CRS Suite - Liming Rate - NASSG (Including ANC)[S01]	1	kg CaCO3/t	< 1	< 1	1.0	< 1
Extraneous Material						
<2mm Fraction	0.005	g	43	26	16	31
>2mm Fraction	0.005	g	< 0.005	4.2	2.9	< 0.005
Analysed Material	0.1	%	100	86	85	100
Extraneous Material	0.1	%	< 0.1	14	15	< 0.1
% Moisture	1	%	20	22	44	5.5

Client Sample ID			KL_PASS018_2.5	KL_PASS018_4.0	KL_PASS018_5.5	KL_PASS019_1.0
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**L22-JI0061232**	**L22-JI0061233**	**L22-JI0061234**	**L22-JI0061235**
Date Sampled			**Jun 20, 2022**	**Jun 20, 2022**	**Jun 20, 2022**	**Jun 20, 2022**
Test/Reference	LOR	Unit				
Actual Acidity (NLM-3.2)						
pH-KCL (NLM-3.1)	0.1	pH Units	5.0	6.0	5.4	5.0
Titratable Actual Acidity (NLM-3.2)	2	mol H+/t	5.5	< 2	5.6	5.9
Titratable Actual Acidity (NLM-3.2)	0.003	% pyrite S	0.009	< 0.003	0.009	0.010
Potential Acidity - Chromium Reducible Sulfur						
Chromium Reducible Sulfur (s-SCr) (NLM-2.1)[S04]	0.005	% S	< 0.005	< 0.005	< 0.005	< 0.005
Chromium Reducible Sulfur (a-SCr) (NLM-2.1)	3	mol H+/t	< 3	< 3	< 3	< 3
Extractable Sulfur						
Sulfur - KCl Extractable	0.005	% S	N/A	N/A	N/A	N/A
HCl Extractable Sulfur	0.005	% S	N/A	N/A	N/A	N/A

Client Sample ID			KL_PASS018_2.5	KL_PASS018_4.0	KL_PASS018_5.5	KL_PASS019_1.0
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**L22-JI0061232**	**L22-JI0061233**	**L22-JI0061234**	**L22-JI0061235**
Date Sampled			**Jun 20, 2022**	**Jun 20, 2022**	**Jun 20, 2022**	**Jun 20, 2022**
Test/Reference	LOR	Unit				
Retained Acidity (S-NAS)						
Net Acid soluble sulfur (SNAS) NLM-4.1	0.02	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (s-SNAS) NLM-4.1[S02]	0.02	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (a-SNAS) NLM-4.1	10	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
Acid Neutralising Capacity (ANCbt)						
Acid Neutralising Capacity - (ANCbt) (NLM-5.2)	0.01	% CaCO3	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (s-ANCbt) (NLM-5.2)[S03]	0.02	% S	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (a-ANCbt) (NLM-5.2)	2	mol H+/t	N/A	N/A	N/A	N/A
ANC Fineness Factor		factor	1.5	1.5	1.5	1.5
Net Acidity (Including ANC)						
CRS Suite - Net Acidity - NASSG (Including ANC)	0.02	% S	< 0.02	< 0.02	< 0.02	< 0.02
CRS Suite - Net Acidity - NASSG (Including ANC)	10	mol H+/t	< 10	< 10	< 10	< 10
CRS Suite - Liming Rate - NASSG (Including ANC)[S01]	1	kg CaCO3/t	< 1	< 1	< 1	< 1
Extraneous Material						
<2mm Fraction	0.005	g	18	26	34	28
>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
% Moisture	1	%	5.1	13	16	13

Client Sample ID			KL_PASS019_2.0	KL_PASS019_3.0	KL_PASS022_1.0	KL_PASS022_2.0
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**L22-JI0061236**	**L22-JI0061237**	**L22-JI0061238**	**L22-JI0061239**
Date Sampled			**Jun 20, 2022**	**Jun 20, 2022**	**Jun 20, 2022**	**Jun 20, 2022**
Test/Reference	LOR	Unit				
Actual Acidity (NLM-3.2)						
pH-KCL (NLM-3.1)	0.1	pH Units	5.2	5.4	5.0	4.7
Titratable Actual Acidity (NLM-3.2)	2	mol H+/t	5.7	6.8	8.5	26
Titratable Actual Acidity (NLM-3.2)	0.003	% pyrite S	0.009	0.011	0.014	0.041
Potential Acidity - Chromium Reducible Sulfur						
Chromium Reducible Sulfur (s-SCr) (NLM-2.1)[S04]	0.005	% S	< 0.005	< 0.005	< 0.005	< 0.005
Chromium Reducible Sulfur (a-SCr) (NLM-2.1)	3	mol H+/t	< 3	< 3	< 3	< 3
Extractable Sulfur						
Sulfur - KCl Extractable	0.005	% S	N/A	N/A	N/A	N/A
HCl Extractable Sulfur	0.005	% S	N/A	N/A	N/A	N/A
Retained Acidity (S-NAS)						
Net Acid soluble sulfur (SNAS) NLM-4.1	0.02	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (s-SNAS) NLM-4.1[S02]	0.02	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (a-SNAS) NLM-4.1	10	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
Acid Neutralising Capacity (ANCbt)						
Acid Neutralising Capacity - (ANCbt) (NLM-5.2)	0.01	% CaCO3	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (s-ANCbt) (NLM-5.2)[S03]	0.02	% S	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (a-ANCbt) (NLM-5.2)	2	mol H+/t	N/A	N/A	N/A	N/A
ANC Fineness Factor		factor	1.5	1.5	1.5	1.5

Client Sample ID			KL_PASS019_2.0	KL_PASS019_3.0	KL_PASS022_1.0	KL_PASS022_2.0
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**L22-JI0061236**	**L22-JI0061237**	**L22-JI0061238**	**L22-JI0061239**
Date Sampled			**Jun 20, 2022**	**Jun 20, 2022**	**Jun 20, 2022**	**Jun 20, 2022**
Test/Reference	LOR	Unit				
Net Acidity (Including ANC)						
CRS Suite - Net Acidity - NASSG (Including ANC)	0.02	% S	< 0.02	< 0.02	< 0.02	0.04
CRS Suite - Net Acidity - NASSG (Including ANC)	10	mol H+/t	< 10	< 10	< 10	26
CRS Suite - Liming Rate - NASSG (Including ANC)[S01]	1	kg CaCO3/t	< 1	< 1	< 1	1.9
Extraneous Material						
<2mm Fraction	0.005	g	47	27	31	23
>2mm Fraction	0.005	g	< 0.005	< 0.005	< 0.005	5.5
Analysed Material	0.1	%	100	100	100	81
Extraneous Material	0.1	%	< 0.1	< 0.1	< 0.1	19
% Moisture	1	%	13	22	15	9.1

Client Sample ID			KL_PASS022_3.0	KL_PASS023_1.0	KL_PASS023_2.0	KL_PASS023_3.0
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**L22-JI0061240**	**L22-JI0061241**	**L22-JI0061242**	**L22-JI0061243**
Date Sampled			**Jun 20, 2022**	**Jun 20, 2022**	**Jun 20, 2022**	**Jun 20, 2022**
Test/Reference	LOR	Unit				
Actual Acidity (NLM-3.2)						
pH-KCL (NLM-3.1)	0.1	pH Units	5.2	5.2	5.2	5.3
Titratable Actual Acidity (NLM-3.2)	2	mol H+/t	6.4	8.7	7.3	11
Titratable Actual Acidity (NLM-3.2)	0.003	% pyrite S	0.010	0.014	0.012	0.018
Potential Acidity - Chromium Reducible Sulfur						
Chromium Reducible Sulfur (s-SCr) (NLM-2.1)[S04]	0.005	% S	< 0.005	< 0.005	< 0.005	< 0.005
Chromium Reducible Sulfur (a-SCr) (NLM-2.1)	3	mol H+/t	< 3	< 3	< 3	< 3
Extractable Sulfur						
Sulfur - KCl Extractable	0.005	% S	N/A	N/A	N/A	N/A
HCl Extractable Sulfur	0.005	% S	N/A	N/A	N/A	N/A
Retained Acidity (S-NAS)						
Net Acid soluble sulfur (SNAS) NLM-4.1	0.02	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (s-SNAS) NLM-4.1[S02]	0.02	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (a-SNAS) NLM-4.1	10	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
Acid Neutralising Capacity (ANCbt)						
Acid Neutralising Capacity - (ANCbt) (NLM-5.2)	0.01	% CaCO3	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (s-ANCbt) (NLM-5.2)[S03]	0.02	% S	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (a-ANCbt) (NLM-5.2)	2	mol H+/t	N/A	N/A	N/A	N/A
ANC Fineness Factor		factor	1.5	1.5	1.5	1.5
Net Acidity (Including ANC)						
CRS Suite - Net Acidity - NASSG (Including ANC)	0.02	% S	< 0.02	< 0.02	< 0.02	< 0.02
CRS Suite - Net Acidity - NASSG (Including ANC)	10	mol H+/t	< 10	< 10	< 10	11
CRS Suite - Liming Rate - NASSG (Including ANC)[S01]	1	kg CaCO3/t	< 1	< 1	< 1	< 1
Extraneous Material						
<2mm Fraction	0.005	g	69	37	44	28
>2mm Fraction	0.005	g	< 0.005	< 0.005	< 0.005	38
Analysed Material	0.1	%	100	100	100	42
Extraneous Material	0.1	%	< 0.1	< 0.1	< 0.1	58
% Moisture	1	%	9.6	13	13	7.9

Client Sample ID			KL_PASS033_1.0	KL_PASS033_2.0	KL_PASS033_4.0	KL_PASS033_4.5
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**L22-JI0061244**	**L22-JI0061245**	**L22-JI0061246**	**L22-JI0061247**
Date Sampled			**Jun 21, 2022**	**Jun 21, 2022**	**Jun 21, 2022**	**Jun 21, 2022**
Test/Reference	LOR	Unit				
Actual Acidity (NLM-3.2)						
pH-KCL (NLM-3.1)	0.1	pH Units	6.5	6.1	5.1	5.2
Titratable Actual Acidity (NLM-3.2)	2	mol H+/t	< 2	< 2	15	12
Titratable Actual Acidity (NLM-3.2)	0.003	% pyrite S	< 0.003	< 0.003	0.024	0.020
Potential Acidity - Chromium Reducible Sulfur						
Chromium Reducible Sulfur (s-SCr) (NLM-2.1)[S04]	0.005	% S	< 0.005	< 0.005	0.022	0.026
Chromium Reducible Sulfur (a-SCr) (NLM-2.1)	3	mol H+/t	< 3	< 3	14	16
Extractable Sulfur						
Sulfur - KCl Extractable	0.005	% S	N/A	N/A	N/A	N/A
HCl Extractable Sulfur	0.005	% S	N/A	N/A	N/A	N/A
Retained Acidity (S-NAS)						
Net Acid soluble sulfur (SNAS) NLM-4.1	0.02	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (s-SNAS) NLM-4.1[S02]	0.02	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (a-SNAS) NLM-4.1	10	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
Acid Neutralising Capacity (ANCbt)						
Acid Neutralising Capacity - (ANCbt) (NLM-5.2)	0.01	% CaCO3	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (s-ANCbt) (NLM-5.2)[S03]	0.02	% S	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (a-ANCbt) (NLM-5.2)	2	mol H+/t	N/A	N/A	N/A	N/A
ANC Fineness Factor		factor	1.5	1.5	1.5	1.5
Net Acidity (Including ANC)						
CRS Suite - Net Acidity - NASSG (Including ANC)	0.02	% S	< 0.02	< 0.02	0.05	0.05
CRS Suite - Net Acidity - NASSG (Including ANC)	10	mol H+/t	< 10	< 10	29	28
CRS Suite - Liming Rate - NASSG (Including ANC)[S01]	1	kg CaCO3/t	< 1	< 1	2.1	2.1
Extraneous Material						
<2mm Fraction	0.005	g	31	46	43	42
>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
% Moisture	1	%	17	17	12	12

Client Sample ID			KL_PASS033_5.0	KL_PASS033_5.5	KL_PASS033_6.0	KL_PASS034_1.0
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**L22-JI0061248**	**L22-JI0061249**	**L22-JI0061250**	**L22-JI0061251**
Date Sampled			**Jun 21, 2022**	**Jun 21, 2022**	**Jun 21, 2022**	**Jun 21, 2022**
Test/Reference	LOR	Unit				
Actual Acidity (NLM-3.2)						
pH-KCL (NLM-3.1)	0.1	pH Units	5.1	5.1	5.0	5.0
Titratable Actual Acidity (NLM-3.2)	2	mol H+/t	9.8	9.3	11	4.2
Titratable Actual Acidity (NLM-3.2)	0.003	% pyrite S	0.016	0.015	0.017	0.007
Potential Acidity - Chromium Reducible Sulfur						
Chromium Reducible Sulfur (s-SCr) (NLM-2.1)[S04]	0.005	% S	0.015	0.030	0.048	< 0.005
Chromium Reducible Sulfur (a-SCr) (NLM-2.1)	3	mol H+/t	9.1	18	30	< 3
Extractable Sulfur						
Sulfur - KCl Extractable	0.005	% S	N/A	N/A	N/A	N/A
HCl Extractable Sulfur	0.005	% S	N/A	N/A	N/A	N/A

Client Sample ID			KL_PASS033_5.0	KL_PASS033_5.5	KL_PASS033_6.0	KL_PASS034_1.0
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**L22-JI0061248**	**L22-JI0061249**	**L22-JI0061250**	**L22-JI0061251**
Date Sampled			**Jun 21, 2022**	**Jun 21, 2022**	**Jun 21, 2022**	**Jun 21, 2022**
Test/Reference	LOR	Unit				
Retained Acidity (S-NAS)						
Net Acid soluble sulfur (SNAS) NLM-4.1	0.02	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (s-SNAS) NLM-4.1[S02]	0.02	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (a-SNAS) NLM-4.1	10	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
Acid Neutralising Capacity (ANCbt)						
Acid Neutralising Capacity - (ANCbt) (NLM-5.2)	0.01	% CaCO3	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (s-ANCbt) (NLM-5.2)[S03]	0.02	% S	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (a-ANCbt) (NLM-5.2)	2	mol H+/t	N/A	N/A	N/A	N/A
ANC Fineness Factor		factor	1.5	1.5	1.5	1.5
Net Acidity (Including ANC)						
CRS Suite - Net Acidity - NASSG (Including ANC)	0.02	% S	0.03	0.04	0.07	< 0.02
CRS Suite - Net Acidity - NASSG (Including ANC)	10	mol H+/t	19	28	41	< 10
CRS Suite - Liming Rate - NASSG (Including ANC)[S01]	1	kg CaCO3/t	1.4	2.1	3.1	< 1
Extraneous Material						
<2mm Fraction	0.005	g	45	45	47	36
>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
% Moisture	1	%	15	14	9.9	4.6

Client Sample ID			KL_PASS034_2.0	KL_PASS034_3.0	KL_PASS036_1.0	KL_PASS036_2.0
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**L22-JI0061252**	**L22-JI0061253**	**L22-JI0061254**	**L22-JI0061255**
Date Sampled			**Jun 21, 2022**	**Jun 21, 2022**	**Jun 21, 2022**	**Jun 21, 2022**
Test/Reference	LOR	Unit				
Actual Acidity (NLM-3.2)						
pH-KCL (NLM-3.1)	0.1	pH Units	5.1	4.9	5.2	5.1
Titratable Actual Acidity (NLM-3.2)	2	mol H+/t	3.6	13	3.4	3.0
Titratable Actual Acidity (NLM-3.2)	0.003	% pyrite S	0.006	0.022	0.006	0.005
Potential Acidity - Chromium Reducible Sulfur						
Chromium Reducible Sulfur (s-SCr) (NLM-2.1)[S04]	0.005	% S	< 0.005	< 0.005	< 0.005	< 0.005
Chromium Reducible Sulfur (a-SCr) (NLM-2.1)	3	mol H+/t	< 3	< 3	< 3	< 3
Extractable Sulfur						
Sulfur - KCl Extractable	0.005	% S	N/A	N/A	N/A	N/A
HCl Extractable Sulfur	0.005	% S	N/A	N/A	N/A	N/A
Retained Acidity (S-NAS)						
Net Acid soluble sulfur (SNAS) NLM-4.1	0.02	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (s-SNAS) NLM-4.1[S02]	0.02	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (a-SNAS) NLM-4.1	10	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
Acid Neutralising Capacity (ANCbt)						
Acid Neutralising Capacity - (ANCbt) (NLM-5.2)	0.01	% CaCO3	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (s-ANCbt) (NLM-5.2)[S03]	0.02	% S	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (a-ANCbt) (NLM-5.2)	2	mol H+/t	N/A	N/A	N/A	N/A
ANC Fineness Factor		factor	1.5	1.5	1.5	1.5

Client Sample ID			KL_PASS034_2.0	KL_PASS034_3.0	KL_PASS036_1.0	KL_PASS036_2.0
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**L22-JI0061252**	**L22-JI0061253**	**L22-JI0061254**	**L22-JI0061255**
Date Sampled			**Jun 21, 2022**	**Jun 21, 2022**	**Jun 21, 2022**	**Jun 21, 2022**
Test/Reference	LOR	Unit				
Net Acidity (Including ANC)						
CRS Suite - Net Acidity - NASSG (Including ANC)	0.02	% S	< 0.02	0.02	< 0.02	< 0.02
CRS Suite - Net Acidity - NASSG (Including ANC)	10	mol H+/t	< 10	13	< 10	< 10
CRS Suite - Liming Rate - NASSG (Including ANC)[S01]	1	kg CaCO3/t	< 1	1.0	< 1	< 1
Extraneous Material						
<2mm Fraction	0.005	g	35	51	28	36
>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
% Moisture	1	%	5.4	15	4.9	12

Client Sample ID			KL_PASS036_3.0	KL_PASS035_0.5	KL_PASS035_2.0	KL_PASS035_3.5
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**L22-JI0061256**	**L22-JI0061257**	**L22-JI0061258**	**L22-JI0061259**
Date Sampled			**Jun 21, 2022**	**Jun 21, 2022**	**Jun 21, 2022**	**Jun 21, 2022**
Test/Reference	LOR	Unit				
Actual Acidity (NLM-3.2)						
pH-KCL (NLM-3.1)	0.1	pH Units	5.6	6.3	6.1	5.0
Titratable Actual Acidity (NLM-3.2)	2	mol H+/t	7.3	< 2	< 2	17
Titratable Actual Acidity (NLM-3.2)	0.003	% pyrite S	0.012	< 0.003	< 0.003	0.028
Potential Acidity - Chromium Reducible Sulfur						
Chromium Reducible Sulfur (s-SCr) (NLM-2.1)[S04]	0.005	% S	< 0.005	< 0.005	< 0.005	< 0.005
Chromium Reducible Sulfur (a-SCr) (NLM-2.1)	3	mol H+/t	< 3	< 3	< 3	< 3
Extractable Sulfur						
Sulfur - KCl Extractable	0.005	% S	N/A	N/A	N/A	N/A
HCl Extractable Sulfur	0.005	% S	N/A	N/A	N/A	N/A
Retained Acidity (S-NAS)						
Net Acid soluble sulfur (SNAS) NLM-4.1	0.02	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (s-SNAS) NLM-4.1[S02]	0.02	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (a-SNAS) NLM-4.1	10	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
Acid Neutralising Capacity (ANCbt)						
Acid Neutralising Capacity - (ANCbt) (NLM-5.2)	0.01	% CaCO3	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (s-ANCbt) (NLM-5.2)[S03]	0.02	% S	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (a-ANCbt) (NLM-5.2)	2	mol H+/t	N/A	N/A	N/A	N/A
ANC Fineness Factor		factor	1.5	1.5	1.5	1.5
Net Acidity (Including ANC)						
CRS Suite - Net Acidity - NASSG (Including ANC)	0.02	% S	< 0.02	< 0.02	< 0.02	0.03
CRS Suite - Net Acidity - NASSG (Including ANC)	10	mol H+/t	< 10	< 10	< 10	17
CRS Suite - Liming Rate - NASSG (Including ANC)[S01]	1	kg CaCO3/t	< 1	< 1	< 1	1.3
Extraneous Material						
<2mm Fraction	0.005	g	22	39	31	37
>2mm Fraction	0.005	g	10	< 0.005	< 0.005	< 0.005
Analysed Material	0.1	%	68	100	100	100
Extraneous Material	0.1	%	32	< 0.1	< 0.1	< 0.1
% Moisture	1	%	7.9	11	14	19

Client Sample ID			KL_PASS035_5.0	KL_PASS037_1.0	KL_PASS037_2.5	KL_PASS037_4.0
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**L22-JI0061260**	**L22-JI0061261**	**L22-JI0061262**	**L22-JI0061263**
Date Sampled			**Jun 21, 2022**	**Jun 21, 2022**	**Jun 21, 2022**	**Jun 21, 2022**
Test/Reference	LOR	Unit				
Actual Acidity (NLM-3.2)						
pH-KCL (NLM-3.1)	0.1	pH Units	5.0	5.3	5.8	5.2
Titratable Actual Acidity (NLM-3.2)	2	mol H+/t	11	3.5	5.8	9.4
Titratable Actual Acidity (NLM-3.2)	0.003	% pyrite S	0.018	0.006	0.009	0.015
Potential Acidity - Chromium Reducible Sulfur						
Chromium Reducible Sulfur (s-SCr) (NLM-2.1)[S04]	0.005	% S	< 0.005	< 0.005	< 0.005	< 0.005
Chromium Reducible Sulfur (a-SCr) (NLM-2.1)	3	mol H+/t	< 3	< 3	< 3	< 3
Extractable Sulfur						
Sulfur - KCl Extractable	0.005	% S	N/A	N/A	N/A	N/A
HCl Extractable Sulfur	0.005	% S	N/A	N/A	N/A	N/A
Retained Acidity (S-NAS)						
Net Acid soluble sulfur (SNAS) NLM-4.1	0.02	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (s-SNAS) NLM-4.1[S02]	0.02	% S	N/A	N/A	N/A	N/A
Net Acid soluble sulfur (a-SNAS) NLM-4.1	10	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
Acid Neutralising Capacity (ANCbt)						
Acid Neutralising Capacity - (ANCbt) (NLM-5.2)	0.01	% CaCO3	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (s-ANCbt) (NLM-5.2)[S03]	0.02	% S	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (a-ANCbt) (NLM-5.2)	2	mol H+/t	N/A	N/A	N/A	N/A
ANC Fineness Factor		factor	1.5	1.5	1.5	1.5
Net Acidity (Including ANC)						
CRS Suite - Net Acidity - NASSG (Including ANC)	0.02	% S	< 0.02	< 0.02	< 0.02	< 0.02
CRS Suite - Net Acidity - NASSG (Including ANC)	10	mol H+/t	11	< 10	< 10	< 10
CRS Suite - Liming Rate - NASSG (Including ANC)[S01]	1	kg CaCO3/t	< 1	< 1	< 1	< 1
Extraneous Material						
<2mm Fraction	0.005	g	41	37	29	29
>2mm Fraction	0.005	g	< 0.005	< 0.005	13	7.2
Analysed Material	0.1	%	100	100	70	80
Extraneous Material	0.1	%	< 0.1	< 0.1	30	20
% Moisture	1	%	12	10	11	12

Client Sample ID			KL_PASS037_5.5	KL_PASS038_1.0	KL_PASS038_2.0
Sample Matrix			**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**L22-JI0061264**	**L22-JI0061265**	**L22-JI0061266**
Date Sampled			**Jun 21, 2022**	**Jun 21, 2022**	**Jun 21, 2022**
Test/Reference	LOR	Unit			
Actual Acidity (NLM-3.2)					
pH-KCL (NLM-3.1)	0.1	pH Units	5.2	5.5	5.3
Titratable Actual Acidity (NLM-3.2)	2	mol H+/t	6.2	2.1	2.4
Titratable Actual Acidity (NLM-3.2)	0.003	% pyrite S	0.010	0.003	0.004
Potential Acidity - Chromium Reducible Sulfur					
Chromium Reducible Sulfur (s-SCr) (NLM-2.1)[S04]	0.005	% S	< 0.005	< 0.005	< 0.005
Chromium Reducible Sulfur (a-SCr) (NLM-2.1)	3	mol H+/t	< 3	< 3	< 3
Extractable Sulfur					
Sulfur - KCl Extractable	0.005	% S	N/A	N/A	N/A
HCl Extractable Sulfur	0.005	% S	N/A	N/A	N/A

Client Sample ID			KL_PASS037_5.5	KL_PASS038_1.0	KL_PASS038_2.0
Sample Matrix			**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**L22-JI0061264**	**L22-JI0061265**	**L22-JI0061266**
Date Sampled			**Jun 21, 2022**	**Jun 21, 2022**	**Jun 21, 2022**
Test/Reference	LOR	Unit			
Retained Acidity (S-NAS)					
Net Acid soluble sulfur (SNAS) NLM-4.1	0.02	% S	N/A	N/A	N/A
Net Acid soluble sulfur (s-SNAS) NLM-4.1[S02]	0.02	% S	N/A	N/A	N/A
Net Acid soluble sulfur (a-SNAS) NLM-4.1	10	mol H+/t	N/A	N/A	N/A
HCl Extractable Sulfur Correction Factor	1	factor	2.0	2.0	2.0
Acid Neutralising Capacity (ANCbt)					
Acid Neutralising Capacity - (ANCbt) (NLM-5.2)	0.01	% CaCO3	N/A	N/A	N/A
Acid Neutralising Capacity - (s-ANCbt) (NLM-5.2)[S03]	0.02	% S	N/A	N/A	N/A
Acid Neutralising Capacity - (a-ANCbt) (NLM-5.2)	2	mol H+/t	N/A	N/A	N/A
ANC Fineness Factor		factor	1.5	1.5	1.5
Net Acidity (Including ANC)					
CRS Suite - Net Acidity - NASSG (Including ANC)	0.02	% S	< 0.02	< 0.02	< 0.02
CRS Suite - Net Acidity - NASSG (Including ANC)	10	mol H+/t	< 10	< 10	< 10
CRS Suite - Liming Rate - NASSG (Including ANC)[S01]	1	kg CaCO3/t	< 1	< 1	< 1
Extraneous Material					
<2mm Fraction	0.005	g	43	33	29
>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
% Moisture	1	%	13	4.2	5.1

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
Chromium Reducible Sulfur Suite			
Chromium Suite	Brisbane	Aug 02, 2022	6 Week
- Method: LTM-GEN-7070 Chromium Reducible Sulfur Suite			
Extraneous Material	Brisbane	Aug 02, 2022	6 Week
- Method: LTM-GEN-7050/7070			
% Moisture	Welshpool	Jul 29, 2022	14 Days
- Method: ARL135 Moisture in Solids			

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Project Name: DMS22-013
Project ID: DMS22-013

Order No.:
Report #: 910002
Phone: 0422 812 845
Fax:

Received: Jul 29, 2022 12:37 PM
Due: Aug 5, 2022
Priority: 5 Day
Contact Name: Elodie Payet

Eurofins Analytical Services Manager : Natalie Hill

Sample Detail						Chromium Reducible Sulfur Suite	Moisture Set
Perth Laboratory - NATA # 2377 Site # 2370							X
Brisbane Laboratory - NATA # 1261 Site # 20794						X	
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	KL_PASS044_0.5	Jun 22, 2022		Soil	L22-JI0061176	X	X
2	KL_PASS044_2.0	Jun 22, 2022		Soil	L22-JI0061177	X	X
3	KL_PASS044_3.5	Jun 22, 2022		Soil	L22-JI0061178	X	X
4	KL_PASS044_5.0	Jun 22, 2022		Soil	L22-JI0061179	X	X
5	KL_PASS043_1.0	Jun 22, 2022		Soil	L22-JI0061180	X	X
6	KL_PASS043_2.5	Jun 22, 2022		Soil	L22-JI0061181	X	X
7	KL_PASS043_4.0	Jun 22, 2022		Soil	L22-JI0061182	X	X

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Eurofins Analytical Services Manager : Natalie Hill

Sample Detail						Chromium Reducible Sulfur Suite	Moisture Set
Perth Laboratory - NATA # 2377 Site # 2370							X
Brisbane Laboratory - NATA # 1261 Site # 20794						X	
8	KL_PASS043_5.5	Jun 22, 2022		Soil	L22-JI0061183	X	X
9	KL_PASS042_0.5	Jun 22, 2022		Soil	L22-JI0061184	X	X
10	KL_PASS042_2.0	Jun 22, 2022		Soil	L22-JI0061185	X	X
11	KL_PASS042_3.5	Jun 22, 2022		Soil	L22-JI0061186	X	X
12	KL_PASS042_5.0	Jun 22, 2022		Soil	L22-JI0061187	X	X
13	KL_PASS047_0.5	Jun 22, 2022		Soil	L22-JI0061188	X	X
14	KL_PASS047_2.0	Jun 22, 2022		Soil	L22-JI0061189	X	X
15	KL_PASS047_3.5	Jun 22, 2022		Soil	L22-JI0061190	X	X
16	KL_PASS047_5.0	Jun 22, 2022		Soil	L22-JI0061191	X	X

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Sample Detail						Chromium Reducible Sulfur Suite	Moisture Set
Perth Laboratory - NATA # 2377 Site # 2370							X
Brisbane Laboratory - NATA # 1261 Site # 20794						X	
17	KL_PASS016_0.5	Jun 22, 2022		Soil	L22-JI0061192	X	X
18	KL_PASS016_2.0	Jun 22, 2022		Soil	L22-JI0061193	X	X
19	KL_PASS016_3.5	Jun 22, 2022		Soil	L22-JI0061194	X	X
20	KL_PASS016_5.0	Jun 22, 2022		Soil	L22-JI0061195	X	X
21	KL_PASS016_6.5	Jun 22, 2022		Soil	L22-JI0061196	X	X
22	KL_PASS016_8.0	Jun 22, 2022		Soil	L22-JI0061197	X	X
23	KL_PASS015_1.0	Jun 22, 2022		Soil	L22-JI0061198	X	X
24	KL_PASS015_2.5	Jun 22, 2022		Soil	L22-JI0061199	X	X
25	KL_PASS015_4.0	Jun 22, 2022		Soil	L22-JI0061200	X	X

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Contact Name: Elodie Payet

Eurofins Analytical Services Manager : Natalie Hill

Sample Detail						Chromium Reducible Sulfur Suite	Moisture Set
Perth Laboratory - NATA # 2377 Site # 2370							X
Brisbane Laboratory - NATA # 1261 Site # 20794						X	
26	KL_PASS015_5.5	Jun 22, 2022		Soil	L22-JI0061201	X	X
27	KL_PASS015_7.0	Jun 22, 2022		Soil	L22-JI0061202	X	X
28	KL_PASS015_8.5	Jun 22, 2022		Soil	L22-JI0061203	X	X
29	KL_PASS046_1.0	Jun 22, 2022		Soil	L22-JI0061204	X	X
30	KL_PASS046_2.5	Jun 22, 2022		Soil	L22-JI0061205	X	X
31	KL_PASS046_4.0	Jun 22, 2022		Soil	L22-JI0061206	X	X
32	KL_PASS046_5.5	Jun 22, 2022		Soil	L22-JI0061207	X	X
33	KL_PASS014_0.5	Jun 23, 2022		Soil	L22-JI0061208	X	X
34	KL_PASS014_2.0	Jun 23, 2022		Soil	L22-JI0061209	X	X

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Project Name: DMS22-013
Project ID: DMS22-013

Order No.:
Report #: 910002
Phone: 0422 812 845
Fax:

Received: Jul 29, 2022 12:37 PM
Due: Aug 5, 2022
Priority: 5 Day
Contact Name: Elodie Payet

Eurofins Analytical Services Manager : Natalie Hill

Sample Detail						Chromium Reducible Sulfur Suite	Moisture Set
Perth Laboratory - NATA # 2377 Site # 2370							X
Brisbane Laboratory - NATA # 1261 Site # 20794						X	
35	KL_PASS014_3.5	Jun 23, 2022		Soil	L22-JI0061210	X	X
36	KL_PASS014_5.0	Jun 23, 2022		Soil	L22-JI0061211	X	X
37	KL_PASS014_6.5	Jun 23, 2022		Soil	L22-JI0061212	X	X
38	KL_PASS014_8.0	Jun 23, 2022		Soil	L22-JI0061213	X	X
39	KL_PASS045_1.0	Jun 23, 2022		Soil	L22-JI0061214	X	X
40	KL_PASS045_2.5	Jun 23, 2022		Soil	L22-JI0061215	X	X
41	KL_PASS045_4.0	Jun 23, 2022		Soil	L22-JI0061216	X	X
42	KL_PASS045_5.5	Jun 23, 2022		Soil	L22-JI0061217	X	X
43	KL_PASS021_0.5	Jun 20, 2022		Soil	L22-JI0061218	X	X

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Brisbane Laboratory - NATA # 1261 Site # 20794						X	
44	KL_PASS021_2.0	Jun 20, 2022		Soil	L22-JI0061219	X	X
45	KL_PASS021_5.0	Jun 20, 2022		Soil	L22-JI0061220	X	X
46	KL_PASS020_1.0	Jun 20, 2022		Soil	L22-JI0061221	X	X
47	KL_PASS020_2.0	Jun 20, 2022		Soil	L22-JI0061222	X	X
48	KL_PASS020_3.0	Jun 20, 2022		Soil	L22-JI0061223	X	X
49	KL_PASS020_4.0	Jun 20, 2022		Soil	L22-JI0061224	X	X
50	DUP 1	Jun 20, 2022		Soil	L22-JI0061225	X	X
51	DUP 5	Jun 20, 2022		Soil	L22-JI0061226	X	X
52	DUP 6	Jun 20, 2022		Soil	L22-JI0061227	X	X
53	KL_PASS017_0.5	Jun 20, 2022		Soil	L22-JI0061228	X	X

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Perth Laboratory - NATA # 2377 Site # 2370							X
Brisbane Laboratory - NATA # 1261 Site # 20794						X	
54	KL_PASS017_1.5	Jun 20, 2022		Soil	L22-JI0061229	X	X
55	KL_PASS017_2.5	Jun 20, 2022		Soil	L22-JI0061230	X	X
56	KL_PASS018_1.0	Jun 20, 2022		Soil	L22-JI0061231	X	X
57	KL_PASS018_2.5	Jun 20, 2022		Soil	L22-JI0061232	X	X
58	KL_PASS018_4.0	Jun 20, 2022		Soil	L22-JI0061233	X	X
59	KL_PASS018_5.5	Jun 20, 2022		Soil	L22-JI0061234	X	X
60	KL_PASS019_1.0	Jun 20, 2022		Soil	L22-JI0061235	X	X
61	KL_PASS019_2.0	Jun 20, 2022		Soil	L22-JI0061236	X	X
62	KL_PASS019_3.0	Jun 20, 2022		Soil	L22-JI0061237	X	X

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Perth Laboratory - NATA # 2377 Site # 2370							X
Brisbane Laboratory - NATA # 1261 Site # 20794						X	
63	KL_PASS022_1.0	Jun 20, 2022		Soil	L22-JI0061238	X	X
64	KL_PASS022_2.0	Jun 20, 2022		Soil	L22-JI0061239	X	X
65	KL_PASS022_3.0	Jun 20, 2022		Soil	L22-JI0061240	X	X
66	KL_PASS023_1.0	Jun 20, 2022		Soil	L22-JI0061241	X	X
67	KL_PASS023_2.0	Jun 20, 2022		Soil	L22-JI0061242	X	X
68	KL_PASS023_3.0	Jun 20, 2022		Soil	L22-JI0061243	X	X
69	KL_PASS033_1.0	Jun 21, 2022		Soil	L22-JI0061244	X	X
70	KL_PASS033_2.0	Jun 21, 2022		Soil	L22-JI0061245	X	X
71	KL_PASS033_4.0	Jun 21, 2022		Soil	L22-JI0061246	X	X

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Perth Laboratory - NATA # 2377 Site # 2370							X
Brisbane Laboratory - NATA # 1261 Site # 20794						X	
72	KL_PASS033_4.5	Jun 21, 2022		Soil	L22-JI0061247	X	X
73	KL_PASS033_5.0	Jun 21, 2022		Soil	L22-JI0061248	X	X
74	KL_PASS033_5.5	Jun 21, 2022		Soil	L22-JI0061249	X	X
75	KL_PASS033_6.0	Jun 21, 2022		Soil	L22-JI0061250	X	X
76	KL_PASS034_1.0	Jun 21, 2022		Soil	L22-JI0061251	X	X
77	KL_PASS034_2.0	Jun 21, 2022		Soil	L22-JI0061252	X	X
78	KL_PASS034_3.0	Jun 21, 2022		Soil	L22-JI0061253	X	X
79	KL_PASS036_1.0	Jun 21, 2022		Soil	L22-JI0061254	X	X
80	KL_PASS036_2.0	Jun 21, 2022		Soil	L22-JI0061255	X	X

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Perth Laboratory - NATA # 2377 Site # 2370							X
Brisbane Laboratory - NATA # 1261 Site # 20794						X	
81	KL_PASS036_3.0	Jun 21, 2022		Soil	L22-JI0061256	X	X
82	KL_PASS035_0.5	Jun 21, 2022		Soil	L22-JI0061257	X	X
83	KL_PASS035_2.0	Jun 21, 2022		Soil	L22-JI0061258	X	X
84	KL_PASS035_3.5	Jun 21, 2022		Soil	L22-JI0061259	X	X
85	KL_PASS035_5.0	Jun 21, 2022		Soil	L22-JI0061260	X	X
86	KL_PASS037_1.0	Jun 21, 2022		Soil	L22-JI0061261	X	X
87	KL_PASS037_2.5	Jun 21, 2022		Soil	L22-JI0061262	X	X
88	KL_PASS037_4.0	Jun 21, 2022		Soil	L22-JI0061263	X	X
89	KL_PASS037_5.5	Jun 21, 2022		Soil	L22-JI0061264	X	X

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Perth Laboratory - NATA # 2377 Site # 2370							X
Brisbane Laboratory - NATA # 2377 Site # 20794						X	
90	KL_PASS038_1.0	Jun 21, 2022		Soil	L22-JI0061265	X	X
91	KL_PASS038_2.0	Jun 21, 2022		Soil	L22-JI0061266	X	X
Test Counts						91	91

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

Please refer to '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 prior to sample receipt deadlines as stated on the SRA.

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

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

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

Units

mg/kg: milligrams per kilogram
mg/L: milligrams per litre
µg/L: micrograms per litre
ppm: parts per million
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

Terms

APHA	American Public Health Association
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 a moisture has been determined on a solid sample the result is expressed on a dry 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 is representative of 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 like compound to the analyte target and reported as percentage recovery.
TBTO	Tributyltin oxide (*bis*-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 5.4
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 be used as a guide only 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

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.4 where no positive PFAS results have been reported have been reviewed and no data was affected.

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QC Data General Comments

1. Where a result is reported as a 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.
2. 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 is not data from your samples.
3. 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.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. 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)	%	98			80-120	Pass	
Titratable Actual Acidity (NLM-3.2)	%	92			80-120	Pass	
LCS - % Recovery							
Potential Acidity - Chromium Reducible Sulfur							
Chromium Reducible Sulfur (s-SCr) (NLM-2.1)	%	102			80-120	Pass	
LCS - % Recovery							
Extractable Sulfur							
HCl Extractable Sulfur	%	97			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Actual Acidity (NLM-3.2)				Result 1	Result 2	RPD			
pH-KCL (NLM-3.1)	L22-JI0061176	CP	pH Units	5.3	5.2	2.5	20%	Pass	
Titratable Actual Acidity (NLM-3.2)	L22-JI0061176	CP	mol H+/t	4.6	5.6	19	20%	Pass	
Titratable Actual Acidity (NLM-3.2)	L22-JI0061176	CP	% pyrite S	0.007	0.009	19	30%	Pass	
Duplicate									
Potential Acidity - Chromium Reducible Sulfur				Result 1	Result 2	RPD			
Chromium Reducible Sulfur (s-SCr) (NLM-2.1)	L22-JI0061176	CP	% S	< 0.005	< 0.005	<1	20%	Pass	
Chromium Reducible Sulfur (a-SCr) (NLM-2.1)	L22-JI0061176	CP	mol H+/t	< 3	< 3	<1	30%	Pass	
Duplicate									
Extractable Sulfur				Result 1	Result 2	RPD			
Sulfur - KCl Extractable	L22-JI0061176	CP	% S	N/A	N/A	N/A	30%	Pass	
HCl Extractable Sulfur	L22-JI0061176	CP	% S	N/A	N/A	N/A	20%	Pass	
Duplicate									
Retained Acidity (S-NAS)				Result 1	Result 2	RPD			
Net Acid soluble sulfur (SNAS) NLM-4.1	L22-JI0061176	CP	% S	N/A	N/A	N/A	30%	Pass	
Net Acid soluble sulfur (s-SNAS) NLM-4.1	L22-JI0061176	CP	% S	N/A	N/A	N/A	30%	Pass	
Net Acid soluble sulfur (a-SNAS) NLM-4.1	L22-JI0061176	CP	mol H+/t	N/A	N/A	N/A	30%	Pass	
Duplicate									
Acid Neutralising Capacity (ANCbt)				Result 1	Result 2	RPD			
Acid Neutralising Capacity - (ANCbt) (NLM-5.2)	L22-JI0061176	CP	% CaCO3	N/A	N/A	N/A	20%	Pass	
Acid Neutralising Capacity - (s-ANCbt) (NLM-5.2)	L22-JI0061176	CP	% S	N/A	N/A	N/A	30%	Pass	
ANC Fineness Factor	L22-JI0061176	CP	factor	1.5	1.5	<1	30%	Pass	
Duplicate									
Net Acidity (Including ANC)				Result 1	Result 2	RPD			
CRS Suite - Net Acidity - NASSG (Including ANC)	L22-JI0061176	CP	% S	< 0.02	< 0.02	<1	30%	Pass	
CRS Suite - Net Acidity - NASSG (Including ANC)	L22-JI0061176	CP	mol H+/t	< 10	< 10	<1	30%	Pass	
CRS Suite - Liming Rate - NASSG (Including ANC)	L22-JI0061176	CP	kg CaCO3/t	< 1	< 1	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	L22-JI0061176	CP	%	5.4	5.3	2.5	30%	Pass	

Duplicate									
Actual Acidity (NLM-3.2)				Result 1	Result 2	RPD			
pH-KCL (NLM-3.1)	L22-JI0061186	CP	pH Units	5.3	5.3	<1	20%	Pass	
Titratable Actual Acidity (NLM-3.2)	L22-JI0061186	CP	mol H+/t	8.3	8.2	1.2	20%	Pass	
Titratable Actual Acidity (NLM-3.2)	L22-JI0061186	CP	% pyrite S	0.013	0.013	1.2	30%	Pass	
Duplicate									
Potential Acidity - Chromium Reducible Sulfur				Result 1	Result 2	RPD			
Chromium Reducible Sulfur (s-SCr) (NLM-2.1)	L22-JI0061186	CP	% S	< 0.005	< 0.005	<1	20%	Pass	
Chromium Reducible Sulfur (a-SCr) (NLM-2.1)	L22-JI0061186	CP	mol H+/t	< 3	< 3	<1	30%	Pass	
Duplicate									
Extractable Sulfur				Result 1	Result 2	RPD			
Sulfur - KCl Extractable	L22-JI0061186	CP	% S	N/A	N/A	N/A	30%	Pass	
HCl Extractable Sulfur	L22-JI0061186	CP	% S	N/A	N/A	N/A	20%	Pass	
Duplicate									
Retained Acidity (S-NAS)				Result 1	Result 2	RPD			
Net Acid soluble sulfur (SNAS) NLM-4.1	L22-JI0061186	CP	% S	N/A	N/A	N/A	30%	Pass	
Net Acid soluble sulfur (s-SNAS) NLM-4.1	L22-JI0061186	CP	% S	N/A	N/A	N/A	30%	Pass	
Net Acid soluble sulfur (a-SNAS) NLM-4.1	L22-JI0061186	CP	mol H+/t	N/A	N/A	N/A	30%	Pass	
Duplicate									
Acid Neutralising Capacity (ANCbt)				Result 1	Result 2	RPD			
Acid Neutralising Capacity - (ANCbt) (NLM-5.2)	L22-JI0061186	CP	% CaCO3	N/A	N/A	N/A	20%	Pass	
Acid Neutralising Capacity - (s-ANCbt) (NLM-5.2)	L22-JI0061186	CP	% S	N/A	N/A	N/A	30%	Pass	
ANC Fineness Factor	L22-JI0061186	CP	factor	1.5	1.5	<1	30%	Pass	
Duplicate									
Net Acidity (Including ANC)				Result 1	Result 2	RPD			
CRS Suite - Net Acidity - NASSG (Including ANC)	L22-JI0061186	CP	% S	< 0.02	< 0.02	<1	30%	Pass	
CRS Suite - Net Acidity - NASSG (Including ANC)	L22-JI0061186	CP	mol H+/t	< 10	< 10	<1	30%	Pass	
CRS Suite - Liming Rate - NASSG (Including ANC)	L22-JI0061186	CP	kg CaCO3/t	< 1	< 1	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	L22-JI0061186	CP	%	14	14	1.7	30%	Pass	
Duplicate									
Actual Acidity (NLM-3.2)				Result 1	Result 2	RPD			
pH-KCL (NLM-3.1)	L22-JI0061196	CP	pH Units	5.3	5.3	<1	20%	Pass	
Titratable Actual Acidity (NLM-3.2)	L22-JI0061196	CP	mol H+/t	4.4	4.7	7.8	20%	Pass	
Titratable Actual Acidity (NLM-3.2)	L22-JI0061196	CP	% pyrite S	0.007	0.008	7.8	30%	Pass	
Duplicate									
Potential Acidity - Chromium Reducible Sulfur				Result 1	Result 2	RPD			
Chromium Reducible Sulfur (s-SCr) (NLM-2.1)	L22-JI0061196	CP	% S	< 0.005	< 0.005	<1	20%	Pass	
Chromium Reducible Sulfur (a-SCr) (NLM-2.1)	L22-JI0061196	CP	mol H+/t	< 3	< 3	<1	30%	Pass	
Duplicate									
Extractable Sulfur				Result 1	Result 2	RPD			
Sulfur - KCl Extractable	L22-JI0061196	CP	% S	N/A	N/A	N/A	30%	Pass	
HCl Extractable Sulfur	L22-JI0061196	CP	% S	N/A	N/A	N/A	20%	Pass	

Duplicate									
Retained Acidity (S-NAS)				Result 1	Result 2	RPD			
Net Acid soluble sulfur (SNAS) NLM-4.1	L22-JI0061196	CP	% S	N/A	N/A	N/A	30%	Pass	
Net Acid soluble sulfur (s-SNAS) NLM-4.1	L22-JI0061196	CP	% S	N/A	N/A	N/A	30%	Pass	
Net Acid soluble sulfur (a-SNAS) NLM-4.1	L22-JI0061196	CP	mol H+/t	N/A	N/A	N/A	30%	Pass	
Duplicate									
Acid Neutralising Capacity (ANCbt)				Result 1	Result 2	RPD			
Acid Neutralising Capacity - (ANCbt) (NLM-5.2)	L22-JI0061196	CP	% CaCO3	N/A	N/A	N/A	20%	Pass	
Acid Neutralising Capacity - (s-ANCbt) (NLM-5.2)	L22-JI0061196	CP	% S	N/A	N/A	N/A	30%	Pass	
ANC Fineness Factor	L22-JI0061196	CP	factor	1.5	1.5	<1	30%	Pass	
Duplicate									
Net Acidity (Including ANC)				Result 1	Result 2	RPD			
CRS Suite - Net Acidity - NASSG (Including ANC)	L22-JI0061196	CP	% S	< 0.02	< 0.02	<1	30%	Pass	
CRS Suite - Net Acidity - NASSG (Including ANC)	L22-JI0061196	CP	mol H+/t	< 10	< 10	<1	30%	Pass	
CRS Suite - Liming Rate - NASSG (Including ANC)	L22-JI0061196	CP	kg CaCO3/t	< 1	< 1	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	L22-JI0061196	CP	%	15	15	<1	30%	Pass	
Duplicate									
Actual Acidity (NLM-3.2)				Result 1	Result 2	RPD			
pH-KCL (NLM-3.1)	L22-JI0061197	CP	pH Units	5.2	5.2	<1	20%	Pass	
Titratable Actual Acidity (NLM-3.2)	L22-JI0061197	CP	mol H+/t	4.2	4.2	<1	20%	Pass	
Titratable Actual Acidity (NLM-3.2)	L22-JI0061197	CP	% pyrite S	0.007	0.007	<1	30%	Pass	
Duplicate									
Potential Acidity - Chromium Reducible Sulfur				Result 1	Result 2	RPD			
Chromium Reducible Sulfur (s-SCr) (NLM-2.1)	L22-JI0061197	CP	% S	< 0.005	< 0.005	<1	20%	Pass	
Chromium Reducible Sulfur (a-SCr) (NLM-2.1)	L22-JI0061197	CP	mol H+/t	< 3	< 3	<1	30%	Pass	
Duplicate									
Extractable Sulfur				Result 1	Result 2	RPD			
Sulfur - KCl Extractable	L22-JI0061197	CP	% S	N/A	N/A	N/A	30%	Pass	
HCl Extractable Sulfur	L22-JI0061197	CP	% S	N/A	N/A	N/A	20%	Pass	
Duplicate									
Retained Acidity (S-NAS)				Result 1	Result 2	RPD			
Net Acid soluble sulfur (SNAS) NLM-4.1	L22-JI0061197	CP	% S	N/A	N/A	N/A	30%	Pass	
Net Acid soluble sulfur (s-SNAS) NLM-4.1	L22-JI0061197	CP	% S	N/A	N/A	N/A	30%	Pass	
Net Acid soluble sulfur (a-SNAS) NLM-4.1	L22-JI0061197	CP	mol H+/t	N/A	N/A	N/A	30%	Pass	
Duplicate									
Acid Neutralising Capacity (ANCbt)				Result 1	Result 2	RPD			
Acid Neutralising Capacity - (ANCbt) (NLM-5.2)	L22-JI0061197	CP	% CaCO3	N/A	N/A	N/A	20%	Pass	
Acid Neutralising Capacity - (s-ANCbt) (NLM-5.2)	L22-JI0061197	CP	% S	N/A	N/A	N/A	30%	Pass	
ANC Fineness Factor	L22-JI0061197	CP	factor	1.5	1.5	<1	30%	Pass	

Duplicate									
Net Acidity (Including ANC)				Result 1	Result 2	RPD			
CRS Suite - Net Acidity - NASSG (Including ANC)	L22-JI0061197	CP	% S	< 0.02	< 0.02	<1	30%	Pass	
CRS Suite - Net Acidity - NASSG (Including ANC)	L22-JI0061197	CP	mol H+/t	< 10	< 10	<1	30%	Pass	
CRS Suite - Liming Rate - NASSG (Including ANC)	L22-JI0061197	CP	kg CaCO3/t	< 1	< 1	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	L22-JI0061206	CP	%	10	11	2.2	30%	Pass	
Duplicate									
Actual Acidity (NLM-3.2)				Result 1	Result 2	RPD			
pH-KCL (NLM-3.1)	L22-JI0061212	CP	pH Units	5.0	5.0	<1	20%	Pass	
Titratable Actual Acidity (NLM-3.2)	L22-JI0061212	CP	mol H+/t	7.3	7.2	2.0	20%	Pass	
Titratable Actual Acidity (NLM-3.2)	L22-JI0061212	CP	% pyrite S	0.012	0.012	2.0	30%	Pass	
Duplicate									
Potential Acidity - Chromium Reducible Sulfur				Result 1	Result 2	RPD			
Chromium Reducible Sulfur (s-SCr) (NLM-2.1)	L22-JI0061212	CP	% S	< 0.005	< 0.005	<1	20%	Pass	
Chromium Reducible Sulfur (a-SCr) (NLM-2.1)	L22-JI0061212	CP	mol H+/t	< 3	< 3	<1	30%	Pass	
Duplicate									
Extractable Sulfur				Result 1	Result 2	RPD			
Sulfur - KCl Extractable	L22-JI0061212	CP	% S	N/A	N/A	N/A	30%	Pass	
HCl Extractable Sulfur	L22-JI0061212	CP	% S	N/A	N/A	N/A	20%	Pass	
Duplicate									
Retained Acidity (S-NAS)				Result 1	Result 2	RPD			
Net Acid soluble sulfur (SNAS) NLM-4.1	L22-JI0061212	CP	% S	N/A	N/A	N/A	30%	Pass	
Net Acid soluble sulfur (s-SNAS) NLM-4.1	L22-JI0061212	CP	% S	N/A	N/A	N/A	30%	Pass	
Net Acid soluble sulfur (a-SNAS) NLM-4.1	L22-JI0061212	CP	mol H+/t	N/A	N/A	N/A	30%	Pass	
Duplicate									
Acid Neutralising Capacity (ANCbt)				Result 1	Result 2	RPD			
Acid Neutralising Capacity - (ANCbt) (NLM-5.2)	L22-JI0061212	CP	% CaCO3	N/A	N/A	N/A	20%	Pass	
Acid Neutralising Capacity - (s-ANCbt) (NLM-5.2)	L22-JI0061212	CP	% S	N/A	N/A	N/A	30%	Pass	
ANC Fineness Factor	L22-JI0061212	CP	factor	1.5	1.5	<1	30%	Pass	
Duplicate									
Net Acidity (Including ANC)				Result 1	Result 2	RPD			
CRS Suite - Net Acidity - NASSG (Including ANC)	L22-JI0061212	CP	% S	< 0.02	< 0.02	<1	30%	Pass	
CRS Suite - Net Acidity - NASSG (Including ANC)	L22-JI0061212	CP	mol H+/t	< 10	< 10	<1	30%	Pass	
CRS Suite - Liming Rate - NASSG (Including ANC)	L22-JI0061212	CP	kg CaCO3/t	< 1	< 1	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	L22-JI0061217	CP	%	17	17	3.4	30%	Pass	
Duplicate									
Actual Acidity (NLM-3.2)				Result 1	Result 2	RPD			
pH-KCL (NLM-3.1)	L22-JI0061222	CP	pH Units	9.3	9.3	<1	20%	Pass	
Titratable Actual Acidity (NLM-3.2)	L22-JI0061222	CP	mol H+/t	< 2	< 2	<1	20%	Pass	
Titratable Actual Acidity (NLM-3.2)	L22-JI0061222	CP	% pyrite S	< 0.003	< 0.003	<1	30%	Pass	

Duplicate									
Potential Acidity - Chromium Reducible Sulfur				Result 1	Result 2	RPD			
Chromium Reducible Sulfur (s-SCr) (NLM-2.1)	L22-JI0061222	CP	% S	< 0.005	< 0.005	<1	20%	Pass	
Chromium Reducible Sulfur (a-SCr) (NLM-2.1)	L22-JI0061222	CP	mol H+/t	< 3	< 3	<1	30%	Pass	
Duplicate									
Acid Neutralising Capacity (ANCbt)				Result 1	Result 2	RPD			
Acid Neutralising Capacity - (ANCbt) (NLM-5.2)	L22-JI0061222	CP	% CaCO3	1.1	1.1	1.8	20%	Pass	
Acid Neutralising Capacity - (s-ANCbt) (NLM-5.2)	L22-JI0061222	CP	% S	0.34	0.35	1.8	30%	Pass	
ANC Fineness Factor	L22-JI0061222	CP	factor	1.5	1.5	<1	30%	Pass	
Duplicate									
Net Acidity (Including ANC)				Result 1	Result 2	RPD			
CRS Suite - Net Acidity - NASSG (Including ANC)	L22-JI0061222	CP	% S	< 0.02	< 0.02	<1	30%	Pass	
CRS Suite - Net Acidity - NASSG (Including ANC)	L22-JI0061222	CP	mol H+/t	< 10	< 10	<1	30%	Pass	
CRS Suite - Liming Rate - NASSG (Including ANC)	L22-JI0061222	CP	kg CaCO3/t	< 1	< 1	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	L22-JI0061226	CP	%	4.7	4.6	1.2	30%	Pass	
Duplicate									
Actual Acidity (NLM-3.2)				Result 1	Result 2	RPD			
pH-KCL (NLM-3.1)	L22-JI0061227	CP	pH Units	5.1	5.1	<1	20%	Pass	
Titratable Actual Acidity (NLM-3.2)	L22-JI0061227	CP	mol H+/t	3.4	3.6	4.4	20%	Pass	
Titratable Actual Acidity (NLM-3.2)	L22-JI0061227	CP	% pyrite S	0.006	0.006	4.4	30%	Pass	
Duplicate									
Potential Acidity - Chromium Reducible Sulfur				Result 1	Result 2	RPD			
Chromium Reducible Sulfur (s-SCr) (NLM-2.1)	L22-JI0061227	CP	% S	< 0.005	< 0.005	<1	20%	Pass	
Chromium Reducible Sulfur (a-SCr) (NLM-2.1)	L22-JI0061227	CP	mol H+/t	< 3	< 3	<1	30%	Pass	
Duplicate									
Extractable Sulfur				Result 1	Result 2	RPD			
Sulfur - KCl Extractable	L22-JI0061227	CP	% S	N/A	N/A	N/A	30%	Pass	
HCl Extractable Sulfur	L22-JI0061227	CP	% S	N/A	N/A	N/A	20%	Pass	
Duplicate									
Retained Acidity (S-NAS)				Result 1	Result 2	RPD			
Net Acid soluble sulfur (SNAS) NLM-4.1	L22-JI0061227	CP	% S	N/A	N/A	N/A	30%	Pass	
Net Acid soluble sulfur (s-SNAS) NLM-4.1	L22-JI0061227	CP	% S	N/A	N/A	N/A	30%	Pass	
Net Acid soluble sulfur (a-SNAS) NLM-4.1	L22-JI0061227	CP	mol H+/t	N/A	N/A	N/A	30%	Pass	
Duplicate									
Acid Neutralising Capacity (ANCbt)				Result 1	Result 2	RPD			
Acid Neutralising Capacity - (ANCbt) (NLM-5.2)	L22-JI0061227	CP	% CaCO3	N/A	N/A	N/A	20%	Pass	
Acid Neutralising Capacity - (s-ANCbt) (NLM-5.2)	L22-JI0061227	CP	% S	N/A	N/A	N/A	30%	Pass	
ANC Fineness Factor	L22-JI0061227	CP	factor	1.5	1.5	<1	30%	Pass	
Duplicate									
Net Acidity (Including ANC)				Result 1	Result 2	RPD			
CRS Suite - Net Acidity - NASSG (Including ANC)	L22-JI0061227	CP	% S	< 0.02	< 0.02	<1	30%	Pass	
CRS Suite - Net Acidity - NASSG (Including ANC)	L22-JI0061227	CP	mol H+/t	< 10	< 10	<1	30%	Pass	
CRS Suite - Liming Rate - NASSG (Including ANC)	L22-JI0061227	CP	kg CaCO3/t	< 1	< 1	<1	30%	Pass	

Duplicate									
				Result 1	Result 2	RPD			
% Moisture	L22-JI0061236	CP	%	13	13	2.8	30%	Pass	
Duplicate									
Actual Acidity (NLM-3.2)				Result 1	Result 2	RPD			
pH-KCL (NLM-3.1)	L22-JI0061237	CP	pH Units	5.4	5.4	<1	20%	Pass	
Titratable Actual Acidity (NLM-3.2)	L22-JI0061237	CP	mol H+/t	6.8	6.8	<1	20%	Pass	
Titratable Actual Acidity (NLM-3.2)	L22-JI0061237	CP	% pyrite S	0.011	0.011	<1	30%	Pass	
Duplicate									
Potential Acidity - Chromium Reducible Sulfur				Result 1	Result 2	RPD			
Chromium Reducible Sulfur (s-SCr) (NLM-2.1)	L22-JI0061237	CP	% S	< 0.005	< 0.005	<1	20%	Pass	
Chromium Reducible Sulfur (a-SCr) (NLM-2.1)	L22-JI0061237	CP	mol H+/t	< 3	< 3	<1	30%	Pass	
Duplicate									
Extractable Sulfur				Result 1	Result 2	RPD			
Sulfur - KCl Extractable	L22-JI0061237	CP	% S	N/A	N/A	N/A	30%	Pass	
HCl Extractable Sulfur	L22-JI0061237	CP	% S	N/A	N/A	N/A	20%	Pass	
Duplicate									
Retained Acidity (S-NAS)				Result 1	Result 2	RPD			
Net Acid soluble sulfur (SNAS) NLM-4.1	L22-JI0061237	CP	% S	N/A	N/A	N/A	30%	Pass	
Net Acid soluble sulfur (s-SNAS) NLM-4.1	L22-JI0061237	CP	% S	N/A	N/A	N/A	30%	Pass	
Net Acid soluble sulfur (a-SNAS) NLM-4.1	L22-JI0061237	CP	mol H+/t	N/A	N/A	N/A	30%	Pass	
Duplicate									
Acid Neutralising Capacity (ANCbt)				Result 1	Result 2	RPD			
Acid Neutralising Capacity - (ANCbt) (NLM-5.2)	L22-JI0061237	CP	% CaCO3	N/A	N/A	N/A	20%	Pass	
Acid Neutralising Capacity - (s-ANCbt) (NLM-5.2)	L22-JI0061237	CP	% S	N/A	N/A	N/A	30%	Pass	
ANC Fineness Factor	L22-JI0061237	CP	factor	1.5	1.5	<1	30%	Pass	
Duplicate									
Net Acidity (Including ANC)				Result 1	Result 2	RPD			
CRS Suite - Net Acidity - NASSG (Including ANC)	L22-JI0061237	CP	% S	< 0.02	< 0.02	<1	30%	Pass	
CRS Suite - Net Acidity - NASSG (Including ANC)	L22-JI0061237	CP	mol H+/t	< 10	< 10	<1	30%	Pass	
CRS Suite - Liming Rate - NASSG (Including ANC)	L22-JI0061237	CP	kg CaCO3/t	< 1	< 1	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	L22-JI0061246	CP	%	12	13	4.9	30%	Pass	
Duplicate									
Actual Acidity (NLM-3.2)				Result 1	Result 2	RPD			
pH-KCL (NLM-3.1)	L22-JI0061247	CP	pH Units	5.2	5.2	<1	20%	Pass	
Titratable Actual Acidity (NLM-3.2)	L22-JI0061247	CP	mol H+/t	12	12	<1	20%	Pass	
Titratable Actual Acidity (NLM-3.2)	L22-JI0061247	CP	% pyrite S	0.020	0.020	<1	30%	Pass	
Duplicate									
Potential Acidity - Chromium Reducible Sulfur				Result 1	Result 2	RPD			
Chromium Reducible Sulfur (s-SCr) (NLM-2.1)	L22-JI0061247	CP	% S	0.026	0.023	10	20%	Pass	
Chromium Reducible Sulfur (a-SCr) (NLM-2.1)	L22-JI0061247	CP	mol H+/t	16	15	10	30%	Pass	
Duplicate									
Extractable Sulfur				Result 1	Result 2	RPD			
Sulfur - KCl Extractable	L22-JI0061247	CP	% S	N/A	N/A	N/A	30%	Pass	
HCl Extractable Sulfur	L22-JI0061247	CP	% S	N/A	N/A	N/A	20%	Pass	

Duplicate									
Retained Acidity (S-NAS)				Result 1	Result 2	RPD			
Net Acid soluble sulfur (SNAS) NLM-4.1	L22-JI0061247	CP	% S	N/A	N/A	N/A	30%	Pass	
Net Acid soluble sulfur (s-SNAS) NLM-4.1	L22-JI0061247	CP	% S	N/A	N/A	N/A	30%	Pass	
Net Acid soluble sulfur (a-SNAS) NLM-4.1	L22-JI0061247	CP	mol H+/t	N/A	N/A	N/A	30%	Pass	
Duplicate									
Acid Neutralising Capacity (ANCbt)				Result 1	Result 2	RPD			
Acid Neutralising Capacity - (ANCbt) (NLM-5.2)	L22-JI0061247	CP	% CaCO3	N/A	N/A	N/A	20%	Pass	
Acid Neutralising Capacity - (s-ANCbt) (NLM-5.2)	L22-JI0061247	CP	% S	N/A	N/A	N/A	30%	Pass	
ANC Fineness Factor	L22-JI0061247	CP	factor	1.5	1.5	<1	30%	Pass	
Duplicate									
Net Acidity (Including ANC)				Result 1	Result 2	RPD			
CRS Suite - Net Acidity - NASSG (Including ANC)	L22-JI0061247	CP	% S	0.05	0.04	6.0	30%	Pass	
CRS Suite - Net Acidity - NASSG (Including ANC)	L22-JI0061247	CP	mol H+/t	28	27	6.0	30%	Pass	
CRS Suite - Liming Rate - NASSG (Including ANC)	L22-JI0061247	CP	kg CaCO3/t	2.1	2.0	6.0	30%	Pass	
Duplicate									
Actual Acidity (NLM-3.2)				Result 1	Result 2	RPD			
pH-KCL (NLM-3.1)	L22-JI0061257	CP	pH Units	6.3	6.3	<1	20%	Pass	
Titratable Actual Acidity (NLM-3.2)	L22-JI0061257	CP	mol H+/t	< 2	< 2	<1	20%	Pass	
Titratable Actual Acidity (NLM-3.2)	L22-JI0061257	CP	% pyrite S	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
Potential Acidity - Chromium Reducible Sulfur				Result 1	Result 2	RPD			
Chromium Reducible Sulfur (s-SCr) (NLM-2.1)	L22-JI0061257	CP	% S	< 0.005	< 0.005	<1	20%	Pass	
Chromium Reducible Sulfur (a-SCr) (NLM-2.1)	L22-JI0061257	CP	mol H+/t	< 3	< 3	<1	30%	Pass	
Duplicate									
Extractable Sulfur				Result 1	Result 2	RPD			
Sulfur - KCl Extractable	L22-JI0061257	CP	% S	N/A	N/A	N/A	30%	Pass	
HCl Extractable Sulfur	L22-JI0061257	CP	% S	N/A	N/A	N/A	20%	Pass	
Duplicate									
Retained Acidity (S-NAS)				Result 1	Result 2	RPD			
Net Acid soluble sulfur (SNAS) NLM-4.1	L22-JI0061257	CP	% S	N/A	N/A	N/A	30%	Pass	
Net Acid soluble sulfur (s-SNAS) NLM-4.1	L22-JI0061257	CP	% S	N/A	N/A	N/A	30%	Pass	
Net Acid soluble sulfur (a-SNAS) NLM-4.1	L22-JI0061257	CP	mol H+/t	N/A	N/A	N/A	30%	Pass	
Duplicate									
Acid Neutralising Capacity (ANCbt)				Result 1	Result 2	RPD			
Acid Neutralising Capacity - (ANCbt) (NLM-5.2)	L22-JI0061257	CP	% CaCO3	N/A	N/A	N/A	20%	Pass	
Acid Neutralising Capacity - (s-ANCbt) (NLM-5.2)	L22-JI0061257	CP	% S	N/A	N/A	N/A	30%	Pass	
ANC Fineness Factor	L22-JI0061257	CP	factor	1.5	1.5	<1	30%	Pass	
Duplicate									
Net Acidity (Including ANC)				Result 1	Result 2	RPD			
CRS Suite - Net Acidity - NASSG (Including ANC)	L22-JI0061257	CP	% S	< 0.02	< 0.02	<1	30%	Pass	
CRS Suite - Net Acidity - NASSG (Including ANC)	L22-JI0061257	CP	mol H+/t	< 10	< 10	<1	30%	Pass	
CRS Suite - Liming Rate - NASSG (Including ANC)	L22-JI0061257	CP	kg CaCO3/t	< 1	< 1	<1	30%	Pass	

Duplicate									
				Result 1	Result 2	RPD			
% Moisture	L22-JI0061257	CP	%	11	11	1.1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	L22-JI0061266	CP	%	5.1	5.1	<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
S01	Liming rate is calculated and reported on a dry weight basis assuming use of fine agricultural lime (CaCO3) and using a safety factor of 1.5 to allow for non-homogeneous mixing and poor reactivity of lime. For conversion of Liming Rate from 'kg/t dry weight' to 'kg/m3 in-situ soil' multiply 'reported results' x 'wet bulk density of soil in t/m3'
S02	Retained Acidity is Reported when the pHKCl is less than pH 4.5
S03	Acid Neutralising Capacity is only required if the pHKCl if greater than or equal to pH 6.5
S04	Acid Sulfate Soil Samples have a 24 hour holding time unless frozen or dried within that period

Authorised by:

Natalie Hill	Analytical Services Manager
Myles Clark	Senior Analyst-SPOCAS

Kim Rodgers
Business Unit 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

ABEC Environmental Consutlting Pty Ltd
2/17 Inverness Ave
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WA 6281

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: **Elodie Payet**

Report **913259-S**
Project name DMS22-013
Project ID DMS22-013
Received Date Aug 10, 2022

Client Sample ID			**KL_PASS021_3.5**
Sample Matrix			**Soil**
Eurofins Sample No.			**L22-Au0023600**
Date Sampled			**Jun 20, 2022**
Test/Reference	LOR	Unit	
Actual Acidity (NLM-3.2)			
pH-KCL (NLM-3.1)	0.1	pH Units	5.3
Titratable Actual Acidity (NLM-3.2)	2	mol H+/t	2.6
Titratable Actual Acidity (NLM-3.2)	0.003	% pyrite S	0.004
Potential Acidity - Chromium Reducible Sulfur			
Chromium Reducible Sulfur (s-SCr) (NLM-2.1)[S04]	0.005	% S	0.006
Chromium Reducible Sulfur (a-SCr) (NLM-2.1)	3	mol H+/t	3.9
Extractable Sulfur			
Sulfur - KCl Extractable	0.005	% S	N/A
HCl Extractable Sulfur	0.005	% S	N/A
Retained Acidity (S-NAS)			
Net Acid soluble sulfur (SNAS) NLM-4.1	0.02	% S	N/A
Net Acid soluble sulfur (s-SNAS) NLM-4.1[S02]	0.02	% S	N/A
Net Acid soluble sulfur (a-SNAS) NLM-4.1	10	mol H+/t	N/A
HCl Extractable Sulfur Correction Factor	1	factor	2.0
Acid Neutralising Capacity (ANCbt)			
Acid Neutralising Capacity - (ANCbt) (NLM-5.2)	0.01	% CaCO3	N/A
Acid Neutralising Capacity - (s-ANCbt) (NLM-5.2)[S03]	0.02	% S	N/A
Acid Neutralising Capacity - (a-ANCbt) (NLM-5.2)	2	mol H+/t	N/A
ANC Fineness Factor		factor	1.5
Net Acidity (Including ANC)			
CRS Suite - Net Acidity - NASSG (Including ANC)	0.02	% S	< 0.02
CRS Suite - Net Acidity - NASSG (Including ANC)	10	mol H+/t	< 10
CRS Suite - Liming Rate - NASSG (Including ANC)[S01]	1	kg CaCO3/t	< 1
Extraneous Material			
<2mm Fraction	0.005	g	44
>2mm Fraction	0.005	g	< 0.005
Analysed Material	0.1	%	100
Extraneous Material	0.1	%	< 0.1
% Moisture	1	%	16

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
Chromium Reducible Sulfur Suite			
Chromium Suite	Brisbane	Aug 11, 2022	6 Week
- Method: LTM-GEN-7070 Chromium Reducible Sulfur Suite			
Extraneous Material	Brisbane	Aug 11, 2022	6 Week
- Method: LTM-GEN-7050/7070			
% Moisture	Welshpool	Aug 10, 2022	14 Days
- Method: ARL135 Moisture in Solids			

eurofins

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Company Name: ABEC Environmental Consulting Pty Ltd
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Project Name: DMS22-013
Project ID: DMS22-013

Order No.:
Report #: 913259
Phone: 0422 812 845
Fax:

Received: Aug 10, 2022 3:00 PM
Due: Aug 15, 2022
Priority: 3 Day
Contact Name: Elodie Payet

Eurofins Analytical Services Manager : Natalie Hill

Sample Detail						Chromium Reducible Sulfur Suite	Moisture Set
Perth Laboratory - NATA # 2377 Site # 2370							X
Brisbane Laboratory - NATA # 1261 Site # 20794						X	
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	KL_PASS021_3.5	Jun 20, 2022		Soil	L22-Au0023600	X	X
Test Counts						1	1

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

Please refer to '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 prior to sample receipt deadlines as stated on the SRA.

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

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

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

Units

mg/kg: milligrams per kilogram
mg/L: milligrams per litre
µg/L: micrograms per litre
ppm: parts per million
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

Terms

APHA	American Public Health Association
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 a moisture has been determined on a solid sample the result is expressed on a dry 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 is representative of 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 like compound to the analyte target and reported as percentage recovery.
TBTO	Tributyltin oxide (*bis*-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 5.4
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 be used as a guide only 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

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.4 where no positive PFAS results have been reported have been reviewed and no data was affected.

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QC Data General Comments

1. Where a result is reported as a 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.
2. 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 is not data from your samples.
3. 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.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. 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)	%	84			80-120	Pass	
LCS - % Recovery							
Potential Acidity - Chromium Reducible Sulfur							
Chromium Reducible Sulfur (s-SCr) (NLM-2.1)	%	100			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Actual Acidity (NLM-3.2)				Result 1	Result 2	RPD			
pH-KCL (NLM-3.1)	L22-Au0023600	CP	pH Units	5.3	5.3	<1	20%	Pass	
Titratable Actual Acidity (NLM-3.2)	L22-Au0023600	CP	mol H+/t	2.6	2.8	7.2	20%	Pass	
Titratable Actual Acidity (NLM-3.2)	L22-Au0023600	CP	% pyrite S	0.004	0.005	7.2	30%	Pass	
Duplicate									
Potential Acidity - Chromium Reducible Sulfur				Result 1	Result 2	RPD			
Chromium Reducible Sulfur (s-SCr) (NLM-2.1)	L22-Au0023600	CP	% S	0.006	0.006	<1	20%	Pass	
Chromium Reducible Sulfur (a-SCr) (NLM-2.1)	L22-Au0023600	CP	mol H+/t	3.9	3.9	<1	30%	Pass	
Duplicate									
Extractable Sulfur				Result 1	Result 2	RPD			
Sulfur - KCl Extractable	L22-Au0023600	CP	% S	N/A	N/A	N/A	30%	Pass	
HCl Extractable Sulfur	L22-Au0023600	CP	% S	N/A	N/A	N/A	20%	Pass	
Duplicate									
Retained Acidity (S-NAS)				Result 1	Result 2	RPD			
Net Acid soluble sulfur (SNAS) NLM-4.1	L22-Au0023600	CP	% S	N/A	N/A	N/A	30%	Pass	
Net Acid soluble sulfur (s-SNAS) NLM-4.1	L22-Au0023600	CP	% S	N/A	N/A	N/A	30%	Pass	
Net Acid soluble sulfur (a-SNAS) NLM-4.1	L22-Au0023600	CP	mol H+/t	N/A	N/A	N/A	30%	Pass	
Duplicate									
Acid Neutralising Capacity (ANCbt)				Result 1	Result 2	RPD			
Acid Neutralising Capacity - (ANCbt) (NLM-5.2)	L22-Au0023600	CP	% CaCO3	N/A	N/A	N/A	20%	Pass	
Acid Neutralising Capacity - (s-ANCbt) (NLM-5.2)	L22-Au0023600	CP	% S	N/A	N/A	N/A	30%	Pass	
ANC Fineness Factor	L22-Au0023600	CP	factor	1.5	1.5	<1	30%	Pass	
Duplicate									
Net Acidity (Including ANC)				Result 1	Result 2	RPD			
CRS Suite - Net Acidity - NASSG (Including ANC)	L22-Au0023600	CP	% S	< 0.02	< 0.02	<1	30%	Pass	
CRS Suite - Net Acidity - NASSG (Including ANC)	L22-Au0023600	CP	mol H+/t	< 10	< 10	<1	30%	Pass	
CRS Suite - Liming Rate - NASSG (Including ANC)	L22-Au0023600	CP	kg CaCO3/t	< 1	< 1	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	L22-Au0023600	CP	%	16	16	<1	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	N/A
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
S01	Liming rate is calculated and reported on a dry weight basis assuming use of fine agricultural lime (CaCO3) and using a safety factor of 1.5 to allow for non-homogeneous mixing and poor reactivity of lime. For conversion of Liming Rate from 'kg/t dry weight' to 'kg/m3 in-situ soil' multiply 'reported results' x 'wet bulk density of soil in t/m3'
S02	Retained Acidity is Reported when the pHKCl is less than pH 4.5
S03	Acid Neutralising Capacity is only required if the pHKCl if greater than or equal to pH 6.5
S04	Acid Sulfate Soil Samples have a 24 hour holding time unless frozen or dried within that period

Authorised by:

Natalie Hill Analytical Services Manager

Kim Rodgers
Business Unit 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

ABEC Environmental Consutlting Pty Ltd
2/17 Inverness Ave
Dunsborough
WA 6281

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: **Damon Bourke**

Report **993223-S**
Project name DMS22-013
Received Date May 24, 2023

Client Sample ID			**KL_PASS024_1.0m**	**KL_PASS024_2.0m**	**KL_PASS024_3.0m**	**KL_PASS025_1.0m**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**L23-My0066569**	**L23-My0066570**	**L23-My0066571**	**L23-My0066572**
Date Sampled			**May 09, 2023**	**May 09, 2023**	**May 09, 2023**	**May 09, 2023**
Test/Reference	LOR	Unit				
Actual Acidity (NLM-3.2)						
pH-KCL (NLM-3.1)	0.1	pH Units	5.7	5.6	5.6	5.3
Titratable Actual Acidity (NLM-3.2)	2	mol H+/t	5.2	8.2	9.0	15
Titratable Actual Acidity (NLM-3.2)	0.003	% pyrite S	0.008	0.013	0.014	0.023
Potential Acidity - Chromium Reducible Sulfur						
Chromium Reducible Sulfur (s-SCr) (NLM-2.1)[S04]	0.005	% S	< 0.005	< 0.005	< 0.005	< 0.005
Chromium Reducible Sulfur (a-SCr) (NLM-2.1)	3	mol H+/t	< 3	< 3	< 3	< 3
Extractable Sulfur						
Sulfur - KCl Extractable	0.005	% S	N/A	N/A	N/A	N/A
HCl Extractable Sulfur	0.005	% S	N/A	N/A	N/A	N/A
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
Acid Neutralising Capacity (ANCbt)						
Acid Neutralising Capacity - (ANCbt) (NLM-5.2)	0.01	% CaCO3	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (s-ANCbt) (NLM-5.2)[S03]	0.02	% S	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (a-ANCbt) (NLM-5.2)	2	mol H+/t	N/A	N/A	N/A	N/A
ANC Fineness Factor		factor	1.5	1.5	1.5	1.5
Net Acidity (Including ANC)						
CRS Suite - Net Acidity - NASSG (Including ANC)	0.02	% S	< 0.02	< 0.02	< 0.02	0.02
CRS Suite - Net Acidity - NASSG (Including ANC)	10	mol H+/t	< 10	< 10	< 10	15
CRS Suite - Liming Rate - NASSG (Including ANC)[S01]	1	kg CaCO3/t	< 1	< 1	< 1	1.1
Extraneous Material						
<2mm Fraction	0.005	g	25	30	19	28
>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
Sample Properties						
% Moisture	1	%	5.9	12	9.6	6.0

Client Sample ID			KL_PASS025_ 2.0m	KL_PASS025_ 3.0m	KL_PASS026_ 1.0m	KL_PASS026_ 2.0m
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**L23-My0066573**	**L23-My0066574**	**L23-My0066575**	**L23-My0066576**
Date Sampled			**May 09, 2023**	**May 09, 2023**	**May 09, 2023**	**May 09, 2023**
Test/Reference	LOR	Unit				
Actual Acidity (NLM-3.2)						
pH-KCL (NLM-3.1)	0.1	pH Units	5.2	5.2	5.3	5.0
Titratable Actual Acidity (NLM-3.2)	2	mol H+/t	13	17	10	21
Titratable Actual Acidity (NLM-3.2)	0.003	% pyrite S	0.021	0.028	0.017	0.033
Potential Acidity - Chromium Reducible Sulfur						
Chromium Reducible Sulfur (s-SCr) (NLM-2.1)[S04]	0.005	% S	< 0.005	< 0.005	< 0.005	< 0.005
Chromium Reducible Sulfur (a-SCr) (NLM-2.1)	3	mol H+/t	< 3	< 3	< 3	< 3
Extractable Sulfur						
Sulfur - KCl Extractable	0.005	% S	N/A	N/A	N/A	N/A
HCl Extractable Sulfur	0.005	% S	N/A	N/A	N/A	N/A
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
Acid Neutralising Capacity (ANCbt)						
Acid Neutralising Capacity - (ANCbt) (NLM-5.2)	0.01	% CaCO3	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (s-ANCbt) (NLM-5.2)[S03]	0.02	% S	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (a-ANCbt) (NLM-5.2)	2	mol H+/t	N/A	N/A	N/A	N/A
ANC Fineness Factor		factor	1.5	1.5	1.5	1.5
Net Acidity (Including ANC)						
CRS Suite - Net Acidity - NASSG (Including ANC)	0.02	% S	0.02	0.03	< 0.02	0.03
CRS Suite - Net Acidity - NASSG (Including ANC)	10	mol H+/t	13	17	10	21
CRS Suite - Liming Rate - NASSG (Including ANC)[S01]	1	kg CaCO3/t	1.0	1.3	< 1	1.6
Extraneous Material						
<2mm Fraction	0.005	g	35	31	32	28
>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
Sample Properties						
% Moisture	1	%	15	15	4.0	15

Client Sample ID			KL_PASS026_ 3.0m	KL_PASS027_ 0.5m	KL_PASS027_ 1.5m	KL_PASS027_ 2.5m
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**L23-My0066577**	**L23-My0066578**	**L23-My0066579**	**L23-My0066580**
Date Sampled			**May 09, 2023**	**May 09, 2023**	**May 09, 2023**	**May 09, 2023**
Test/Reference	LOR	Unit				
Actual Acidity (NLM-3.2)						
pH-KCL (NLM-3.1)	0.1	pH Units	5.4	5.4	5.5	5.5
Titratable Actual Acidity (NLM-3.2)	2	mol H+/t	10	7.9	7.1	8.6
Titratable Actual Acidity (NLM-3.2)	0.003	% pyrite S	0.017	0.013	0.011	0.014
Potential Acidity - Chromium Reducible Sulfur						
Chromium Reducible Sulfur (s-SCr) (NLM-2.1)[S04]	0.005	% S	< 0.005	< 0.005	< 0.005	0.006
Chromium Reducible Sulfur (a-SCr) (NLM-2.1)	3	mol H+/t	< 3	< 3	< 3	3.8
Extractable Sulfur						
Sulfur - KCl Extractable	0.005	% S	N/A	N/A	N/A	N/A
HCl Extractable Sulfur	0.005	% S	N/A	N/A	N/A	N/A

Client Sample ID			KL_PASS026_3.0m	KL_PASS027_0.5m	KL_PASS027_1.5m	KL_PASS027_2.5m
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L23-My0066577	L23-My0066578	L23-My0066579	L23-My0066580
Date Sampled			May 09, 2023	May 09, 2023	May 09, 2023	May 09, 2023
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
Acid Neutralising Capacity (ANCbt)						
Acid Neutralising Capacity - (ANCbt) (NLM-5.2)	0.01	% CaCO3	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (s-ANCbt) (NLM-5.2)[S03]	0.02	% S	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (a-ANCbt) (NLM-5.2)	2	mol H+/t	N/A	N/A	N/A	N/A
ANC Fineness Factor		factor	1.5	1.5	1.5	1.5
Net Acidity (Including ANC)						
CRS Suite - Net Acidity - NASSG (Including ANC)	0.02	% S	< 0.02	< 0.02	< 0.02	< 0.02
CRS Suite - Net Acidity - NASSG (Including ANC)	10	mol H+/t	10	< 10	< 10	12
CRS Suite - Liming Rate - NASSG (Including ANC)[S01]	1	kg CaCO3/t	< 1	< 1	< 1	< 1
Extraneous Material						
<2mm Fraction	0.005	g	37	24	40	34
>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
Sample Properties						
% Moisture	1	%	12	3.4	15	14

Client Sample ID			KL_PASS027_3.5m	KL_PASS027_4.5m	KL_PASS027_5.5m	KL_PASS028_1.0m
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L23-My0066581	L23-My0066582	L23-My0066583	L23-My0066584
Date Sampled			May 09, 2023	May 09, 2023	May 09, 2023	May 09, 2023
Test/Reference	LOR	Unit				
Actual Acidity (NLM-3.2)						
pH-KCL (NLM-3.1)	0.1	pH Units	5.4	5.2	5.6	5.7
Titratable Actual Acidity (NLM-3.2)	2	mol H+/t	12	14	5.8	3.8
Titratable Actual Acidity (NLM-3.2)	0.003	% pyrite S	0.019	0.022	0.009	0.006
Potential Acidity - Chromium Reducible Sulfur						
Chromium Reducible Sulfur (s-SCr) (NLM-2.1)[S04]	0.005	% S	< 0.005	0.032	< 0.005	< 0.005
Chromium Reducible Sulfur (a-SCr) (NLM-2.1)	3	mol H+/t	< 3	20	< 3	< 3
Extractable Sulfur						
Sulfur - KCl Extractable	0.005	% S	N/A	N/A	N/A	N/A
HCl Extractable Sulfur	0.005	% S	N/A	N/A	N/A	N/A
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
Acid Neutralising Capacity (ANCbt)						
Acid Neutralising Capacity - (ANCbt) (NLM-5.2)	0.01	% CaCO3	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (s-ANCbt) (NLM-5.2)[S03]	0.02	% S	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (a-ANCbt) (NLM-5.2)	2	mol H+/t	N/A	N/A	N/A	N/A
ANC Fineness Factor		factor	1.5	1.5	1.5	1.5

Client Sample ID			KL_PASS027_ 3.5m	KL_PASS027_ 4.5m	KL_PASS027_ 5.5m	KL_PASS028_ 1.0m
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**L23-My0066581**	**L23-My0066582**	**L23-My0066583**	**L23-My0066584**
Date Sampled			**May 09, 2023**	**May 09, 2023**	**May 09, 2023**	**May 09, 2023**
Test/Reference	LOR	Unit				
Net Acidity (Including ANC)						
CRS Suite - Net Acidity - NASSG (Including ANC)	0.02	% S	< 0.02	0.05	< 0.02	< 0.02
CRS Suite - Net Acidity - NASSG (Including ANC)	10	mol H+/t	12	34	< 10	< 10
CRS Suite - Liming Rate - NASSG (Including ANC)[S01]	1	kg CaCO3/t	< 1	2.5	< 1	< 1
Extraneous Material						
<2mm Fraction	0.005	g	26	29	35	33
>2mm Fraction	0.005	g	11	< 0.005	< 0.005	< 0.005
Analysed Material	0.1	%	70	100	100	100
Extraneous Material	0.1	%	30	< 0.1	< 0.1	< 0.1
Sample Properties						
% Moisture	1	%	15	20	18	3.0

Client Sample ID			KL_PASS028_ 2.0m	KL_PASS028_ 3.0m	KL_PASS028_ 4.0m	KL_PASS028_ 4.5m
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**L23-My0066585**	**L23-My0066586**	**L23-My0066587**	**L23-My0066588**
Date Sampled			**May 09, 2023**	**May 09, 2023**	**May 09, 2023**	**May 09, 2023**
Test/Reference	LOR	Unit				
Actual Acidity (NLM-3.2)						
pH-KCL (NLM-3.1)	0.1	pH Units	5.7	5.5	5.5	5.6
Titratable Actual Acidity (NLM-3.2)	2	mol H+/t	2.9	5.2	14	6.2
Titratable Actual Acidity (NLM-3.2)	0.003	% pyrite S	0.005	0.008	0.022	0.010
Potential Acidity - Chromium Reducible Sulfur						
Chromium Reducible Sulfur (s-SCr) (NLM-2.1)[S04]	0.005	% S	< 0.005	0.006	0.10	0.005
Chromium Reducible Sulfur (a-SCr) (NLM-2.1)	3	mol H+/t	< 3	3.4	62	3.3
Extractable Sulfur						
Sulfur - KCl Extractable	0.005	% S	N/A	N/A	N/A	N/A
HCl Extractable Sulfur	0.005	% S	N/A	N/A	N/A	N/A
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
Acid Neutralising Capacity (ANCbt)						
Acid Neutralising Capacity - (ANCbt) (NLM-5.2)	0.01	% CaCO3	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (s-ANCbt) (NLM-5.2)[S03]	0.02	% S	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (a-ANCbt) (NLM-5.2)	2	mol H+/t	N/A	N/A	N/A	N/A
ANC Fineness Factor		factor	1.5	1.5	1.5	1.5
Net Acidity (Including ANC)						
CRS Suite - Net Acidity - NASSG (Including ANC)	0.02	% S	< 0.02	< 0.02	0.12	< 0.02
CRS Suite - Net Acidity - NASSG (Including ANC)	10	mol H+/t	< 10	< 10	76	< 10
CRS Suite - Liming Rate - NASSG (Including ANC)[S01]	1	kg CaCO3/t	< 1	< 1	5.7	< 1
Extraneous Material						
<2mm Fraction	0.005	g	31	35	33	44
>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			KL_PASS028_ 2.0m	KL_PASS028_ 3.0m	KL_PASS028_ 4.0m	KL_PASS028_ 4.5m
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L23-My0066585	L23-My0066586	L23-My0066587	L23-My0066588
Date Sampled			May 09, 2023	May 09, 2023	May 09, 2023	May 09, 2023
Test/Reference	LOR	Unit				
Sample Properties						
% Moisture	1	%	3.0	15	26	13

Client Sample ID			KL_PASS028_ 5.0m	KL_PASS028_ 5.5m	KL_PASS028_ 6.0m	KL_PASS029_ 1.0m
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L23-My0066589	L23-My0066590	L23-My0066591	L23-My0066592
Date Sampled			May 09, 2023	May 09, 2023	May 09, 2023	May 09, 2023
Test/Reference	LOR	Unit				
Actual Acidity (NLM-3.2)						
pH-KCL (NLM-3.1)	0.1	pH Units	5.6	5.6	5.6	5.6
Titratable Actual Acidity (NLM-3.2)	2	mol H+/t	4.6	4.5	3.4	2.5
Titratable Actual Acidity (NLM-3.2)	0.003	% pyrite S	0.007	0.007	0.006	0.004
Potential Acidity - Chromium Reducible Sulfur						
Chromium Reducible Sulfur (s-SCr) (NLM-2.1)[S04]	0.005	% S	< 0.005	0.021	0.031	< 0.005
Chromium Reducible Sulfur (a-SCr) (NLM-2.1)	3	mol H+/t	< 3	13	19	< 3
Extractable Sulfur						
Sulfur - KCl Extractable	0.005	% S	N/A	N/A	N/A	N/A
HCl Extractable Sulfur	0.005	% S	N/A	N/A	N/A	N/A
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
Acid Neutralising Capacity (ANCbt)						
Acid Neutralising Capacity - (ANCbt) (NLM-5.2)	0.01	% CaCO3	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (s-ANCbt) (NLM-5.2)[S03]	0.02	% S	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (a-ANCbt) (NLM-5.2)	2	mol H+/t	N/A	N/A	N/A	N/A
ANC Fineness Factor		factor	1.5	1.5	1.5	1.5
Net Acidity (Including ANC)						
CRS Suite - Net Acidity - NASSG (Including ANC)	0.02	% S	< 0.02	0.03	0.04	< 0.02
CRS Suite - Net Acidity - NASSG (Including ANC)	10	mol H+/t	< 10	18	23	< 10
CRS Suite - Liming Rate - NASSG (Including ANC)[S01]	1	kg CaCO3/t	< 1	1.3	1.7	< 1
Extraneous Material						
<2mm Fraction	0.005	g	50	54	33	30
>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
Sample Properties						
% Moisture	1	%	12	15	13	3.1

Client Sample ID			KL_PASS029_2.0m	KL_PASS029_3.0m	KL_PASS029_4.5m	KL_PASS029_5.5m
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L23-My0066593	L23-My0066594	L23-My0066595	L23-My0066596
Date Sampled			May 09, 2023	May 09, 2023	May 09, 2023	May 09, 2023
Test/Reference	LOR	Unit				
Actual Acidity (NLM-3.2)						
pH-KCL (NLM-3.1)	0.1	pH Units	5.7	5.3	5.6	5.6
Titratable Actual Acidity (NLM-3.2)	2	mol H+/t	2.2	10	6.5	7.3
Titratable Actual Acidity (NLM-3.2)	0.003	% pyrite S	0.004	0.017	0.010	0.012
Potential Acidity - Chromium Reducible Sulfur						
Chromium Reducible Sulfur (s-SCr) (NLM-2.1)[S04]	0.005	% S	< 0.005	< 0.005	< 0.005	0.017
Chromium Reducible Sulfur (a-SCr) (NLM-2.1)	3	mol H+/t	< 3	< 3	< 3	11
Extractable Sulfur						
Sulfur - KCl Extractable	0.005	% S	N/A	N/A	N/A	N/A
HCl Extractable Sulfur	0.005	% S	N/A	N/A	N/A	N/A
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
Acid Neutralising Capacity (ANCbt)						
Acid Neutralising Capacity - (ANCbt) (NLM-5.2)	0.01	% CaCO3	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (s-ANCbt) (NLM-5.2)[S03]	0.02	% S	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (a-ANCbt) (NLM-5.2)	2	mol H+/t	N/A	N/A	N/A	N/A
ANC Fineness Factor		factor	1.5	1.5	1.5	1.5
Net Acidity (Including ANC)						
CRS Suite - Net Acidity - NASSG (Including ANC)	0.02	% S	< 0.02	< 0.02	< 0.02	0.03
CRS Suite - Net Acidity - NASSG (Including ANC)	10	mol H+/t	< 10	10	< 10	18
CRS Suite - Liming Rate - NASSG (Including ANC)[S01]	1	kg CaCO3/t	< 1	< 1	< 1	1.4
Extraneous Material						
<2mm Fraction	0.005	g	43	39	33	33
>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
Sample Properties						
% Moisture	1	%	14	20	16	16

Client Sample ID			KL_PASS029_6.0m	KL_PASS030_1.0m	KL_PASS030_2.0m	KL_PASS030_3.0m
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			L23-My0066597	L23-My0066598	L23-My0066599	L23-My0066600
Date Sampled			May 09, 2023	May 09, 2023	May 09, 2023	May 09, 2023
Test/Reference	LOR	Unit				
Actual Acidity (NLM-3.2)						
pH-KCL (NLM-3.1)	0.1	pH Units	5.6	5.7	5.5	5.3
Titratable Actual Acidity (NLM-3.2)	2	mol H+/t	6.7	4.1	6.7	11
Titratable Actual Acidity (NLM-3.2)	0.003	% pyrite S	0.011	0.007	0.011	0.018
Potential Acidity - Chromium Reducible Sulfur						
Chromium Reducible Sulfur (s-SCr) (NLM-2.1)[S04]	0.005	% S	< 0.005	0.007	< 0.005	< 0.005
Chromium Reducible Sulfur (a-SCr) (NLM-2.1)	3	mol H+/t	< 3	4.4	< 3	< 3
Extractable Sulfur						
Sulfur - KCl Extractable	0.005	% S	N/A	N/A	N/A	N/A
HCl Extractable Sulfur	0.005	% S	N/A	N/A	N/A	N/A

Client Sample ID			KL_PASS029_ 6.0m	KL_PASS030_ 1.0m	KL_PASS030_ 2.0m	KL_PASS030_ 3.0m
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**L23-My0066597**	**L23-My0066598**	**L23-My0066599**	**L23-My0066600**
Date Sampled			**May 09, 2023**	**May 09, 2023**	**May 09, 2023**	**May 09, 2023**
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
Acid Neutralising Capacity (ANCbt)						
Acid Neutralising Capacity - (ANCbt) (NLM-5.2)	0.01	% CaCO3	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (s-ANCbt) (NLM-5.2)[S03]	0.02	% S	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (a-ANCbt) (NLM-5.2)	2	mol H+/t	N/A	N/A	N/A	N/A
ANC Fineness Factor		factor	1.5	1.5	1.5	1.5
Net Acidity (Including ANC)						
CRS Suite - Net Acidity - NASSG (Including ANC)	0.02	% S	< 0.02	< 0.02	< 0.02	< 0.02
CRS Suite - Net Acidity - NASSG (Including ANC)	10	mol H+/t	< 10	< 10	< 10	11
CRS Suite - Liming Rate - NASSG (Including ANC)[S01]	1	kg CaCO3/t	< 1	< 1	< 1	< 1
Extraneous Material						
<2mm Fraction	0.005	g	28	26	45	42
>2mm Fraction	0.005	g	< 0.005	< 0.005	< 0.005	3.2
Analysed Material	0.1	%	100	100	100	93
Extraneous Material	0.1	%	< 0.1	< 0.1	< 0.1	7.0
Sample Properties						
% Moisture	1	%	19	3.7	16	14

Client Sample ID			KL_PASS031_ 1.0m	KL_PASS031_ 2.0m	KL_PASS031_ 3.0m	KL_PASS032_ 1.0m
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**L23-My0066601**	**L23-My0066602**	**L23-My0066603**	**L23-My0066604**
Date Sampled			**May 09, 2023**	**May 09, 2023**	**May 09, 2023**	**May 09, 2023**
Test/Reference	LOR	Unit				
Actual Acidity (NLM-3.2)						
pH-KCL (NLM-3.1)	0.1	pH Units	5.6	5.1	5.2	6.0
Titratable Actual Acidity (NLM-3.2)	2	mol H+/t	6.8	17	14	2.9
Titratable Actual Acidity (NLM-3.2)	0.003	% pyrite S	0.011	0.027	0.023	0.005
Potential Acidity - Chromium Reducible Sulfur						
Chromium Reducible Sulfur (s-SCr) (NLM-2.1)[S04]	0.005	% S	< 0.005	0.010	0.010	< 0.005
Chromium Reducible Sulfur (a-SCr) (NLM-2.1)	3	mol H+/t	< 3	6.0	5.9	< 3
Extractable Sulfur						
Sulfur - KCl Extractable	0.005	% S	N/A	N/A	N/A	N/A
HCl Extractable Sulfur	0.005	% S	N/A	N/A	N/A	N/A
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
Acid Neutralising Capacity (ANCbt)						
Acid Neutralising Capacity - (ANCbt) (NLM-5.2)	0.01	% CaCO3	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (s-ANCbt) (NLM-5.2)[S03]	0.02	% S	N/A	N/A	N/A	N/A
Acid Neutralising Capacity - (a-ANCbt) (NLM-5.2)	2	mol H+/t	N/A	N/A	N/A	N/A
ANC Fineness Factor		factor	1.5	1.5	1.5	1.5

Client Sample ID			KL_PASS031_1.0m	KL_PASS031_2.0m	KL_PASS031_3.0m	KL_PASS032_1.0m
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**L23-My0066601**	**L23-My0066602**	**L23-My0066603**	**L23-My0066604**
Date Sampled			**May 09, 2023**	**May 09, 2023**	**May 09, 2023**	**May 09, 2023**
Test/Reference	LOR	Unit				
Net Acidity (Including ANC)						
CRS Suite - Net Acidity - NASSG (Including ANC)	0.02	% S	< 0.02	0.04	0.03	< 0.02
CRS Suite - Net Acidity - NASSG (Including ANC)	10	mol H+/t	< 10	23	20	< 10
CRS Suite - Liming Rate - NASSG (Including ANC)[S01]	1	kg CaCO3/t	< 1	1.7	1.5	< 1
Extraneous Material						
<2mm Fraction	0.005	g	28	37	47	27
>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
Sample Properties						
% Moisture	1	%	8.0	16	12	3.2

Client Sample ID			KL_PASS032_2.0m	KL_PASS032_3.0m
Sample Matrix			**Soil**	**Soil**
Eurofins Sample No.			**L23-My0066605**	**L23-My0066606**
Date Sampled			**May 09, 2023**	**May 09, 2023**
Test/Reference	LOR	Unit		
Actual Acidity (NLM-3.2)				
pH-KCL (NLM-3.1)	0.1	pH Units	6.2	5.7
Titratable Actual Acidity (NLM-3.2)	2	mol H+/t	2.7	6.8
Titratable Actual Acidity (NLM-3.2)	0.003	% pyrite S	0.004	0.011
Potential Acidity - Chromium Reducible Sulfur				
Chromium Reducible Sulfur (s-SCr) (NLM-2.1)[S04]	0.005	% S	< 0.005	< 0.005
Chromium Reducible Sulfur (a-SCr) (NLM-2.1)	3	mol H+/t	< 3	< 3
Extractable Sulfur				
Sulfur - KCl Extractable	0.005	% S	N/A	N/A
HCl Extractable Sulfur	0.005	% S	N/A	N/A
Retained Acidity (S-NAS)				
Net Acid soluble sulfur (SNAS) NLM-4.1	0.005	% S	N/A	N/A
Net Acid soluble sulfur (s-SNAS) NLM-4.1[S02]	0.005	% S	N/A	N/A
Net Acid soluble sulfur (a-SNAS) NLM-4.1	2	mol H+/t	N/A	N/A
HCl Extractable Sulfur Correction Factor	1	factor	2.0	2.0
Acid Neutralising Capacity (ANCbt)				
Acid Neutralising Capacity - (ANCbt) (NLM-5.2)	0.01	% CaCO3	N/A	N/A
Acid Neutralising Capacity - (s-ANCbt) (NLM-5.2)[S03]	0.02	% S	N/A	N/A
Acid Neutralising Capacity - (a-ANCbt) (NLM-5.2)	2	mol H+/t	N/A	N/A
ANC Fineness Factor		factor	1.5	1.5
Net Acidity (Including ANC)				
CRS Suite - Net Acidity - NASSG (Including ANC)	0.02	% S	< 0.02	< 0.02
CRS Suite - Net Acidity - NASSG (Including ANC)	10	mol H+/t	< 10	< 10
CRS Suite - Liming Rate - NASSG (Including ANC)[S01]	1	kg CaCO3/t	< 1	< 1
Extraneous Material				
<2mm Fraction	0.005	g	35	38
>2mm Fraction	0.005	g	< 0.005	< 0.005
Analysed Material	0.1	%	100	100
Extraneous Material	0.1	%	< 0.1	< 0.1

Client Sample ID			KL_PASS032_2.0m	KL_PASS032_3.0m
Sample Matrix			Soil	Soil
Eurofins Sample No.			L23-My0066605	L23-My0066606
Date Sampled			May 09, 2023	May 09, 2023
Test/Reference	LOR	Unit		
Sample Properties				
% Moisture	1	%	12	11

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
Chromium Reducible Sulfur Suite			
Chromium Suite	Brisbane	May 26, 2023	6 Week
- Method: LTM-GEN-7070 Chromium Reducible Sulfur Suite			
Extraneous Material	Brisbane	May 26, 2023	6 Week
- Method: LTM-GEN-7050/7070			
% Moisture	Welshpool	May 26, 2023	14 Days
- Method: ARL135 Moisture in Solids			

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Company Name: ABEC Environmental Consulting Pty Ltd
Address: 2/17 Inverness Ave
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WA 6281

Project Name: DMS22-013

Order No.:
Report #: 993223
Phone: 0422 812 845
Fax:

Received: May 24, 2023 3:51 PM
Due: May 31, 2023
Priority: 5 Day
Contact Name: Damon Bourke

Eurofins Analytical Services Manager : Natalie Hill

Sample Detail						Chromium Reducible Sulfur Suite	Moisture Set
Perth Laboratory - NATA # 2377 Site # 2370							X
Brisbane Laboratory - NATA # 1261 Site # 20794						X	
External Laboratory							
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**		
1	KL_PASS024_ 1.0m	May 09, 2023		Soil	L23-My0066569	X	X
2	KL_PASS024_ 2.0m	May 09, 2023		Soil	L23-My0066570	X	X
3	KL_PASS024_ 3.0m	May 09, 2023		Soil	L23-My0066571	X	X
4	KL_PASS025_ 1.0m	May 09, 2023		Soil	L23-My0066572	X	X
5	KL_PASS025_ 2.0m	May 09, 2023		Soil	L23-My0066573	X	X
6	KL_PASS025_ 3.0m	May 09, 2023		Soil	L23-My0066574	X	X
7	KL_PASS026_ 1.0m	May 09, 2023		Soil	L23-My0066575	X	X
8	KL_PASS026_	May 09, 2023		Soil	L23-My0066576	X	X

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Company Name: ABEC Environmental Consulting Pty Ltd
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Project Name: DMS22-013

Order No.:
Report #: 993223
Phone: 0422 812 845
Fax:

Received: May 24, 2023 3:51 PM
Due: May 31, 2023
Priority: 5 Day
Contact Name: Damon Bourke

Eurofins Analytical Services Manager : Natalie Hill

Sample Detail						Chromium Reducible Sulfur Suite	Moisture Set
Perth Laboratory - NATA # 2377 Site # 2370							X
Brisbane Laboratory - NATA # 1261 Site # 20794						X	
External Laboratory							
	2.0m						
9	KL_PASS026_ 3.0m	May 09, 2023		Soil	L23-My0066577	X	X
10	KL_PASS027_ 0.5m	May 09, 2023		Soil	L23-My0066578	X	X
11	KL_PASS027_ 1.5m	May 09, 2023		Soil	L23-My0066579	X	X
12	KL_PASS027_ 2.5m	May 09, 2023		Soil	L23-My0066580	X	X
13	KL_PASS027_ 3.5m	May 09, 2023		Soil	L23-My0066581	X	X
14	KL_PASS027_ 4.5m	May 09, 2023		Soil	L23-My0066582	X	X
15	KL_PASS027_ 5.5m	May 09, 2023		Soil	L23-My0066583	X	X
16	KL_PASS028_ 1.0m	May 09, 2023		Soil	L23-My0066584	X	X

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Company Name:	ABEC Environmental Consulting Pty Ltd	**Order No.:**		**Received:**	May 24, 2023 3:51 PM
Address:	2/17 Inverness Ave Dunsborough WA 6281	**Report #:** **Phone:** **Fax:**	993223 0422 812 845	**Due:** **Priority:** **Contact Name:**	May 31, 2023 5 Day Damon Bourke
Project Name:	DMS22-013				

Eurofins Analytical Services Manager : Natalie Hill

Sample Detail						Chromium Reducible Sulfur Suite	Moisture Set
Perth Laboratory - NATA # 2377 Site # 2370							X
Brisbane Laboratory - NATA # 1261 Site # 20794						X	
External Laboratory							
17	KL_PASS028_ 2.0m	May 09, 2023		Soil	L23-My0066585	X	X
18	KL_PASS028_ 3.0m	May 09, 2023		Soil	L23-My0066586	X	X
19	KL_PASS028_ 4.0m	May 09, 2023		Soil	L23-My0066587	X	X
20	KL_PASS028_ 4.5m	May 09, 2023		Soil	L23-My0066588	X	X
21	KL_PASS028_ 5.0m	May 09, 2023		Soil	L23-My0066589	X	X
22	KL_PASS028_ 5.5m	May 09, 2023		Soil	L23-My0066590	X	X
23	KL_PASS028_ 6.0m	May 09, 2023		Soil	L23-My0066591	X	X
24	KL_PASS029_ 1.0m	May 09, 2023		Soil	L23-My0066592	X	X
25	KL_PASS029_	May 09, 2023		Soil	L23-My0066593	X	X

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Received: May 24, 2023 3:51 PM
Due: May 31, 2023
Priority: 5 Day
Contact Name: Damon Bourke

Eurofins Analytical Services Manager : Natalie Hill

Sample Detail						Chromium Reducible Sulfur Suite	Moisture Set
Perth Laboratory - NATA # 2377 Site # 2370							X
Brisbane Laboratory - NATA # 1261 Site # 20794						X	
External Laboratory							
	2.0m						
26	KL_PASS029_ 3.0m	May 09, 2023		Soil	L23-My0066594	X	X
27	KL_PASS029_ 4.5m	May 09, 2023		Soil	L23-My0066595	X	X
28	KL_PASS029_ 5.5m	May 09, 2023		Soil	L23-My0066596	X	X
29	KL_PASS029_ 6.0m	May 09, 2023		Soil	L23-My0066597	X	X
30	KL_PASS030_ 1.0m	May 09, 2023		Soil	L23-My0066598	X	X
31	KL_PASS030_ 2.0m	May 09, 2023		Soil	L23-My0066599	X	X
32	KL_PASS030_ 3.0m	May 09, 2023		Soil	L23-My0066600	X	X
33	KL_PASS031_ 1.0m	May 09, 2023		Soil	L23-My0066601	X	X

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		Phone:	0422 812 845	**Priority:**	5 Day
		Fax:		**Contact Name:**	Damon Bourke
Project Name:	DMS22-013				

Eurofins Analytical Services Manager : Natalie Hill

Sample Detail						Chromium Reducible Sulfur Suite	Moisture Set
Perth Laboratory - NATA # 2377 Site # 2370							X
Brisbane Laboratory - NATA # 1261 Site # 20794						X	
External Laboratory							
34	KL_PASS031_2.0m	May 09, 2023		Soil	L23-My0066602	X	X
35	KL_PASS031_3.0m	May 09, 2023		Soil	L23-My0066603	X	X
36	KL_PASS032_1.0m	May 09, 2023		Soil	L23-My0066604	X	X
37	KL_PASS032_2.0m	May 09, 2023		Soil	L23-My0066605	X	X
38	KL_PASS032_3.0m	May 09, 2023		Soil	L23-My0066606	X	X
Test Counts						38	38

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Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

Please refer to '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 prior to sample receipt deadlines as stated on the SRA.

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

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

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

Units

mg/kg: milligrams per kilogram
mg/L: milligrams per litre
µg/L: micrograms per litre
ppm: parts per million
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

Terms

APHA	American Public Health Association
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 a moisture has been determined on a solid sample the result is expressed on a dry 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 is representative of 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 like compound to the analyte target and reported as percentage recovery.
TBTO	Tributyltin oxide (*bis*-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 5.4
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 be used as a guide only 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

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.4 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

1. Where a result is reported as a 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.
2. 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 is not data from your samples.
3. 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.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. 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)	%	102			80-120	Pass	
Titratable Actual Acidity (NLM-3.2)	%	92			80-120	Pass	
LCS - % Recovery							
Potential Acidity - Chromium Reducible Sulfur							
Chromium Reducible Sulfur (s-SCr) (NLM-2.1)	%	97			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Actual Acidity (NLM-3.2)				Result 1	Result 2	RPD			
pH-KCL (NLM-3.1)	L23-My0066574	CP	pH Units	5.2	5.2	<1	20%	Pass	
Titratable Actual Acidity (NLM-3.2)	L23-My0066574	CP	mol H+/t	17	17	<1	20%	Pass	
Titratable Actual Acidity (NLM-3.2)	L23-My0066574	CP	% pyrite S	0.028	0.028	<1	30%	Pass	
Duplicate									
Potential Acidity - Chromium Reducible Sulfur				Result 1	Result 2	RPD			
Chromium Reducible Sulfur (s-SCr) (NLM-2.1)	L23-My0066574	CP	% S	< 0.005	< 0.005	<1	20%	Pass	
Chromium Reducible Sulfur (a-SCr) (NLM-2.1)	L23-My0066574	CP	mol H+/t	< 3	< 3	<1	30%	Pass	
Duplicate									
Extractable Sulfur				Result 1	Result 2	RPD			
Sulfur - KCl Extractable	L23-My0066574	CP	% S	N/A	N/A	N/A	30%	Pass	
HCl Extractable Sulfur	L23-My0066574	CP	% S	N/A	N/A	N/A	20%	Pass	
Duplicate									
Retained Acidity (S-NAS)				Result 1	Result 2	RPD			
Net Acid soluble sulfur (SNAS) NLM-4.1	L23-My0066574	CP	% S	N/A	N/A	N/A	30%	Pass	
Net Acid soluble sulfur (s-SNAS) NLM-4.1	L23-My0066574	CP	% S	N/A	N/A	N/A	30%	Pass	
Net Acid soluble sulfur (a-SNAS) NLM-4.1	L23-My0066574	CP	mol H+/t	N/A	N/A	N/A	30%	Pass	
Duplicate									
Acid Neutralising Capacity (ANCbt)				Result 1	Result 2	RPD			
Acid Neutralising Capacity - (ANCbt) (NLM-5.2)	L23-My0066574	CP	% CaCO3	N/A	N/A	N/A	20%	Pass	
Acid Neutralising Capacity - (s-ANCbt) (NLM-5.2)	L23-My0066574	CP	% S	N/A	N/A	N/A	30%	Pass	
ANC Fineness Factor	L23-My0066574	CP	factor	1.5	1.5	<1	30%	Pass	
Duplicate									
Net Acidity (Including ANC)				Result 1	Result 2	RPD			
CRS Suite - Net Acidity - NASSG (Including ANC)	L23-My0066574	CP	% S	0.03	0.03	<1	30%	Pass	
CRS Suite - Net Acidity - NASSG (Including ANC)	L23-My0066574	CP	mol H+/t	17	17	<1	30%	Pass	
CRS Suite - Liming Rate - NASSG (Including ANC)	L23-My0066574	CP	kg CaCO3/t	1.3	1.3	<1	30%	Pass	
Duplicate									
Sample Properties				Result 1	Result 2	RPD			
% Moisture	L23-My0066574	CP	%	15	14	4.9	30%	Pass	
Duplicate									
Actual Acidity (NLM-3.2)				Result 1	Result 2	RPD			
pH-KCL (NLM-3.1)	L23-My0066584	CP	pH Units	5.7	5.7	<1	20%	Pass	
Titratable Actual Acidity (NLM-3.2)	L23-My0066584	CP	mol H+/t	3.8	3.6	4.0	20%	Pass	
Titratable Actual Acidity (NLM-3.2)	L23-My0066584	CP	% pyrite S	0.006	0.006	4.0	30%	Pass	

Duplicate									
Potential Acidity - Chromium Reducible Sulfur				Result 1	Result 2	RPD			
Chromium Reducible Sulfur (s-SCr) (NLM-2.1)	L23-My0066584	CP	% S	< 0.005	< 0.005	<1	20%	Pass	
Chromium Reducible Sulfur (a-SCr) (NLM-2.1)	L23-My0066584	CP	mol H+/t	< 3	< 3	<1	30%	Pass	
Duplicate									
Extractable Sulfur				Result 1	Result 2	RPD			
Sulfur - KCl Extractable	L23-My0066584	CP	% S	N/A	N/A	N/A	30%	Pass	
HCl Extractable Sulfur	L23-My0066584	CP	% S	N/A	N/A	N/A	20%	Pass	
Duplicate									
Retained Acidity (S-NAS)				Result 1	Result 2	RPD			
Net Acid soluble sulfur (SNAS) NLM-4.1	L23-My0066584	CP	% S	N/A	N/A	N/A	30%	Pass	
Net Acid soluble sulfur (s-SNAS) NLM-4.1	L23-My0066584	CP	% S	N/A	N/A	N/A	30%	Pass	
Net Acid soluble sulfur (a-SNAS) NLM-4.1	L23-My0066584	CP	mol H+/t	N/A	N/A	N/A	30%	Pass	
Duplicate									
Acid Neutralising Capacity (ANCbt)				Result 1	Result 2	RPD			
Acid Neutralising Capacity - (ANCbt) (NLM-5.2)	L23-My0066584	CP	% CaCO3	N/A	N/A	N/A	20%	Pass	
Acid Neutralising Capacity - (s-ANCbt) (NLM-5.2)	L23-My0066584	CP	% S	N/A	N/A	N/A	30%	Pass	
ANC Fineness Factor	L23-My0066584	CP	factor	1.5	1.5	<1	30%	Pass	
Duplicate									
Net Acidity (Including ANC)				Result 1	Result 2	RPD			
CRS Suite - Net Acidity - NASSG (Including ANC)	L23-My0066584	CP	% S	< 0.02	< 0.02	<1	30%	Pass	
CRS Suite - Net Acidity - NASSG (Including ANC)	L23-My0066584	CP	mol H+/t	< 10	< 10	<1	30%	Pass	
CRS Suite - Liming Rate - NASSG (Including ANC)	L23-My0066584	CP	kg CaCO3/t	< 1	< 1	<1	30%	Pass	
Duplicate									
Sample Properties				Result 1	Result 2	RPD			
% Moisture	L23-My0066584	CP	%	3.0	3.1	<1	30%	Pass	
Duplicate									
Actual Acidity (NLM-3.2)				Result 1	Result 2	RPD			
pH-KCL (NLM-3.1)	L23-My0066594	CP	pH Units	5.3	5.3	<1	20%	Pass	
Titratable Actual Acidity (NLM-3.2)	L23-My0066594	CP	mol H+/t	10	9.9	4.8	20%	Pass	
Titratable Actual Acidity (NLM-3.2)	L23-My0066594	CP	% pyrite S	0.017	0.016	4.8	30%	Pass	
Duplicate									
Potential Acidity - Chromium Reducible Sulfur				Result 1	Result 2	RPD			
Chromium Reducible Sulfur (s-SCr) (NLM-2.1)	L23-My0066594	CP	% S	< 0.005	< 0.005	<1	20%	Pass	
Chromium Reducible Sulfur (a-SCr) (NLM-2.1)	L23-My0066594	CP	mol H+/t	< 3	< 3	<1	30%	Pass	
Duplicate									
Extractable Sulfur				Result 1	Result 2	RPD			
Sulfur - KCl Extractable	L23-My0066594	CP	% S	N/A	N/A	N/A	30%	Pass	
HCl Extractable Sulfur	L23-My0066594	CP	% S	N/A	N/A	N/A	20%	Pass	
Duplicate									
Retained Acidity (S-NAS)				Result 1	Result 2	RPD			
Net Acid soluble sulfur (SNAS) NLM-4.1	L23-My0066594	CP	% S	N/A	N/A	N/A	30%	Pass	
Net Acid soluble sulfur (s-SNAS) NLM-4.1	L23-My0066594	CP	% S	N/A	N/A	N/A	30%	Pass	
Net Acid soluble sulfur (a-SNAS) NLM-4.1	L23-My0066594	CP	mol H+/t	N/A	N/A	N/A	30%	Pass	

Duplicate									
Acid Neutralising Capacity (ANCbt)				Result 1	Result 2	RPD			
Acid Neutralising Capacity - (ANCbt) (NLM-5.2)	L23-My0066594	CP	% CaCO3	N/A	N/A	N/A	20%	Pass	
Acid Neutralising Capacity - (s-ANCbt) (NLM-5.2)	L23-My0066594	CP	% S	N/A	N/A	N/A	30%	Pass	
ANC Fineness Factor	L23-My0066594	CP	factor	1.5	1.5	<1	30%	Pass	
Duplicate									
Net Acidity (Including ANC)				Result 1	Result 2	RPD			
CRS Suite - Net Acidity - NASSG (Including ANC)	L23-My0066594	CP	% S	< 0.02	< 0.02	<1	30%	Pass	
CRS Suite - Net Acidity - NASSG (Including ANC)	L23-My0066594	CP	mol H+/t	10	< 10	4.8	30%	Pass	
CRS Suite - Liming Rate - NASSG (Including ANC)	L23-My0066594	CP	kg CaCO3/t	< 1	< 1	<1	30%	Pass	
Duplicate									
Sample Properties				Result 1	Result 2	RPD			
% Moisture	L23-My0066594	CP	%	20	19	3.4	30%	Pass	
Duplicate									
Actual Acidity (NLM-3.2)				Result 1	Result 2	RPD			
pH-KCL (NLM-3.1)	L23-My0066604	CP	pH Units	6.0	6.0	<1	20%	Pass	
Titratable Actual Acidity (NLM-3.2)	L23-My0066604	CP	mol H+/t	2.9	2.6	11	20%	Pass	
Titratable Actual Acidity (NLM-3.2)	L23-My0066604	CP	% pyrite S	0.005	0.004	11	30%	Pass	
Duplicate									
Potential Acidity - Chromium Reducible Sulfur				Result 1	Result 2	RPD			
Chromium Reducible Sulfur (s-SCr) (NLM-2.1)	L23-My0066604	CP	% S	< 0.005	< 0.005	<1	20%	Pass	
Chromium Reducible Sulfur (a-SCr) (NLM-2.1)	L23-My0066604	CP	mol H+/t	< 3	< 3	<1	30%	Pass	
Duplicate									
Extractable Sulfur				Result 1	Result 2	RPD			
Sulfur - KCl Extractable	L23-My0066604	CP	% S	N/A	N/A	N/A	30%	Pass	
HCl Extractable Sulfur	L23-My0066604	CP	% S	N/A	N/A	N/A	20%	Pass	
Duplicate									
Retained Acidity (S-NAS)				Result 1	Result 2	RPD			
Net Acid soluble sulfur (SNAS) NLM-4.1	L23-My0066604	CP	% S	N/A	N/A	N/A	30%	Pass	
Net Acid soluble sulfur (s-SNAS) NLM-4.1	L23-My0066604	CP	% S	N/A	N/A	N/A	30%	Pass	
Net Acid soluble sulfur (a-SNAS) NLM-4.1	L23-My0066604	CP	mol H+/t	N/A	N/A	N/A	30%	Pass	
Duplicate									
Acid Neutralising Capacity (ANCbt)				Result 1	Result 2	RPD			
Acid Neutralising Capacity - (ANCbt) (NLM-5.2)	L23-My0066604	CP	% CaCO3	N/A	N/A	N/A	20%	Pass	
Acid Neutralising Capacity - (s-ANCbt) (NLM-5.2)	L23-My0066604	CP	% S	N/A	N/A	N/A	30%	Pass	
ANC Fineness Factor	L23-My0066604	CP	factor	1.5	1.5	<1	30%	Pass	
Duplicate									
Net Acidity (Including ANC)				Result 1	Result 2	RPD			
CRS Suite - Net Acidity - NASSG (Including ANC)	L23-My0066604	CP	% S	< 0.02	< 0.02	<1	30%	Pass	
CRS Suite - Net Acidity - NASSG (Including ANC)	L23-My0066604	CP	mol H+/t	< 10	< 10	<1	30%	Pass	
CRS Suite - Liming Rate - NASSG (Including ANC)	L23-My0066604	CP	kg CaCO3/t	< 1	< 1	<1	30%	Pass	
Duplicate									
Sample Properties				Result 1	Result 2	RPD			
% Moisture	L23-My0066604	CP	%	3.2	3.1	4.2	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
S01	Liming rate is calculated and reported on a dry weight basis assuming use of fine agricultural lime (CaCO3) and using a safety factor of 1.5 to allow for non-homogeneous mixing and poor reactivity of lime. For conversion of Liming Rate from 'kg/t dry weight' to 'kg/m3 in-situ soil' multiply 'reported results' x 'wet bulk density of soil in t/m3'
S02	Retained Acidity is Reported when the pHKCl is less than pH 4.5
S03	Acid Neutralising Capacity is only required if the pHKCl if greater than or equal to pH 6.5
S04	Acid Sulfate Soil Samples have a 24 hour holding time unless frozen or dried within that period

Authorised by:

Kim Rodgers	Analytical Services Manager
Jonathon Angell	Senior Analyst-SPOCAS

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

900388

CHAIN OF CUSTODY

U2/17 Inverness Avenue (c/o PO Box 1013), Dunsborough, 6281
T: (08) 9794 6096 or M:0418 329 390 or M:0422 812 845

ABEC ENVIRONMENTAL CONSULTING

Project Name/No.: DMS22-013	Results Required Date: Normal
Email results to: glen@abecenv.com.au damon@abecenv.com.au elodie@abecenv.com.au	Lab / Lab Quote No.: Purchase Order No.: -
COMMENTS:	

LAB ID	SAMPLE ID	DATE/TIME	PHASE	BOTTLE	Cold Storage	pH f	pH Fox	CRS							Notes
	KL_PASS021 0.5	20.6.22	Soil	Ziplock	✓	✓	✓								
	KL_PASS021 1	" "	Soil	Ziplock	✓	✓	✓								
	KL_PASS021 1.5	" "	Soil	Ziplock	✓	✓	✓								
	KL_PASS021 2	" "	Soil	Ziplock	✓	✓	✓								
	KL_PASS021 2.5	" "	Soil	Ziplock	✓	✓	✓								
	KL_PASS021 3	" "	Soil	Ziplock	✓	✓	✓								
	KL_PASS021 3.5	" "	Soil	Ziplock	✓	✓	✓								
	KL_PASS021 4	" "	Soil	Ziplock	✓	✓	✓								
	KL_PASS021 4.5	" "	Soil	Ziplock	✓	✓	✓								
	KL_PASS021 5	" "	Soil	Ziplock	✓	✓	✓								
	KL_PASS021 5.5	" "	Soil	Ziplock	✓	✓	✓								
	KL_PASS021 6	" "	Soil	Ziplock	✓	✓	✓								
	KL_PASS020 0.5	" "	Soil	Ziplock	✓	✓	✓								
	KL_" " 1	" "	Soil	Ziplock	✓	✓	✓								
	KL_" " 1.5	" "	Soil	Ziplock	✓	✓	✓								
	KL_" " 2	" "	Soil	Ziplock	✓	✓	✓								

Relinquished by: Elodie Payet Date: 20.6.22.
Sample Condition Upon Receipt:

Received by: Jessica Turner Date: 23/06/22 10:30
16.9

CHAIN OF CUSTODY

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T: (08) 9794 6096 or M:0418 329 390 or M:0422 812 845

ABEC ENVIRONMENTAL CONSULTING

Project Name/No.: DMS22-013	Results Required Date: Normal
Email results to: glen@abecenv.com.au damon@abecenv.com.au elodie@abecenv.com.au	Lab / Lab Quote No.: Purchase Order No.: -
COMMENTS:	

LAB ID	SAMPLE ID	DATE/TIME	PHASE	BOTTLE	Cold Storage	pH f	pH Fox	CRS							Notes
	KL-PASS020 2.5	20-6-22	Soil	Ziplock	✓	✓	✓								
	" " 3		Soil	Ziplock	✓	✓	✓								
	" " 3.5		Soil	Ziplock	✓	✓	✓								
	" " 4		Soil	Ziplock	✓	✓	✓								
	DUP 1		Soil	Ziplock	✓	✓	✓								
	DUP 2		Soil	Ziplock	✓	✓	✓								
	DUP 3		Soil	Ziplock	✓	✓	✓								
	DUP 4		Soil	Ziplock	✓	✓	✓								
	DUP 5		Soil	Ziplock	✓	✓	✓								
	DUP 6		Soil	Ziplock	✓	✓	✓								
	DUP 7		Soil	Ziplock	✓	✓	✓								
	KL-PASS17 0.5		Soil	Ziplock	✓	✓	✓								
	" " 1		Soil	Ziplock	✓	✓	✓								
	" " 1.5		Soil	Ziplock	✓	✓	✓								
	" " 2		Soil	Ziplock	✓	✓	✓								
	" " 2.5		Soil	Ziplock	✓	✓	✓								

Relinquished by: elodie piquet Date: 20-6-22 Received by: Date:

Sample Condition Upon Receipt:

CHAIN OF CUSTODY

U2/17 Inverness Avenue (c/o PO Box 1013), Dunsborough, 6281
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ABEC ENVIRONMENTAL CONSULTING

Project Name/No.: DMS22-013	Results Required Date: Normal
Email results to: glen@abecenv.com.au damon@abecenv.com.au elodie@abecenv.com.au	Lab / Lab Quote No.: Purchase Order No.: -
COMMENTS:	

LAB ID	SAMPLE ID	DATE/TIME	PHASE	BOTTLE	Cold Storage	pH f	pH Fox	CRS							Notes
	KL-PASS017 3	20.6.22	Soil	Ziplock	✓	✓	✓								
	KL-PASS018 0.5		Soil	Ziplock	✓	✓	✓								
	" " 1		Soil	Ziplock	✓	✓	✓								
	" " 1.5		Soil	Ziplock	✓	✓	✓								
	" " 2		Soil	Ziplock	✓	✓	✓								
	" " 2.5		Soil	Ziplock	✓	✓	✓								
	" " 3		Soil	Ziplock	✓	✓	✓								
	" " 3.5		Soil	Ziplock	✓	✓	✓								
	" " 4		Soil	Ziplock	✓	✓	✓								
	" " 4.5		Soil	Ziplock	✓	✓	✓								
	" " 5		Soil	Ziplock	✓	✓	✓								
	" " 5.5		Soil	Ziplock	✓	✓	✓								
	" " 6		Soil	Ziplock	✓	✓	✓								
	KL-PASS019 0.5		Soil	Ziplock	✓	✓	✓								
	" " 1		Soil	Ziplock	✓	✓	✓								
	" " 1.5		Soil	Ziplock	✓	✓	✓								

Relinquished by: elodie Piget Date: 20.6.22 Received by: Date:

Sample Condition Upon Receipt:

CHAIN OF CUSTODY

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ABEC ENVIRONMENTAL CONSULTING

Project Name/No.: DMS22-013	Results Required Date: Normal
Email results to: glen@abecenv.com.au damon@abecenv.com.au elodie@abecenv.com.au	Lab / Lab Quote No.: Purchase Order No.: -
COMMENTS:	

LAB ID	SAMPLE ID	DATE/TIME	PHASE	BOTTLE	Cold Storage	pH f	pH Fox	CRS							Notes
	KL-PASS019 2	20.6.22	Soil	Ziplock	✓	✓	✓								
	" " 2.5		Soil	Ziplock	✓	✓	✓								
	" " 3		Soil	Ziplock	✓	✓	✓								
	KL-PASS022 0.5		Soil	Ziplock	✓	✓	✓								
	" " 1		Soil	Ziplock	✓	✓	✓								
	" " 1.5		Soil	Ziplock	✓	✓	✓								
	" " 2		Soil	Ziplock	✓	✓	✓								
	" " 2.5		Soil	Ziplock	✓	✓	✓								
	" " 3		Soil	Ziplock	✓	✓	✓								
	KL-PASS023 0.5		Soil	Ziplock	✓	✓	✓								
	" " 1		Soil	Ziplock	✓	✓	✓								
	" " 1.5		Soil	Ziplock	✓	✓	✓								
	" " 2		Soil	Ziplock	✓	✓	✓								
	" " 2.5		Soil	Ziplock	✓	✓	✓								
	" " 3		Soil	Ziplock	✓	✓	✓								
			Soil	Ziplock	✓	✓	✓								

Relinquished by: elodie paget Date: 20.6.22 Received by: Date:

Sample Condition Upon Receipt:

CHAIN OF CUSTODY

U2/17 Inverness Avenue (c/o PO Box 1013), Dunsborough, 6281
T: (08) 9794 6096 or M:0418 329 390 or M:0422 812 845

ABEC ENVIRONMENTAL CONSULTING

#900394

Project Name/No.: DMS22-013																Results Required Date: Normal
Email results to:	glen@abecenv.com.au															Lab / Lab Quote No.:
	damon@abecenv.com.au															
	elodie@abecenv.com.au															Purchase Order No.: -
COMMENTS:					Cold Storage	pH f	pH Fox	CRS								Notes
LAB ID	SAMPLE ID	DATE/TIME	PHASE	BOTTLE												
	KL-PAS033 0.5	21.6.22	Soil	Ziplock	✓	✓	✓									
	" " 1		Soil	Ziplock	✓	✓	✓									
	" " 1.5		Soil	Ziplock	✓	✓	✓									
	" " 2		Soil	Ziplock	✓	✓	✓									
	" " 2.5		Soil	Ziplock	✓	✓	✓									
	" " 3		Soil	Ziplock	✓	✓	✓									
	" " 3.5		Soil	Ziplock	✓	✓	✓									
	" " 4		Soil	Ziplock	✓	✓	✓									
	" " 4.5		Soil	Ziplock	✓	✓	✓									
	" " 5		Soil	Ziplock	✓	✓	✓									
	" " 5.5		Soil	Ziplock	✓	✓	✓									
	" " 6		Soil	Ziplock	✓	✓	✓									
	KL-PAS034 0.5		Soil	Ziplock	✓	✓	✓									
	" " 1		Soil	Ziplock	✓	✓	✓									
	" " 1.5		Soil	Ziplock	✓	✓	✓									
	" " 2		Soil	Ziplock	✓	✓	✓									

Relinquished by: elodie payet Date: 21.6.22 Received by: Jessica Turner Date: 23/06/22 10:30

Sample Condition Upon Receipt: 16-9°

CHAIN OF CUSTODY

U2/17 Inverness Avenue (c/o PO Box 1013), Dunsborough, 6281
T: (08) 9794 6096 or M:0418 329 390 or M:0422 812 845

ABEC ENVIRONMENTAL CONSULTING

Project Name/No.: DMS22-013	Results Required Date: Normal
Email results to: glen@abecenv.com.au damon@abecenv.com.au elodie@abecenv.com.au	Lab / Lab Quote No.: Purchase Order No.: -
COMMENTS:	

LAB ID	SAMPLE ID	DATE/TIME	PHASE	BOTTLE	Cold Storage	pH f	pH Fox	CRS							Notes
	KL-PASS034 2.5	21.6.22	Soil	Ziplock	✓	✓	✓								
	" " 3		Soil	Ziplock	✓	✓	✓								
	KL-PASS036 0.5		Soil	Ziplock	✓	✓	✓								
	" " 1		Soil	Ziplock	✓	✓	✓								
	" " 1.5		Soil	Ziplock	✓	✓	✓								
	" " 2		Soil	Ziplock	✓	✓	✓								
	" " 2.5		Soil	Ziplock	✓	✓	✓								
	" " 3		Soil	Ziplock	✓	✓	✓								
	KL-PASS035 0.5		Soil	Ziplock	✓	✓	✓								
	" " 1		Soil	Ziplock	✓	✓	✓								
	" " 1.5		Soil	Ziplock	✓	✓	✓								
	" " 2		Soil	Ziplock	✓	✓	✓								
	" " 2.5		Soil	Ziplock	✓	✓	✓								
	" " 3		Soil	Ziplock	✓	✓	✓								
	" " 3.5		Soil	Ziplock	✓	✓	✓								
	" " 4		Soil	Ziplock	✓	✓	✓								

Relinquished by: elodie Paget Date: 21.6.22 Received by: Date:

Sample Condition Upon Receipt:

CHAIN OF CUSTODY

U2/17 Inverness Avenue (c/o PO Box 1013), Dunsborough, 6281
T: (08) 9794 6096 or M:0418 329 390 or M:0422 812 845

ABEC ENVIRONMENTAL CONSULTING

Project Name/No.: DMS22-013	Results Required Date: Normal
Email results to: glen@abecenv.com.au damon@abecenv.com.au elodie@abecenv.com.au	Lab / Lab Quote No.: Purchase Order No.: -
COMMENTS:	

LAB ID	SAMPLE ID	DATE/TIME	PHASE	BOTTLE	Cold Storage	pH f	pH Fox	CRS							Notes
	KL-PASS035 4.5	21.6.22	Soil	Ziplock	✓	✓	✓								
	" " 5		Soil	Ziplock	✓	✓	✓								
	" " 5.5		Soil	Ziplock	✓	✓	✓								
	" " 6		Soil	Ziplock	✓	✓	✓								
	KL-PASS037 0.5		Soil	Ziplock	✓	✓	✓								
	" " 1		Soil	Ziplock	✓	✓	✓								
	" " 1.5		Soil	Ziplock	✓	✓	✓								
	" " 2		Soil	Ziplock	✓	✓	✓								
	" " 2.5		Soil	Ziplock	✓	✓	✓								
	" " 3		Soil	Ziplock	✓	✓	✓								
	" " 3.5		Soil	Ziplock	✓	✓	✓								
	" " 4		Soil	Ziplock	✓	✓	✓								
	" " 4.5		Soil	Ziplock	✓	✓	✓								
	" " 5		Soil	Ziplock	✓	✓	✓								
	" " 5.5		Soil	Ziplock	✓	✓	✓								
	" " 6		Soil	Ziplock	✓	✓	✓								

Relinquished by: elodie Payet Date: 21.6.22 Received by: Date:

Sample Condition Upon Receipt:

CHAIN OF CUSTODY

U2/17 Inverness Avenue (c/o PO Box 1013), Dunsborough, 6281
T: (08) 9794 6096 or M:0418 329 390 or M:0422 812 845

ABEC ENVIRONMENTAL CONSULTING

Project Name/No.: DMS22-013															Results Required Date: Normal	
Email results to:	glen@abecenv.com.au damon@abecenv.com.au elodie@abecenv.com.au														Lab / Lab Quote No.: Purchase Order No.: -	
COMMENTS:					Cold Storage	pH f	pH Fox	CRS								Notes
LAB ID	SAMPLE ID	DATE/TIME	PHASE	BOTTLE												
	KL-PASS038 0.5	21.6.22	Soil	Ziplock	✓	✓	✓									
	" " 1		Soil	Ziplock	✓	✓	✓									
	" " 1.5		Soil	Ziplock	✓	✓	✓									
	" " 2		Soil	Ziplock	✓	✓	✓									
	" " 2.5		Soil	Ziplock	✓	✓	✓									
			Soil	Ziplock	✓	✓	✓									
			Soil	Ziplock	✓	✓	✓									
			Soil	Ziplock	✓	✓	✓									
			Soil	Ziplock	✓	✓	✓									
			Soil	Ziplock	✓	✓	✓									
			Soil	Ziplock	✓	✓	✓									
			Soil	Ziplock	✓	✓	✓									
			Soil	Ziplock	✓	✓	✓									
			Soil	Ziplock	✓	✓	✓									
			Soil	Ziplock	✓	✓	✓									
			Soil	Ziplock	✓	✓	✓									

Relinquished by: elodie Date: 21.6.22 Received by: Date:

Sample Condition Upon Receipt:

CHAIN OF CUSTODY

U2/17 Inverness Avenue (c/o PO Box 1013), Dunsborough, 6281
T: (08) 9794 6096 or M:0418 329 390 or M:0422 812 845

ABEC ENVIRONMENTAL CONSULTING

Project Name/No.: DMS22-013	Results Required Date: Normal
Email results to: glen@abecenv.com.au damon@abecenv.com.au elodie@abecenv.com.au	Lab / Lab Quote No.: Purchase Order No.: -
COMMENTS: 900689	

LAB ID	SAMPLE ID	DATE/TIME	PHASE	BOTTLE	Cold Storage	pH f	pH Fox	CRS							Notes
	KL_PASS016 1m	22.6.22	Soil	Ziplock	✓	✓	✓								
	KLPASS014 0.5	23.6.22	Soil	Ziplock	✓	✓	✓								
	" " 1		Soil	Ziplock	✓	✓	✓								
	" " 1.5		Soil	Ziplock	✓	✓	✓								
	" " 2		Soil	Ziplock	✓	✓	✓								
	" " 2.5		Soil	Ziplock	✓	✓	✓								
	" " 3		Soil	Ziplock	✓	✓	✓								
	" " 3.5		Soil	Ziplock	✓	✓	✓								
	" " 4		Soil	Ziplock	✓	✓	✓								
	" " 4.5		Soil	Ziplock	✓	✓	✓								
	" " 5		Soil	Ziplock	✓	✓	✓								
	" " 5.5		Soil	Ziplock	✓	✓	✓								
	" " 6		Soil	Ziplock	✓	✓	✓								
	" " 6.5		Soil	Ziplock	✓	✓	✓								
	" " 7		Soil	Ziplock	✓	✓	✓								
	" " 7.5		Soil	Ziplock	✓	✓	✓								

Relinquished by: elodie Date: 23.2.22
Sample Condition Upon Receipt: poyet

Received by: Caitlyn Gibson 16.7c Date: 24/6/22 10:30

CHAIN OF CUSTODY

U2/17 Inverness Avenue (c/o PO Box 1013), Dunsborough, 6281
T: (08) 9794 6096 or M:0418 329 390 or M:0422 812 845

ABEC ENVIRONMENTAL CONSULTING

Project Name/No.: DMS22-013	Results Required Date: Normal
Email results to: glen@abecenv.com.au damon@abecenv.com.au elodie@abecenv.com.au	Lab / Lab Quote No.: Purchase Order No.: -
COMMENTS:	

LAB ID	SAMPLE ID	DATE/TIME	PHASE	BOTTLE	Cold Storage	pH f	pH Fox	CRS							Notes
	KL-PASS014 8	23.6.22	Soil	Ziplock	✓	✓	✓								
	" " 8.5		Soil	Ziplock	✓	✓	✓								
	KL-PASS045 0.5		Soil	Ziplock	✓	✓	✓								
	" " 1		Soil	Ziplock	✓	✓	✓								
	" " 1.5		Soil	Ziplock	✓	✓	✓								
	" " 2		Soil	Ziplock	✓	✓	✓								
	" " 2.5		Soil	Ziplock	✓	✓	✓								
	" " 3		Soil	Ziplock	✓	✓	✓								
	" " 3.5		Soil	Ziplock	✓	✓	✓								
	" " 4		Soil	Ziplock	✓	✓	✓								
	" " 4.5		Soil	Ziplock	✓	✓	✓								
	" " 5		Soil	Ziplock	✓	✓	✓								
	" " 5.5		Soil	Ziplock	✓	✓	✓								
	" " 6		Soil	Ziplock	✓	✓	✓								
			Soil	Ziplock	✓	✓	✓								
			Soil	Ziplock	✓	✓	✓								

Relinquished by: elodie payet Date: 23.6.22 Received by: Date:

Sample Condition Upon Receipt:

CHAIN OF CUSTODY

U2/17 Inverness Avenue (c/o PO Box 1013), Dunsborough, 6281
T: (08) 9794 6096 or M:0418 329 390 or M:0422 812 845

ABEC ENVIRONMENTAL CONSULTING

Project Name/No.: DMS22-013	Results Required Date: Normal
Email results to: glen@abecenv.com.au damon@abecenv.com.au elodie@abecenv.com.au	Lab / Lab Quote No.: Purchase Order No.: -
COMMENTS: 900883	

LAB ID	SAMPLE ID	DATE/TIME	PHASE	BOTTLE	Cold Storage	pH f	pH Fox	CRS							Notes
	KL-PASS044 0.5	22-6-22	Soil	Ziplock	✓	✓	✓								
	" " 1		Soil	Ziplock	✓	✓	✓								
	" " 1.5		Soil	Ziplock	✓	✓	✓								
	" " 2		Soil	Ziplock	✓	✓	✓								
	" " 2.5		Soil	Ziplock	✓	✓	✓								
	" " 3		Soil	Ziplock	✓	✓	✓								
	" " 3.5		Soil	Ziplock	✓	✓	✓								
	" " 4		Soil	Ziplock	✓	✓	✓								
	" " 4.5		Soil	Ziplock	✓	✓	✓								
	" " 5		Soil	Ziplock	✓	✓	✓								
	" " 5.5		Soil	Ziplock	✓	✓	✓								
	" " 6		Soil	Ziplock	✓	✓	✓								
	KL-PASS045 0.5		Soil	Ziplock	✓	✓	✓								
	" " 1		Soil	Ziplock	✓	✓	✓								
	" " 1.5		Soil	Ziplock	✓	✓	✓								
	" " 2	✓	Soil	Ziplock	✓	✓	✓								

Relinquished by: elodie paget Date: 22.6.22 Received by: Cathy-Gibson Date: 24/6/22 10:30

Sample Condition Upon Receipt: 19.0°c

CHAIN OF CUSTODY

U2/17 Inverness Avenue (c/o PO Box 1013), Dunsborough, 6281
T: (08) 9794 6096 or M:0418 329 390 or M:0422 812 845

ABEC ENVIRONMENTAL CONSULTING

Project Name/No.: DMS22-013	Results Required Date: Normal
Email results to: glen@abecenv.com.au damon@abecenv.com.au elodie@abecenv.com.au	Lab / Lab Quote No.: Purchase Order No.: -
COMMENTS:	

LAB ID	SAMPLE ID	DATE/TIME	PHASE	BOTTLE	Cold Storage	pH f	pH Fox	CRS							Notes
	KL-PASS043 2-5	22.6.22	Soil	Ziplock	✓	✓	✓								
	" " 3		Soil	Ziplock	✓	✓	✓								
	" " 3.5		Soil	Ziplock	✓	✓	✓								
	" " 4		Soil	Ziplock	✓	✓	✓								
	" " 4.5		Soil	Ziplock	✓	✓	✓								
	" " 5		Soil	Ziplock	✓	✓	✓								
	" " 5.5		Soil	Ziplock	✓	✓	✓								
	" " 6		Soil	Ziplock	✓	✓	✓								
	KL-PASS0420-5		Soil	Ziplock	✓	✓	✓								
	" " 1		Soil	Ziplock	✓	✓	✓								
	" " 1-5		Soil	Ziplock	✓	✓	✓								
	" " 2		Soil	Ziplock	✓	✓	✓								
	" " 2.5		Soil	Ziplock	✓	✓	✓								
	" " 3		Soil	Ziplock	✓	✓	✓								
	" " 3.5		Soil	Ziplock	✓	✓	✓								
	" " 4	↓	Soil	Ziplock	✓	✓	✓								

Relinquished by: elodie payet Date: 22.6.22 Received by: Date:

Sample Condition Upon Receipt:

CHAIN OF CUSTODY

U2/17 Inverness Avenue (c/o PO Box 1013), Dunsborough, 6281
T: (08) 9794 6096 or M:0418 329 390 or M:0422 812 845

ABEC ENVIRONMENTAL CONSULTING

Project Name/No.: DMS22-013	Results Required Date: Normal
Email results to: glen@abecenv.com.au damon@abecenv.com.au elodie@abecenv.com.au	Lab / Lab Quote No.: Purchase Order No.: -
COMMENTS:	

LAB ID	SAMPLE ID	DATE/TIME	PHASE	BOTTLE	Cold Storage	pH f	pH Fox	CRS							Notes
	KL_PASS042 4.5		Soil	Ziplock	✓	✓	✓								
	" " 5		Soil	Ziplock	✓	✓	✓								
	" " 5.5		Soil	Ziplock	✓	✓	✓								
	" " 6		Soil	Ziplock	✓	✓	✓								
	KL_PASS047 0.5		Soil	Ziplock	✓	✓	✓								
	" " 1		Soil	Ziplock	✓	✓	✓								
	" " 1.5		Soil	Ziplock	✓	✓	✓								
	" " 2		Soil	Ziplock	✓	✓	✓								
	" " 2.5		Soil	Ziplock	✓	✓	✓								
	" " 3		Soil	Ziplock	✓	✓	✓								
	" " 3.5		Soil	Ziplock	✓	✓	✓								
	" " 4		Soil	Ziplock	✓	✓	✓								
	" " 4.5		Soil	Ziplock	✓	✓	✓								
	" " 5		Soil	Ziplock	✓	✓	✓								
	" " 5.5		Soil	Ziplock	✓	✓	✓								
	" " 6		Soil	Ziplock	✓	✓	✓								

Relinquished by: Date: Received by: Date:

Sample Condition Upon Receipt:

CHAIN OF CUSTODY

U2/17 Inverness Avenue (c/o PO Box 1013), Dunsborough, 6281
T: (08) 9794 6096 or M:0418 329 390 or M:0422 812 845

ABEC ENVIRONMENTAL CONSULTING

Project Name/No.: DMS22-013	Results Required Date: Normal
Email results to: glen@abecenv.com.au damon@abecenv.com.au elodie@abecenv.com.au	Lab / Lab Quote No.: Purchase Order No.: -
COMMENTS:	

LAB ID	SAMPLE ID	DATE/TIME	PHASE	BOTTLE	Cold Storage	pH f	pH Fox	CRS							Notes
	KL-PASSC16 0.5	22.6.22	Soil	Ziplock	✓	✓	✓								
	" " 1		Soil	Ziplock	✓	✓	✓								
	" " 1.5		Soil	Ziplock	✓	✓	✓								
	" " 2		Soil	Ziplock	✓	✓	✓								
	" " 2.5		Soil	Ziplock	✓	✓	✓								
	" " 3		Soil	Ziplock	✓	✓	✓								
	" " 3.5		Soil	Ziplock	✓	✓	✓								
	" " 4		Soil	Ziplock	✓	✓	✓								
	" " 4.5		Soil	Ziplock	✓	✓	✓								
	" " 5		Soil	Ziplock	✓	✓	✓								
	" " 5.5		Soil	Ziplock	✓	✓	✓								
	" " 6		Soil	Ziplock	✓	✓	✓								
	" " 6.5		Soil	Ziplock	✓	✓	✓								
	" " 7		Soil	Ziplock	✓	✓	✓								
	" " 7.5		Soil	Ziplock	✓	✓	✓								
	" " 8		Soil	Ziplock	✓	✓	✓								

Relinquished by: elodie Date: 22.6.22 Received by: Date:

Sample Condition Upon Receipt: poyet

CHAIN OF CUSTODY

U2/17 Inverness Avenue (c/o PO Box 1013), Dunsborough, 6281
T: (08) 9794 6096 or M:0418 329 390 or M:0422 812 845

ABEC ENVIRONMENTAL CONSULTING

Project Name/No.: DMS22-013	Results Required Date: Normal
Email results to: glen@abecenv.com.au damon@abecenv.com.au elodie@abecenv.com.au	Lab / Lab Quote No.: Purchase Order No.: -
COMMENTS:	

LAB ID	SAMPLE ID	DATE/TIME	PHASE	BOTTLE	Cold Storage	pH f	pH Fox	CRS							Notes
	KL-PASS015 0.5	22.6.22	Soil	Ziplock	✓	✓	✓								
	" " 1		Soil	Ziplock	✓	✓	✓								
	" " 1.5		Soil	Ziplock	✓	✓	✓								
	" " 2		Soil	Ziplock	✓	✓	✓								
	" " 2.5		Soil	Ziplock	✓	✓	✓								
	" " 3		Soil	Ziplock	✓	✓	✓								
	" " 3.5		Soil	Ziplock	✓	✓	✓								
	" " 4		Soil	Ziplock	✓	✓	✓								
	" " 4.5		Soil	Ziplock	✓	✓	✓								
	" " 5		Soil	Ziplock	✓	✓	✓								
	" " 5.5		Soil	Ziplock	✓	✓	✓								
	" " 6		Soil	Ziplock	✓	✓	✓								
	" " 6.5		Soil	Ziplock	✓	✓	✓								
	" " 7		Soil	Ziplock	✓	✓	✓								
	" " 7.5		Soil	Ziplock	✓	✓	✓								
	" " 8		Soil	Ziplock	✓	✓	✓								

Relinquished by: elodie Paget Date: 22.6.22 Received by: Date:

Sample Condition Upon Receipt:

CHAIN OF CUSTODY

U2/17 Inverness Avenue (c/o PO Box 1013), Dunsborough, 6281
T: (08) 9794 6096 or M:0418 329 390 or M:0422 812 845

ABEC ENVIRONMENTAL CONSULTING

Project Name/No.: DMS22-013	Results Required Date: Normal
Email results to: glen@abecenv.com.au damon@abecenv.com.au elodie@abecenv.com.au	Lab / Lab Quote No.:
	Purchase Order No.: -
COMMENTS:	

LAB ID	SAMPLE ID	DATE/TIME	PHASE	BOTTLE	Cold Storage	pH f	pH Fox	CRS							Notes
	KL-PASS015 0.5	22.6.22	Soil	Ziplock	✓	✓	✓								
	KL-PASS046 0.5		Soil	Ziplock	✓	✓	✓								
	" " 1		Soil	Ziplock	✓	✓	✓								
	" " 1.5		Soil	Ziplock	✓	✓	✓								
	" " 2		Soil	Ziplock	✓	✓	✓								
	" " 2.5		Soil	Ziplock	✓	✓	✓								
	" " 3		Soil	Ziplock	✓	✓	✓								
	" " 3.5		Soil	Ziplock	✓	✓	✓								
	" " 4		Soil	Ziplock	✓	✓	✓								
	" " 4.5		Soil	Ziplock	✓	✓	✓								
	" " 5		Soil	Ziplock	✓	✓	✓								
	" " 5.5		Soil	Ziplock	✓	✓	✓								
	" " 6		Soil	Ziplock	✓	✓	✓								
			Soil	Ziplock	✓	✓	✓								
			Soil	Ziplock	✓	✓	✓								
			Soil	Ziplock	✓	✓	✓								

Relinquished by: elodie paget Date: 22-6-22 Received by: Date:

Sample Condition Upon Receipt:

ARL Samples

From: Natalie Hill <NatalieHill@eurofins.com>
Sent: Thursday, 28 July 2022 12:37 PM
To: Elodie Payet; ARL Samples
Cc: Damon Bourke
Subject: Re: Further CRS analysis DMS22-013
Attachments: 20220727_233313.pdf

Categories: RETEST

Thanks Elodie,

I've added in the Samples Team who will get these ones logged in for CRS from 900883, 900689, 900388 and 900394

Kind Regards,

Natalie Hill | Analytical Services Manager | Eurofins|ARL
Phone. +61 8 6253 4444
Email. NatalieHill@Eurofins.com
Address. 46-48 Banksia Road, WELSHPOOL, WA, 6106

eurofins | ARL

#910002

Eurofins acquires ARL Laboratory Group in WA

https://www.eurofins.com.au/environmental-testing/company/news/environote-1109-eurofins-acquires-arl-laboratory-group-in-wa/

From: Elodie Payet <elodie@abecenv.com.au>
Sent: 28 July 2022 12:05
To: Natalie Hill <NatalieHill@eurofins.com>
Cc: Damon Bourke <damon@abecenv.com.au>
Subject: Further CRS analysis DMS22-013

Hi Natalie,

Could you please analyse the samples in the attached COC for CRS analysis?

Thanks.

Kind Regards,

ELODIE PAYET
Environmental Scientist
2/17 Inverness Avenue
DUNSBOROUGH |WA |6281
M| 0415 709 958
E | elodie@abecenv.com.au
W | www.abecenvironmental.com.au

22-Jn0055669 this is the sample number

Kind Regards,

Natalie Hill | Analytical Services Manager | Eurofins|ARL
Phone. +61 8 6253 4444
Email. NatalieHill@Eurofins.com
Address. 46-48 Banksia Road, WELSHPOOL, WA, 6106

eurofins | ARL

Eurofins acquires ARL Laboratory Group in WA

https://www.eurofins.com.au/environmental-testing/company/news/environote-1109-eurofins-acquires-arl-laboratory-group-in-wa/

From: Natalie Hill <NatalieHill@eurofins.com>
Sent: 10 August 2022 10:11
To: Elodie Payet <elodie@abecenv.com.au>; ARL Samples <samples@arlgroup.com.au>
Subject: Re: Eurofins Test Results, Invoice - Report 910002 : Site DMS22-013 (DMS22-013)

Apologies Elodie,

But it appears this one may have been missed off the request.

I have added in the Samples Team, so they can get this one ready for testing ASAP.

My apologies for the error.

Kind Regards,

Natalie Hill | Analytical Services Manager | Eurofins|ARL
Phone. +61 8 6253 4444
Email. NatalieHill@Eurofins.com
Address. 46-48 Banksia Road, WELSHPOOL, WA, 6106

EL
10/8/22
3pm

eurofins | ARL

Eurofins acquires ARL Laboratory Group in WA

https://www.eurofins.com.au/environmental-testing/company/news/environote-1109-eurofins-acquires-arl-laboratory-group-in-wa/

From: Elodie Payet <elodie@abecenv.com.au>
Sent: 10 August 2022 09:32
To: Natalie Hill <NatalieHill@eurofins.com>
Subject: RE: Eurofins Test Results, Invoice - Report 910002 : Site DMS22-013 (DMS22-013)

Thanks Natalie.

There was just the results missing for one sample KL_PASS021 3.5m.

If you could send that through that would be great ☺

Thanks again.

Kind Regards,

ELODIE PAYET
Environmental Scientist
2/17 Inverness Avenue
DUNSBOROUGH |WA |6281
M| 0415 709 958
E | elodie@abecenv.com.au
W | www.abecenvironmental.com.au

ABEC ENVIRONMENTAL CONSULTING

Important information regarding this email.

From: NatalieHill@eurofins.com <NatalieHill@eurofins.com>
Sent: Tuesday, 9 August 2022 4:25 PM
To: Elodie Payet <elodie@abecenv.com.au>
Cc: Damon Bourke <damon@abecenv.com.au>; Glen Alexander <glen@abecenv.com.au>
Subject: Eurofins Test Results, Invoice - Report 910002 : Site DMS22-013 (DMS22-013)

Please find attached results and invoice for your project in the subject header.

Kind regards

Natalie Hill
Analytical Services Manager

Eurofins| ARL
46-48 Banksia Rd
Welshpool WA 6106
AUSTRALIA
Email: NatalieHill@eurofins.com
Phone: +61 8 6253 4444
View our latest EnviroNotes
How did we do? Provide your feedback here

ARL Samples

From: Natalie Hill <NatalieHill@eurofins.com>
Sent: Thursday, 28 July 2022 12:37 PM
To: Elodie Payet; ARL Samples
Cc: Damon Bourke
Subject: Re: Further CRS analysis DMS22-013
Attachments: 20220727_233313.pdf

Categories: RETEST

Thanks Elodie,

I've added in the Samples Team who will get these ones logged in for CRS from 900883, 900689, 900388 and 900394

Kind Regards,

Natalie Hill | Analytical Services Manager | Eurofins|ARL
Phone. +61 8 6253 4444
Email. NatalieHill@Eurofins.com
Address. 46-48 Banksia Road, WELSHPOOL, WA, 6106

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#910002

Eurofins acquires ARL Laboratory Group in WA

https://www.eurofins.com.au/environmental-testing/company/news/environote-1109-eurofins-acquires-arl-laboratory-group-in-wa/

From: Elodie Payet <elodie@abecenv.com.au>
Sent: 28 July 2022 12:05
To: Natalie Hill <NatalieHill@eurofins.com>
Cc: Damon Bourke <damon@abecenv.com.au>
Subject: Further CRS analysis DMS22-013

Hi Natalie,

Could you please analyse the samples in the attached COC for CRS analysis?

Thanks.

Kind Regards,

ELODIE PAYET
Environmental Scientist
2/17 Inverness Avenue
DUNSBOROUGH |WA |6281
M| 0415 709 958
E | elodie@abecenv.com.au
W | www.abecenvironmental.com.au

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ARL Samples

From: Natalie Hill <NatalieHill@eurofins.com>
Sent: Wednesday, 24 May 2023 3:51 PM
To: Elodie Payet; ARL Samples
Subject: Re: CRS analysis
Attachments: coc_24.5.23.pdf

Thanks Elodie,

I've added in the Samples Team to log in the CRS for the samples from 988476.

Kind Regards,

Natalie Hill | Analytical Services Manager | Eurofins|ARL
Phone. +61 8 6253 4444
Email. NatalieHill@Eurofins.com
Address. 46-48 Banksia Road, WELSHPOOL, WA, 6106

eurofins | ARL

Eurofins acquires ARL Laboratory Group in WA

https://www.eurofins.com.au/environmental-testing/company/news/environote-1109-eurofins-acquires-arl-laboratory-group-in-wa/

From: Elodie Payet <elodie@abecenv.com.au>
Sent: 24 May 2023 13:36
To: Natalie Hill <NatalieHill@eurofins.com>
Subject: CRS analysis

Hi Natalie,

Could you please go ahead and analyse the samples on the Attached COC for CRS?

Thank you 😊

993223

Kind Regards,

ELODIE PAYET
Environmental Scientist
2/17 Inverness Avenue
DUNSBOROUGH |WA |6281
M| 0415 709 958
E | elodie@abecenv.com.au
W | www.abecenvironmental.com.au

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2116354 CoC

CHAIN OF CUSTODY

U2/17 Inverness Avenue (c/o PO Box 1013), Dunsborough, 6281
T. (08) 9794 6096 or M:0418 329 390 or M:0422 812 845

Sheet 1 of 5

#932470

Project Name/No.: DMS22-013

Email results to: glen@abeceny.com.au
damon@abeceny.com.au
elodie@abeceny.com.au bridget@abeceny.com.au

Results Required Date: Normal

Lab / Lab Quote No.:

Purchase Order No.:

COMMENTS:

LAB ID	SAMPLE ID	DATE/TIME	PHASE	BOTTLE	Cold Storage	pH f	pH FOx	CRS							Notes
	KL_PASS024_0.5m	9.5.23	Soil	Ziplock	✓	✓	✓								
	KL_PASS024_1m	↓	↓	↓	✓	✓	✓	✓							
	KL_PASS024_1.5m				✓	✓	✓								
	KL_PASS024_2m				✓	✓	✓	✓							
	KL_PASS024_2.5m				✓	✓	✓								
	KL_PASS024_3m				✓	✓	✓	✓							
	KL_PASS025_0.5m				✓	✓	✓								
	KL_PASS025_1m				✓	✓	✓	✓							
	KL_PASS025_1.5m				✓	✓	✓								
	KL_PASS025_2m				✓	✓	✓	✓							
	KL_PASS025_2.5m				✓	✓	✓								
	KL_PASS025_3m				✓	✓	✓	✓							
	KL_PASS026_0.5m				✓	✓	✓								
	KL_PASS026_1m				✓	✓	✓	✓							
	KL_PASS026_1.5m				✓	✓	✓								
	KL_PASS026_2m	↓	↓	↓	✓	✓	✓	✓							

Relinquished by: Elodie Payet Date: 9.5.23

Received by: Lucia Collins Date: 11/05/23 9:15AM

Sample Condition Upon Receipt: IC 4°

CHAIN OF CUSTODY

U2/17 Inverness Avenue (c/o PO Box 1013), Dunsborough, 6281
T: (08) 9794 6096 or M:0418 329 390 or M:0422 812 845

Project Name/No.: DMS22-013	Results Required Date: Normal
Email results to: plen@abeceny.com.au damon@abeceny.com.au elodie@abeceny.com.au bridget@abeceny.com.au	Lab / Lab Quote No.:
	Purchase Order No.: -
COMMENTS:	

LAB ID	SAMPLE ID	DATE/TIME	PHASE	BOTTLE	Cold Storage	pH f	pH FOX	CRS							Notes
	KL_PASS026 2.5m	9 5 23	Soil	Ziplock	✓	✓	✓								
	KL_PASS026 3m				✓	✓	✓	✓							
	KL_PASS027 0.5m				✓	✓	✓	✓							
	KL_PASS027 1m				✓	✓	✓								
	KL_PASS027 1.5m				✓	✓	✓	✓							
	KL_PASS027 2m				✓	✓	✓								
	KL_PASS027 2.5m				✓	✓	✓	✓							
	KL_PASS027 3m				✓	✓	✓								
	KL_PASS027 3.5m				✓	✓	✓	✓							
	KL_PASS027 4m				✓	✓	✓								
	KL_PASS027 4.5m				✓	✓	✓	✓							
	KL_PASS027 5m				✓	✓	✓								
	KL_PASS027 5.5m				✓	✓	✓	✓							
	KL_PASS027 6m				✓	✓	✓								
	KL_PASS028 0.5m				✓	✓	✓								
	KL_PASS028 1m				✓	✓	✓	✓							

Relinquished by: Elodie Payet Date: 9.5.23 Received by: Date:

Sample Condition Upon Receipt:

CHAIN OF CUSTODY

U2/17 Inverness Avenue (c/o PO Box 1013), Dunsborough, 6281
T: (08) 9794 6096 or M:0418 329 390 or M:0422 812 845

ABEC

Project Name/No.: DMS22-013	Results Required Date: Normal
Email results to: glen@abecenv.com.au damon@abecenv.com.au elodie@abecenv.com.au bridget@abecenv.com.au	Lab / Lab Quote No.:
	Purchase Order No.: -
COMMENTS:	

LAB ID	SAMPLE ID	DATE/TIME	PHASE	BOTTLE	Cold Storage	pH f	pH FOX	CRS							Notes
	KL_PASS028 1.5m	9.5.23	Soil	Ziplock	✓	✓	✓	✓							
	KL_PASS028 2m	↓	↓	↓	✓	✓	✓	✓							
	KL_PASS028 2.5m				✓	✓	✓	✓							
	KL_PASS028 3m				✓	✓	✓	✓							
	KL_PASS028 3.5m				✓	✓	✓	✓							
	KL_PASS028 4m				✓	✓	✓	✓							
	KL_PASS028 4.5m				✓	✓	✓	✓							
	KL_PASS028 5m				✓	✓	✓	✓							
	KL_PASS028 5.5m				✓	✓	✓	✓							
	KL_PASS028 6m				✓	✓	✓	✓							
	KL_PASS029 0.5m				✓	✓	✓	✓							
	KL_PASS029 1m				✓	✓	✓	✓							
	KL_PASS029 1.5m				✓	✓	✓	✓							
	KL_PASS029 2m				✓	✓	✓	✓							
	KL_PASS029 2.5m				✓	✓	✓	✓							
	KL_PASS029 3m	↓	↓	↓	✓	✓	✓	✓							

Relinquished by: Elodie Payet Date: 9.5.23 Received by: Date:

Sample Condition Upon Receipt:

CHAIN OF CUSTODY

U2/17 Inverness Avenue (c/o PO Box 1013), Dunsborough, 6281
T: (08) 9794 6096 or M:0418 329 390 or M:0422 812 845

ABEC

Project Name/No.: DMS22-013	Results Required Date: Normal
Email results to: glen@abecenv.com.au damon@abecenv.com.au elodie@abecenv.com.au bridget@abecenv.com.au	Lab / Lab Quote No.:
	Purchase Order No.: -
COMMENTS:	

LAB ID	SAMPLE ID	DATE/TIME	PHASE	BOTTLE	Cold Storage	pH	pH FOX	CRS							Notes
	KL_PASS029_3.5m		Soil	Ziplock	✓	✓	✓								
	KL_PASS029_4m				✓	✓	✓								
	KL_PASS029_4.5m				✓	✓	✓	✓							
	KL_PASS029_5m				✓	✓	✓	✓							
	KL_PASS029_5.5m				✓	✓	✓	✓							
	KL_PASS029_6m				✓	✓	✓	✓							
	KL_PASS030_0.5m				✓	✓	✓								
	KL_PASS030_1m				✓	✓	✓	✓							
	KL_PASS030_1.5m				✓	✓	✓	✓							
	KL_PASS030_2m				✓	✓	✓	✓							
	KL_PASS030_2.5m				✓	✓	✓	✓							
	KL_PASS030_3m				✓	✓	✓	✓							
	KL_PASS031_0.5m				✓	✓	✓	✓							
	KL_PASS031_1m				✓	✓	✓	✓							
	KL_PASS031_1.5m				✓	✓	✓	✓							
	KL_PASS031_2m	↓	↓	↓	✓	✓	✓	✓							

Relinquished by: Elodie Payet Date: 7.5.23 Received by: Date:

Sample Condition Upon Receipt:

CHAIN OF CUSTODY

02/17 Inverness Avenue (c/o PO Box 1013), Dunsborough, 6281
T: (08) 9794 6096 or M:0418 329 390 or M:0422 812 845

Project Name/No.: DMS22-013

Email results to: glen@abecurv.com.au
damon@abecurv.com.au
elodie@abecurv.com.au bridget@abecurv.com.au

Results Required Date: Normal

Lab / Lab Quote No.:

Purchase Order No.:

COMMENTS:

LAB ID	SAMPLE ID	DATE/TIME	PHASE	BOTTLE	Cold Storage	pH f	10 HOX	CRS							Notes
	KL_PASS031 2.5m	9.5.23	Soil	Ziplock	✓	✓	✓	✓							
	KL_PASS031 3m				✓	✓	✓	✓							
	KL_PASS032 0.5m				✓	✓	✓	✓							
	KL_PASS032 1m				✓	✓	✓	✓							
	KL_PASS032 1.5m				✓	✓	✓	✓							
	KL_PASS032 2m				✓	✓	✓	✓							
	KL_PASS032 2.5m				✓	✓	✓	✓							
	KL_PASS032 3m				✓	✓	✓	✓							
	DUP 1				✓	✓	✓								
	DUP 2				✓	✓	✓								
	DUP 3				✓	✓	✓								
	DUP 4	↓	↓	↓	✓	✓	✓								

Relinquished by: Elodie Payet Date: 9.5.23. Received by: Date:

Sample Condition Upon Receipt:

ABEC ENVIRONMENTAL CONSULTING PTY LTD
2/17 Inverness Avenue, Dunsborough WA 6281
admin@abecenv.com.au
www.abecenvironmental.com.au