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PRELIMINARY SITE INVESTIGATION

57 Burgess Lane, Calala, NSW, 2340

Also known as 474 Calala Lane, Calala, NSW, 2340

Job Number: 218049

For:

Equis Energy (Australia) Projects (NGUMI4) Pty Ltd as trustee for the Equis Energy (Australia) Ngumi 4 Asset Trust

By:

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Date:

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SCOPE OF ENGAGEMENT AND LIMITATIONS

This report has been prepared by ENV Services Pty Ltd (ENV) at the request of Equis Energy (Australia) Projects (NGUMI4) Pty Ltd as trustee for the Equis Energy (Australia) Ngumi 4 Asset Trust for the purpose of a Preliminary Site Investigation. The report may be relied upon to address the requirements of SEAR's application SSD-52786213. No other parties may rely on the contents of this report for any purposes except those stated.

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LIST OF ACRONYMS

Below is a list of commonly used acronyms in this report:

AEC	Area of environmental concern
AHD	Australian height datum
COC	Chain of custody
COPC	Chemical of potential concern
CSM	Conceptual site model
EIL	Ecological investigation level
ESL	Ecological screening level
ENV	ENV Solutions Pty Ltd
HIL	Health investigation level
HSL	Health screening level
NEPC	National Environment Protection Council
NEPM	National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013)
NSW EPA	New South Wales Environment Protection Authority
OCP	Organo-chlorine pesticide
PID	Photo Ionisation Detector
PSI	Preliminary site investigation
RAP	Remediation action plan
TRH	Total recoverable hydrocarbons
UCL	Upper confidence limit
QA/QC	Quality assurance and quality control

EXECUTIVE SUMMARY

ENV Services Pty Ltd (ENV) has undertaken a Preliminary Site Investigation (PSI) for part of Lot 17 on DP629969, 57 Burgess Lane, Calala, NSW, 2430 (also known as 474 Calala Lane, Calala NSW 2340) (hereafter referred to as the 'site'). ENV understands that the PSI has been requested to support a development application for a proposed battery energy storage facility, in accordance with the requirements under the Planning Secretary Environmental Assessment Requirements (SEAR's). The investigation area comprises approximately 8.87ha of Lot 17 on DP629969 and the proposed transmission line to the substation of approximately 1.6km.

The PSI included the following components:

- A desktop review of the site conditions, history and surrounding environment;
- Identification of past and present potentially contaminating activities and chemicals of potential concern (COPC);
- An inspection of the site and adjacent areas of land;
- Development of a preliminary conceptual site model (CSM);
- Discussion Regarding the potential for contamination to exist on the site;
- A site investigation and soil sampling program; and
- Assessment of the suitability of the site for the proposed commercial use.

The desktop review collated information from historic aerial imagery, online sources of soil, geological and hydrogeological information; and various other types of information available from local and state government websites. From the desktop review, a preliminary CSM was developed. The preliminary CSM identifies potential contamination sources associated with the historic and current land uses; COPC which may be attributable to these sources; potential receptors of contamination on and near the site; and potential exposure pathways linking the contamination sources with the receptors.

The desktop study and site history review identified the investigation area comprises of a gently sloping allotment that has been utilised for agricultural purposes such as improved pastures, grazing and cropping. The investigation is improved with two small livestock shelters. No other permanent buildings have been identified, with the historical imagery not identifying any other areas of concern. Considering the site has been used for agricultural purposes, potential sources of contamination primarily include the use of pesticides, fertilisers. On the basis of the desktop PSI findings, the COPC include OCPs, and metals (e.g. arsenic, lead), with the potentially affected environmental media deemed to comprise surface soils potentially exposed to the outlined COPC.

A site inspection and soil sampling program were undertaken on 5 July 2023 with soil samples being collected from the upper soil stratum (0 to 0.15 mBGL) of the surface soil at thirty (30) discrete locations throughout the proposed battery energy storage facility and along the proposed transmission line. No olfactory or visual signs of contamination were observed throughout this investigation.

Laboratory analysis results reported that concentrations of heavy metals were below the adopted assessment criteria and OCP's were below the limit of reporting. The maximum COPC concentrations

at all sample locations were less than the adopted commercial use assessment criteria. The returned COPC results also fall below the more conservative residential HIL-A and Residential EIL assessment criteria.

On the basis of the PSI findings, the investigation area is considered suitable for the proposed commercial land use from a chemical perspective.

1 INTRODUCTION

ENV Services Pty Ltd (ENV) was engaged by Equis Energy (Australia) Projects (NGUMI4) Pty Ltd as trustee for the Equis Energy (Australia) Ngumi 4 Asset Trust (the Client) to complete a Preliminary Site Investigation (PSI) for part of lot 17 on DP629969, 57 Burgess Lane, Calala, NSW, 2430 (also known as 474 Calala Lane, Calala, NSW 2340) (hereafter referred to as the 'site'). ENV understands that the PSI has been requested to support a development application for a proposed battery energy storage facility, in accordance with the requirements under the Planning Secretary Environmental Assessment Requirements (SEAR's).

This PSI has been prepared in general accordance with the requirements of State Environment Planning Policy (Resilience and Hazards) 2021 and the NSW EPA (2020) document entitled *Consultants Reporting on Contaminated Sites (Contaminated Land Guidelines).*

1.1 Objective

The objective of the PSI was to assess the potential for contamination to exist at the site as a result of historical or current land uses; and if further investigation and/or remediation is required for the site to be considered suitable for proposed battery energy storage facility (commercial land use), from a chemical perspective.

1.2 Scope of Works

The PSI included the following components:

- A desktop review of the site conditions, history and surrounding environment;
- Identification of past and present potentially contaminating activities and chemicals of potential concern (COPC);
- An inspection of the site and adjacent areas of land;
- Development of a preliminary conceptual site model (CSM);
- Discussing the potential for contamination to exist at the site as a result of historical or current land uses;
- Site investigation and soil sampling program; and
- Assessment of the suitability of the site for the proposed commercial use.

1.3 Technical and Regulatory Framework

The following technical and regulatory framework has been considered in preparing this PSI:

- Contaminated Land Management Act 1997 (CLM Act);
- Environmental Planning and Assessment Act 1979;
- *State Environment Planning Policy (Resilience and Hazards) 2021* – (under the Environmental Planning and Assessment Act 1979)
- *Sampling Design Guidelines* (NSW EPA, 2022);

- *National Environment Protection (Assessment of Site Contamination) Measure (NEPM) 1999, as amended 2013* (NEPC, 2013);
- *Consultants Reporting on Contaminated Land (Contaminated Land Guidelines)* (NSW EPA, 2020);

2 SITE DESCRIPTION AND CHARACTERISTICS

2.1 Site Identification Details

Table 1 provides an overview of relevant identification details for the site. The site location is depicted in Figure 1 and Figure 2, Appendix A.

Table 1: Site Details

Site Address	57 Burgess Lane, Calala, NSW, 2430 (also known as 474 Calala Lane, Calala, NSW 2340)
Real Property Description	Lot 17 DP629969
Site Area	Approximately 36.3ha
Investigation Area	Approximately 8.87ha for the proposed battery energy storage facility and approximately 1.6km linear for the proposed transmission line.
Local Government Area	Tamworth Regional Council
Existing Land Use	Agriculture (Grazing/Cropping)
Proposed Land Use	Battery Energy Storage Facility (Commercial)

2.2 Site Infrastructure

The property is improved with a dwelling and a shed in the northern portion of the allotment, and a pump shed adjacent the dam, outside of the investigation area. The investigation area appears to be improved with two basic livestock shelters only. The area of the proposed transmission comprises grass (pasture).

2.3 Zoning and Land Use

The site is zoned RU4 – Primary Production Small Lots under the Tamworth Regional Council Local Environmental Plan (LEP) (2010). The following land uses are permitted without consent within an RU4 zone: Agricultural produce industries; Aquaculture; Cellar door premises; Dual occupancies (attached); Dwelling houses; Farm buildings; Intensive plant agriculture; Kiosks; Landscaping material supplies; Light industries; Markets; Plant nurseries; Roadside stalls; Rural workers' dwellings. The site is currently used for Rural activities improved grazing/cropping. See the Tamworth LEP Zoning Map in Figure 3, Appendix A.

2.4 Topography and Drainage

The investigation area has an approximate elevation of 400m Australia Height Datum (AHD) and gently slopes towards the northern boundary. The northern paddock is developed with contour banks and the investigation area generally drains to an earthen dam outside the investigation area to the west.

2.5 Geology and Soils

The NSW Department of Planning, Industry and Environment's eSPADE v2.2 webapp maps the site is situated within the Duri soil landscape. The soil landscape is summarised as follows:

Extremely complex due to rapid changes in underlying lithology. Generally dominated by duplex soils such as moderately deep, moderately well-drained Red and Brown Chromosols (Noncalcic Brown Soils; Red-brown Earths) with minor occurrences of shallow, very well-drained Rudosols (Lithosols) around rock outcrops. Deep, imperfectly drained Red Vertosols (Red Clays) and deep to very deep, imperfectly drained Red and Brown Chromosols (Non-calcic Brown Soils) and possibly some Sodosols (Solodic Soils) occur along drainage lines and on sodic bedrock.

The site investigation revealed the surface soils generally comprised brown to red clays being homogenous, medium stiffness, medium plasticity and moist (due to rainfall). No inclusions, asbestos, staining or odours were identified.

2.6 Surface Water Bodies and Flooding

The investigation area has no surface water bodies, with the Tamworth Flood Mapping indicating the site is free from flooding, however, during high rainfall events, overland flow is likely to traverse the property and flow against the contour banks to the neighboring dam. No hydrological flood assessments have been conducted to confirm the flood risk at the site. The Tamworth Flood mapping has been included within Figure 4, Appendix A.

2.7 Groundwater Resources

A search of the WaterNSW Realtime groundwater database was completed on 26 June 2023. The search identified two (2) bores within 500m and are summarised in Table 2.

Table 2 - Groundwater Licence Details

GW Licence Number	Authorised Purpose	Depth of Well	Depth to Water
GW064001	Domestic	18.20m	8.20m
GW901433	Stock & Domestic	25.90m	4.00m

Both bores are located outside the investigation area and are unlikely to be used for drinking water.

2.8 Cultural Heritage

A search of the Tamworth LEP Heritage Mapping indicates the site is not Heritage Listed. See the Tamworth Heritage Map in Figure 6, Appendix A.

2.9 Surrounding Environment

The site is located approximately 9km southeast of the regional town of Tamworth. Land use immediately surrounding the site can be summarised as rural and rural residential including grazing and cropping. Notable land uses greater than 500m from the subject property include;

- An electrical substation located approximately 960m to the south west;
- A NSW DPI Agricultural Institute located approximately 1.4km to the east; and
- A former chicken farm approximately 900m to west.

No potentially contaminating land uses were identified up-gradient from the investigation area.

2.10 Contaminated Land Record and Record of Notices

The NSW EPA Contaminated Land Record (EPA Notifications) contains a list of sites which have been notified to the NSW EPA under the Contaminated Land Management Act 1997 (CLM Act). Upon receiving the notification, the EPA then assesses the contamination status of the site and decides whether the contamination is significant enough to warrant formal regulation by the EPA in accordance with the provisions of the CLM Act. The NSW EPA Record of Notices contains selected information about sites which have been issued with a Regulatory Notice by the NSW EPA under the CLM Act.

The NSW EPA Contaminated Land Record and Record of Notices were searched on 26 June 2023. No records for the area of Calala were listed in the databases (NSW EPA, 2023).

2.11 POEO Act Public Register Search

The Protection of the Environment Operations Act 1997 (POEO Act) Public Register contains information about environment protection licences, licence applications, notices issued under the POEO Act, and pollution studies and reduction programs. The POEO Act Public Register was searched on 26 June 2023 for the suburb of Calala, with no records identified.

2.12 Cattle Dip Sites

The NSW DPI's cattle dip site locator was searched on 26 June 2023. No dip sites were identified in the suburb of Calala.

2.13 Planning Applications

The Tamworth Development Applications website was searched on the 26 June 2023 and no planning applications were listed for 57 Burgess Lane, Calala or 474 Calala Lane, Calala, NSW.

2.14 Former Mining and Exploration Leases

The investigation area is located within 2 former mining leases summarised in Table 3 below.

Table 3 - Former Mining Titles

Title ID	Holder	Resource	Year
ELI701	Shell Mineral	Minerals	01/09/1981-01/01/1982
PEL84	Unknown	Petroleum	1955

Due to the historical nature of the mining leases, it is unknown if mining occurred at the site. However, no mining activities were evident in the review of historical aerial photographs (refer Section 2.15). A copy of the Mine Title Map is provided in Figure 5, Appendix A.

2.15 Historical Aerial Photographs

A review of seven (7) aerial photographs (dated 1971, 1989, 1993, 1998, 2004, 2013 & 2022) was undertaken to assess changes in land use at the site and immediate surrounds. Aerial photographs were accessed through the NSW Historical Imagery Viewer, Google Earth and IntraMaps.

The review of historical aerial photographs indicates that the site has been used for agricultural activities such as grazing, improved pastures and cropping. The review did not identify any other structures in the investigation area. The historical land use of nearby properties includes similar agricultural activities within 500m of the site. Former chicken sheds are located approximately 900m west of the investigation area and were demolished between 2004-2013 and are not considered to impact the subject site. The area for the proposed transmission line has been previously grazed and cropped throughout the historical aerials. No previous structures or other contaminating uses have been identified.

Copies of the historical aerial photographs are provided as Figures 7 to 13, Appendix A.

2.16 Previous Investigations

ENV has not been made aware of any previous environmental investigations at the subject site.

3 CONCEPTUAL SITE MODEL

The information presented in the previous sections pertaining to the site characteristics, history and surrounding environment, has been used to identify potential contamination sources from historic and current activities on the subject site; COPC associated with these sources, plausible receptors of contamination at the site and in off-site areas, and exposure pathways linking the contamination sources and receptors. This information is brought together in what is known as a conceptual site model, which is presented in the following sub-sections.

3.1 Contamination Sources

Historical and current land use of the site comprises rural use includes improved pastures & cropping. The most recent aerial imagery of the subject reveals the southern paddock has been ploughed, indicating it may have been farmed, cropped and harvested recently. Considering that the site appears to have been used for cropping, potential sources of contamination include the use of pesticides and fertilisers that may have been applied to these crops.

No other off-site sources of contamination, likely to have affected the environmental condition of the subject site, have been identified.

3.2 Chemicals of Potential Concern

The COPC associated with the identified contamination sources include:

- Heavy Metals including Arsenic (As), Cadmium (Cd), Chromium (Cr), Copper (Cu), Lead (Pb), Mercury (Hg), Nickel (Ni) and Zinc (Zn); and
- Organo-chlorine pesticides (OCPs).

3.3 Potentially Affected Environmental Media

Potentially affected environmental media include surface soils. While other environmental media may be affected by the contamination sources described above, surface soils are considered the most likely media to be directly impacted by the presence of potential contamination sources. If the surface soils at the site are contaminated, it is possible that also other environmental media have been impacted, which will then require further investigation.

3.4 Potential Migration and Exposure Pathways

Potential migration pathways depend on a number of factors including the chemical properties of the contaminant, soil texture, topography, hydraulic gradient of shallow groundwater, and the presence of preferential pathways etc. The significance of different exposure pathways depends on the chemical properties of the contaminant.

In consideration of the above, potential migration pathways for identified COPC include:

- Volatilisation;
- Generation of dust;

- Stormwater run-off; and
- Plant uptake and bioaccumulation.

Subsequently, potential exposure pathways include:

- Direct contact (ingestion or dermal) with contaminated environmental media;
- Inhalation of dust;
- Ingestion of food grown in contaminated soils; and
- Direct toxicity for plants and terrestrial/aquatic ecosystems.

3.5 Potential Receptors of Contamination

Potential receptors of contamination have been identified as:

- Residents and visitors on-site;
- Future construction and ongoing workers; and
- Terrestrial ecosystems on-site.

It is noted that the potential for off-site receptors to be exposed to contamination originating from the site depends on the nature and extent of the contamination, soil properties, local surface water and groundwater hydrology, and distance to the receptors. If contamination is identified on-site, additional investigations may be required to identify and assess the risk to potential off-site receptors.

4 DATA QUALITY OBJECTIVES

4.1 Step 1: State the Problem

The purpose of the Preliminary Site Investigation is to assess the potential for contamination to exist as a result of current or previous land use.

4.2 Step 2: Identify the Decision(s)

The principal decisions (questions) for this investigation are:

- What are the current and previous land uses at the site and is there a potential for contamination to exist as a result of associated land use activities?
- What are the COPC associated with current and historical land uses?
- Do the concentrations of COPC exceed relevant assessment criteria for the protection of potential receptors?
- Is the investigation area suitable for proposed residential land use from a contamination perspective, or is further investigation and/or remediation required?

4.3 Step 3: Inputs into the Decision(s)

To address the decisions in Step 2, the following activities were completed:

- A desktop review of relevant and available information, to gain an understanding of site characteristics, history and potential receptors, as well as to identify gaps in the existing data;
- An inspection of the site and surrounding areas; and
- Soil sampling and laboratory analysis of COPC.

4.4 Step 4: Define the Study Boundaries

The study boundaries covered the extent of the battery energy storage facility and the transmission line to the substation. The extent of the soil sampling program is referred to as the 'investigation area', and is depicted in Figures 14 and 15, Appendix A.

In terms of temporal boundaries, the site inspection and soil sampling program were undertaken over the course of one day, and therefore provides a snapshot only of the current soil conditions.

4.5 Step 5: Develop the Analytical Approach (Decision Rule)

The number of discrete soil sampling locations required for site characterisation was determined in consideration of the NSW EPA Sampling Design Part 1 – Application (2022) and with reference to the size of the investigation area. Samples were collected using a systematic sampling pattern and involved the collection of soil samples from thirty (30) discrete locations, with twenty-four (24) located within the battery energy storage facility and six (6) located along the proposed transmission line. Soil samples were collected from the upper soil stratum (0-0.15m below ground level [BGL]) and laboratory analysis results compared to generic (Tier 1) investigation levels presented in the *NEPM*

(NEPC, 2013). To characterise the site, the following statistical measures were adopted, with the results compared to the adopted assessment criteria:

- Maximum observed contaminant concentration of each COPC

The precision (reproducibility), accuracy, representativeness and overall reliability of the data sets were assessed using the indicators presented in Table 2. This included the collection of appropriate Quality Assurance (QA) samples during soil sampling activities, and internal QA testing conducted by the analytical laboratories. The QA sampling regime was adopted in accordance with the *NEPM* (NEPC, 2013) and Australian Standard (1999 and 2005).

Table 4 - Summary of QA Sample Parameters for Assessing Data Reliability

QA Sample Type	Media	Frequency	Acceptable Range of Results
Field Samples			
Intra-laboratory duplicate	Soil	1 per 20 primary samples	Relative percent difference (RPD) ≤50%
Inter-laboratory duplicate	Soil	1 per 20 primary samples	RPD ≤50%
Laboratory Samples			
Internal duplicate	Soil	1 per 10 primary samples	Laboratory specified
Matrix Spike	Soil	1 per sampling batch (20 samples)	Laboratory specified
Surrogate Spike	Soil	1 per sampling batch (20 samples)	Laboratory specified
Control Sample	Soil	1 per sampling batch (20 samples)	Laboratory specified
Laboratory Blank	Soil	1 per sampling batch (20 samples)	Results <LOR

4.6 Step 6: Specify the Performance or Acceptance Criteria

Assessment criteria were adopted from the Tier 1 investigation levels outlined in *Schedule B(1) Guideline on Investigation Levels For Soil and Groundwater* (NEPC, 2013) and included:

- Health investigation levels (HILs) and Health Screening Levels (HSLs) exposure setting D – commercial/industrial. The HIL-D levels were selected based on the proposed use of the site.
- Ecological investigation levels (EILs) for commercial and industrial. Site-specific EILs were calculated for selected metals (considered to be 'aged' contamination (≥2 years)) using the NEPM toolbox/EIL calculator. For these calculations, reasonably expected default values were adopted for pH, cation exchange capacity (CEC), clay content and total organic carbon (TOC), based on modelled soil properties in eSPADE[1] (Environment, Energy and Science, 2021). Generic EILs presented in the NEPM (2013) were also adopted for selected chemicals.

Tier 1 investigation levels adopted for this PSI are summarised in Table 3. Furthermore, the investigation and screening levels contained in NEPC (2013) have been established through toxicity tests and field and laboratory experiments. In some cases, insufficient data currently exist to provide

[1] Soil properties used for EIL calculations: CEC of 15 cmolc/kg dwt, pH of 4.5, clay content of 60%, and organic carbon content (OC) of 2%.

thresholds. In these cases, the laboratory analysis data is simply used as an indicator of the presence and extent of contamination.

Table 5 - Adopted Assessment Criteria (EILs)

Chemical	Unit	EIL
Arsenic (As)	mg/kg	160
Chromium (Cr)	mg/kg	770
Copper (Cu)	mg/kg	110
Lead (Pb)	mg/kg	1,800
Nickel (Ni)	mg/kg	380
Zinc (Zn)	mg/kg	270
DDT+DDE+DDD	mg/kg	180 (DDT only)

4.7 Step 7: Optimise the Design for Obtaining Data

The sampling regime was designed to collect soil data from surface soils within the investigation area and with reference to the proposed land use and environmental setting of the site. The design incorporated guidance and requirements presented in NEPC (2013) and Australian Standard (2005), as well as other current industry standards relating to the objectives of the assessment. To optimise the design of the investigation, the sampling and analytical program was devised to specifically target information required to meet the PSI objectives.

5 SITE INVESTIGATION METHODOLOGY

5.1 Site Inspection Overview

A site inspection was completed concurrently with the soil sampling program on 5 July 2023. The aim of the site inspection was to assess the current condition of the site and identify any visible signs of contamination and potential contamination sources not detected by the desktop review.

5.2 Soil Sampling and Analysis Plan

The soil sampling program comprised the collection of soil samples from the upper soil stratum (0 – 0.15 mBGL) at thirty (30) discrete locations within the investigation area. Sampling locations are depicted in Figures 14 and 15, Appendix A. The soil sampling methodology is summarised in Table 6.

Table 6 - Soil Sampling Methodology

Activity	Details
Sampling	▪ Soil samples were collected from thirty (30) discrete locations established based on a systematic sampling pattern across the investigation area. ▪ At each discrete sampling location, soil was loosened with a shovel and samples collected using a fresh pair of disposable nitrile gloves. Organic matter such as leaves and twigs were removed from the sample as much as practically possible prior to collection. ▪ Samples were collected by an appropriately qualified Environmental Scientist (Timothy Bischof) from ENV.
Field QA Samples	▪ Field duplicates were collected and analysed in accordance with NEPC (2013) and Australian Standard (2005). ▪ Four (4) field duplicates were collected, including an intra and inter-laboratory duplicate samples.
Laboratory Analysis	▪ All primary and duplicate samples were analysed for identified COPC.
Sample Preservation and Transport	▪ Samples were placed in laboratory-supplied sample jars, with no headspace. ▪ Each sample was labelled with the project number, sampling date and unique sample identifier, and immediately placed into a chilled esky with ice, pending dispatch to the laboratory. ▪ Samples were transported to a laboratory accredited by the National Association of Testing Authorities (NATA) for the required analysis, and with accompanying chain of custody (COC) documentation.
Decontamination Procedure	▪ Any reusable equipment was cleaned between sampling locations using a triple wash procedure. This involved preliminary washing with potable water, further washing with phosphate-free detergent (Decon 90), and final rinsing with clean, potable water.

5.3 Justification of Sampling Design and Analysis Plan

Justification for the sampling design and analysis plan is as follows:

- The number of discrete sampling locations was established in consultation with the *Sampling Design Guidelines* (NSW EPA, 2022). The sampling density was considered appropriate in

consideration of the adopted COPC and targeted potential sources of contamination (cropping areas).

- Field-based sampling locations, including stratum and depth, were based on the results of the site history review and identified COPC.
- COPC include contaminants that are persistent in the environment; and are recognised as having been used historically in the Tamworth region for the following purposes:
    - Application of pesticides and fertilisers for agriculture (i.e., OCPs, and metals).

6 RESULTS

6.1 Site Inspection

The investigation area is currently comprised of cleared grassed paddocks improved with two (2) basic livestock shelters. The site inspection noted clay soils being brown to red in colour, medium plasticity, medium stiffness being moist and homogenous. The transmission line comprised similar cleared and sparsely timbered grassed paddocks utilised for grazing with similar brown/red clays. No discolouration, unnatural odours or vegetation stress was observed.

Photographs taken during the site inspection and soil sampling activities are provided in Appendix C.

6.2 Laboratory Analysis Results

Laboratory analysis results for soil samples are tabulated and provided in Appendix D, along with the laboratory issued reports and certificates.

Concentrations of heavy metals were below the assessment criteria and OCP's were below the limit of reporting. The maximum COPC concentrations at all sample locations were less than the adopted (commercial) assessment criteria which incorporated HILs and EILs presented in the NEPM (NEPC, 2013) and the site specific EIL's presented in Table 5. The returned COPC results also fall below the more conservative residential HIL-A & Residential/Open Space EIL assessment criteria.

6.3 QA/QC Results

Quality assurance and quality control (QA/QC) involved an assessment of the completeness, comparability, representativeness, precision and accuracy of the investigation and collected data. QA/QC indicators and results are presented in Table 7.

Table 7 - Summary of QA/QC Indicators and Results

QA/QC Indicator	Compliance	Details
Details of Sampling Team	Yes	▪ Field sampling was undertaken by an ENV appropriately qualified Environmental Scientist, Timothy Bischof.
Sampling Plan Adhered To	Yes	▪ All planned samples were collected and hence a complete dataset obtained.
Decontamination of Equipment	Yes	▪ Reusable equipment was cleaned between sampling locations using a triple wash procedure. This involved preliminary washing with potable water, further washing with phosphate-free detergent (Decon 90), and final rinsing in clean, potable water.
Sample Collection	Yes	▪ Laboratory supplied jars used (no headspace). ▪ Collected samples placed in cooler box with ice. ▪ Each sample labelled with a unique sample ID. ▪ Samples collected in accordance with the methodology detailed in Section 5.2.
Chain of Custody	Yes	▪ COC was completed with full and demonstrable delivery of samples. COC documentation is presented in Appendix D.
Holding Times	Yes	▪ Samples analysed within the laboratory specified holding times.

QA/QC Indicator	Compliance	Details
Sufficient Duplicates Analysed	Yes	▪ Field duplicates (inter- and intra-laboratory) collected in accordance with NEPC (2013) and Australian Standard (2005), with a ratio exceeding 2 duplicates per 20 primary samples. As such, four duplicate samples were taken. ▪ Field duplicates were collected at sampling location S-01 & S-18.
Field Duplicate Results – Relative Percentage Difference (RPD)	Yes	▪ RPD calculated between the primary sample and each of the corresponding duplicates. The calculated RPDs are tabulated and presented in Appendix D. ▪ All calculated RPDs were below the acceptable threshold of ≤ 50% except for chromium, copper, mercury, nickel and zinc for QC1A and chromium and zinc for QC2A. This is due to the natural heterogeneity of soil and the soil comprising stiff clays which are difficult to mix and distribute evenly in sampling jars. Data is considered to be suitable for analysis.
Analyses NATA accredited	Yes	▪ Samples analysed by Eurofins in Brisbane, which is NATA accredited for the analyses required. ▪ Intra-laboratory sample analysed by the NATA accredited laboratory Envirolab.
Laboratory Internal QC	Yes	▪ Satisfactory internal quality control data reported. ▪ Analytical methods used are presented in the Laboratory Reports, Appendix E.

6.4 Summary of Data Usability

On the basis of the calculated RPDs and other internal quality control data reported by the laboratories (Envirolab and Eurofins), the reproducibility, accuracy and representativeness of the analytical results is considered suitable to meet the objectives of this assessment, and to provide sufficient confidence in the primary dataset for interpretative purposes. N.B. no data has been excluded from the soil data sets for interpretation.

7 DISCUSSION AND CONCLUSION

The investigation area comprises a predominantly cleared, gently undulating area that is broken by contour banks and is improved with two livestock shelters. The desktop study review identified the investigation area has been used for grazing and cropping (agricultural uses). Historical imagery did not identify any other areas of previous, potentially contaminating activities. Considering the site has been used for agricultural purposes, potential sources of contamination primarily include the use of pesticides and fertilisers. As such, identified COPC included OCPs and heavy metals. Potentially affected environmental media are deemed to primarily comprise surface soils (0-150mm).

A site inspection and soil sampling program were undertaken on 5 July 2023 with soil samples being collected from the upper soil stratum (0 to 0.15 mBGL) of the surface soil at 30 discrete locations throughout the proposed battery energy storage facility and along the proposed transmission line. No olfactory or visual signs of contamination were observed throughout this investigation.

Laboratory analysis results reported concentrations of heavy metals were below the assessment criteria and OCP's were below the limit of reporting. The maximum COPC concentrations at all sample locations were less than the adopted (commercial) assessment criteria which incorporated HILs and EILs presented in the NEPM (NEPC, 2013) and the site specific EIL's presented in Table 5. The returned COPC results also fall below the more conservative residential HIL-A & Residential EIL assessment criteria.

On the basis of the PSI findings, the investigation area is considered suitable for the proposed commercial land use, from a chemical perspective.

8 REFERENCES

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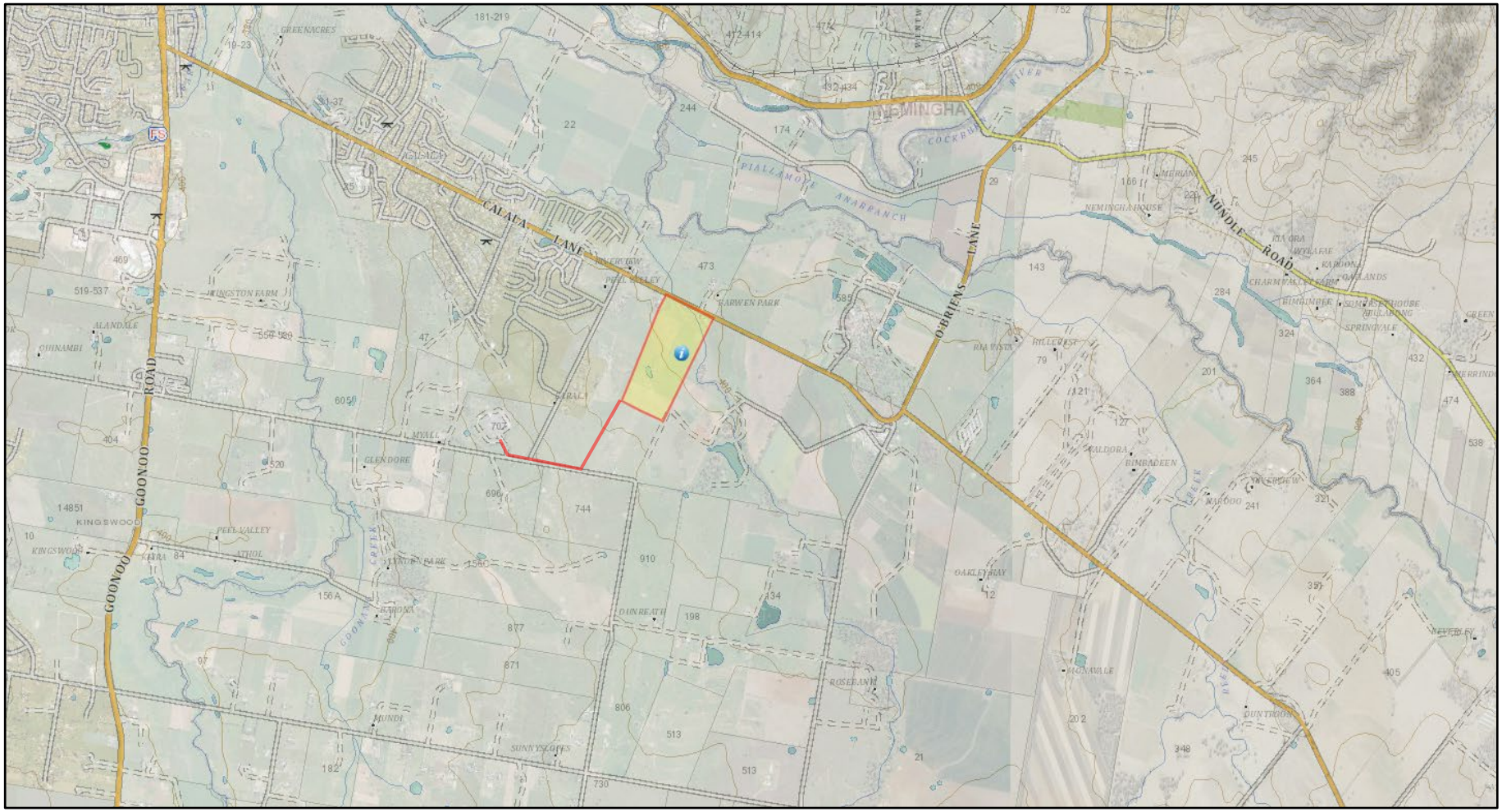
APPENDIX A

Figures



LEGEND

BESS Site Boundary (Approximate)

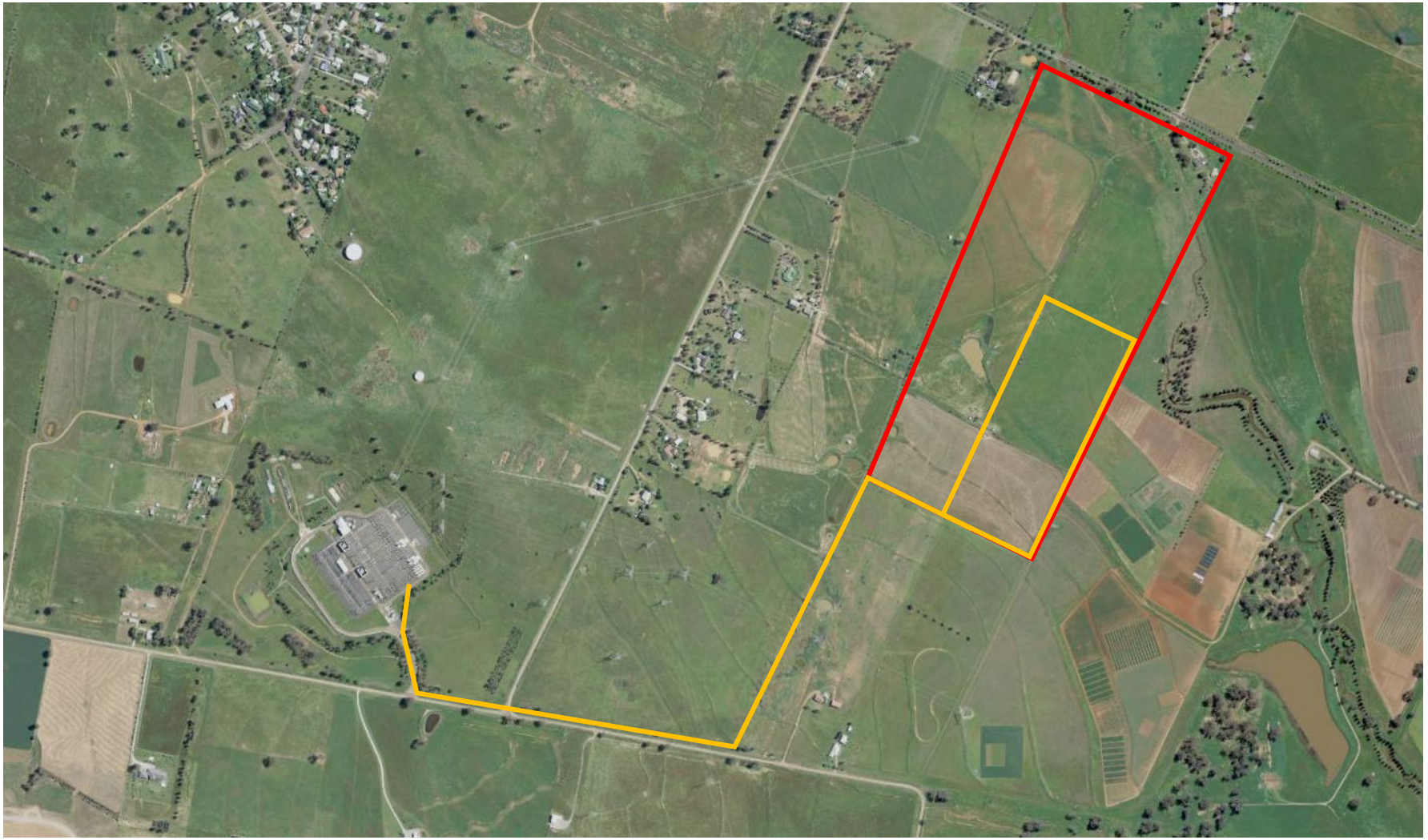
0 0.4km 0.8km

ENV Solutions
ENVIRONMENTAL | ASBESTOS | REMEDIATION | RESOURCE RECOVERY

Figure 1 – Site Location
474 Calala Lane, Calala, NSW, 2340

Project: Preliminary Site Investigation
Client: Equis Energy
ENV Project Number: 218049

Image source: Six Maps



LEGEND

BESS Site Boundary (Approximate)

Investigation Area (Approximate)

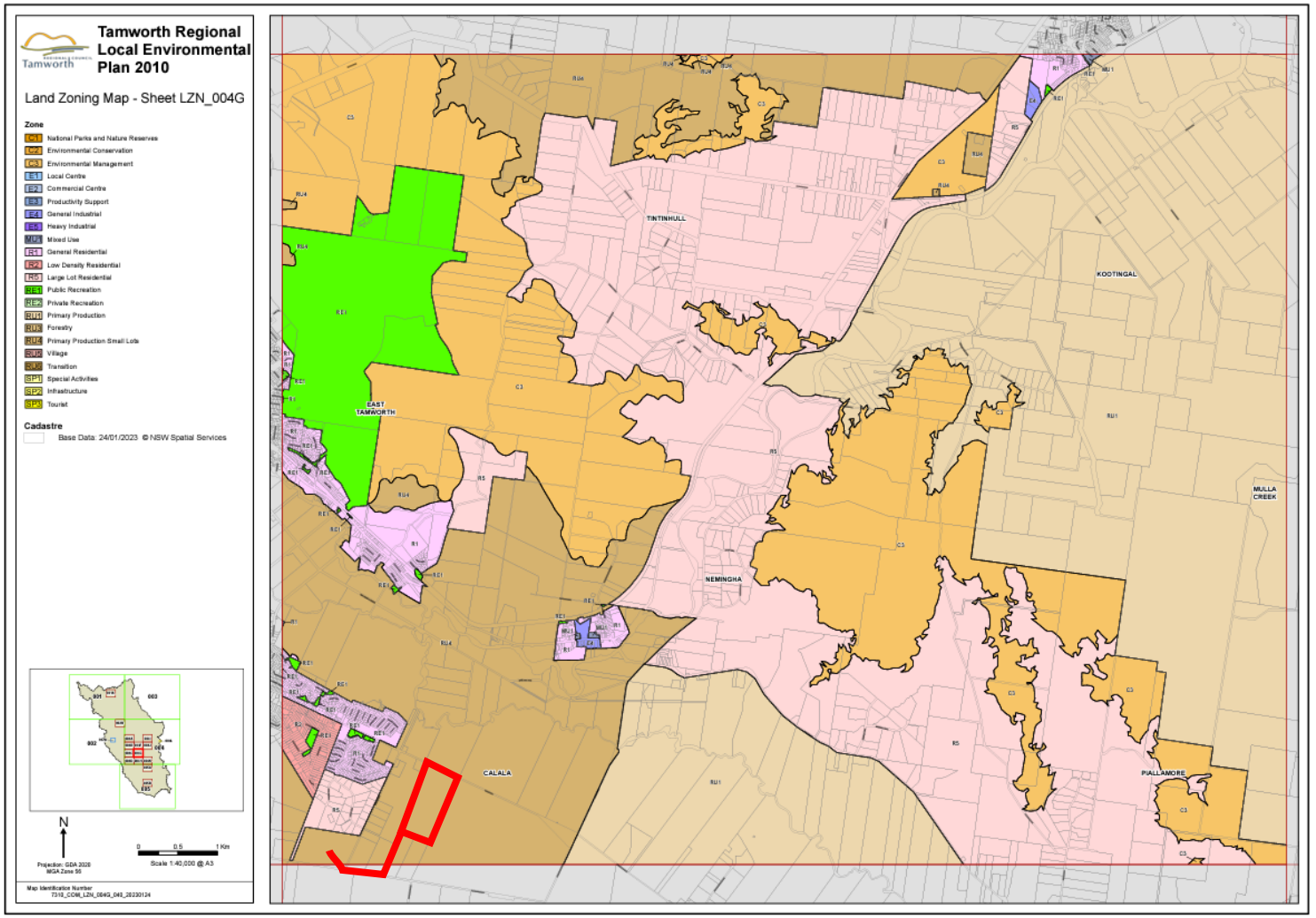
0 125m 250m

Image source: Six Maps

ENV Solutions
ENVIRONMENTAL | ASBESTOS | REMEDIATION | RESOURCE RECOVERY

Figure 2 – Site Plan
474 Calala Lane, Calala, NSW, 2340

Project: Preliminary Site Investigation
Client: Equis Energy
ENV Project Number: 218049



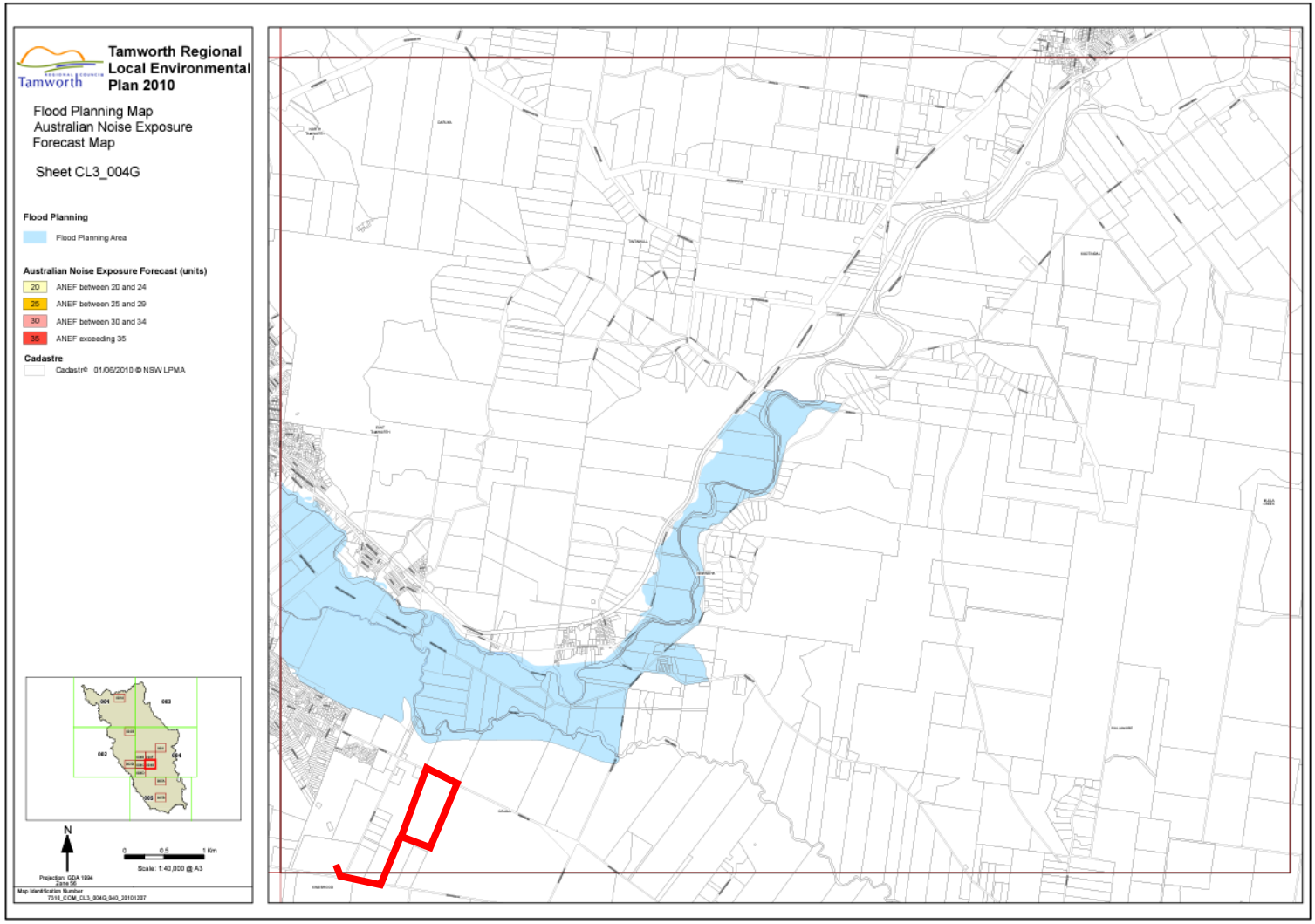
LEGEND

BESS Site Boundary (Approximate)

Image source: Tamworth LEP

Figure 3 – Zoning Map
474 Calala Lane, Calala, NSW, 2340

Project: Preliminary Site Investigation
Client: Equis Energy
ENV Project Number: 218049



LEGEND

Bess Site Boundary (Approximate)

ENV Solutions
ENVIRONMENTAL | ASBESTOS | REMEDIATION | RESOURCE RECOVERY

Figure 4 – Flood Map
474 Calala Lane, Calala, NSW, 2340

Image source: Tamworth LEP

Project: Preliminary Site Investigation
Client: Equis Energy
ENV Project Number: 218049

LEGEND

Investigation Area (Approximate)

Image source: MinView

ENV Solutions
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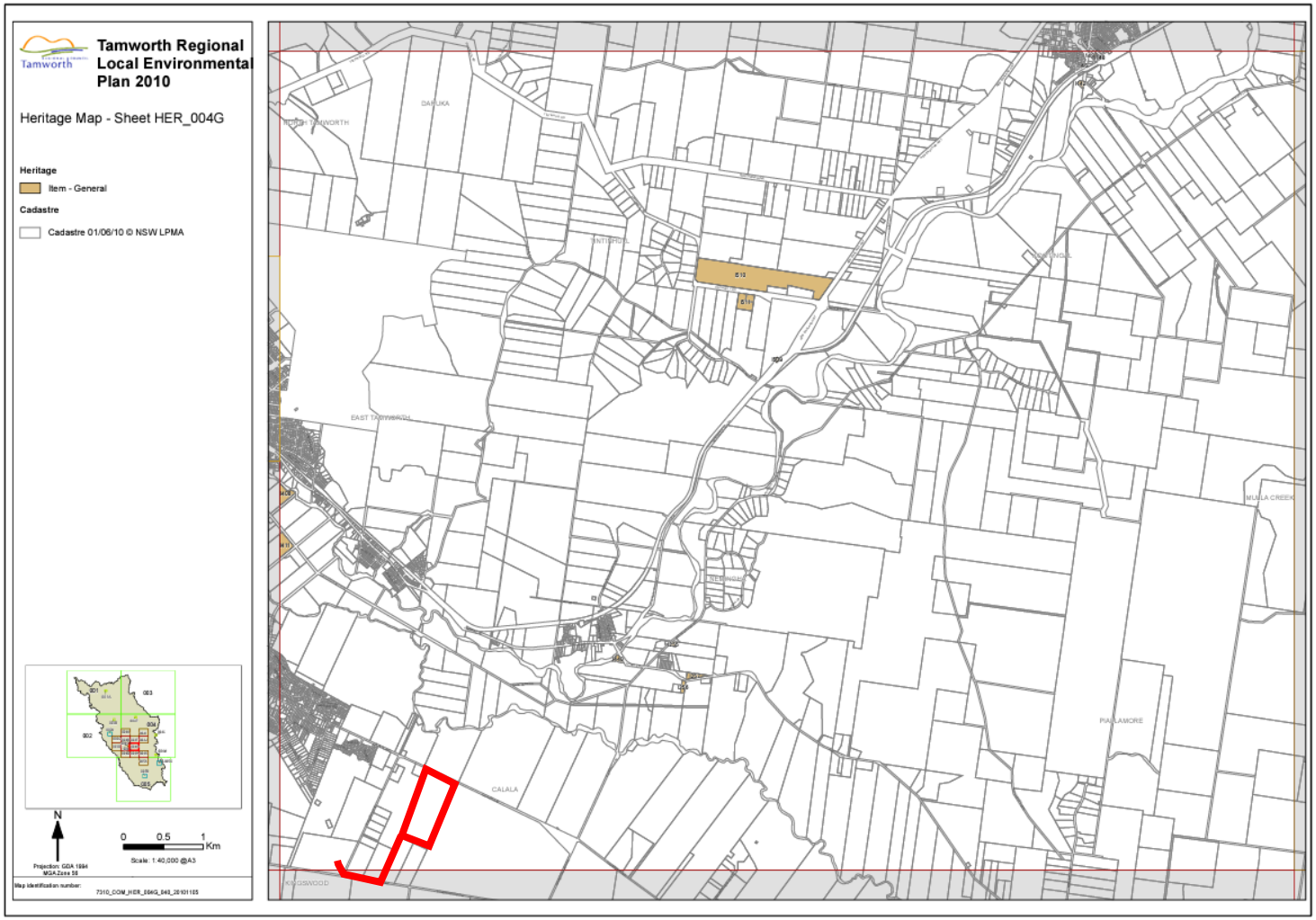
Figure 5 – Mine Title Map
474 Calala Lane, Calala, NSW, 2340

Project: Preliminary Site Investigation
Client: Equis Energy
ENV Project Number: 218049



LEGEND

BESS Site Boundary (Approximate)

ENV Solutions
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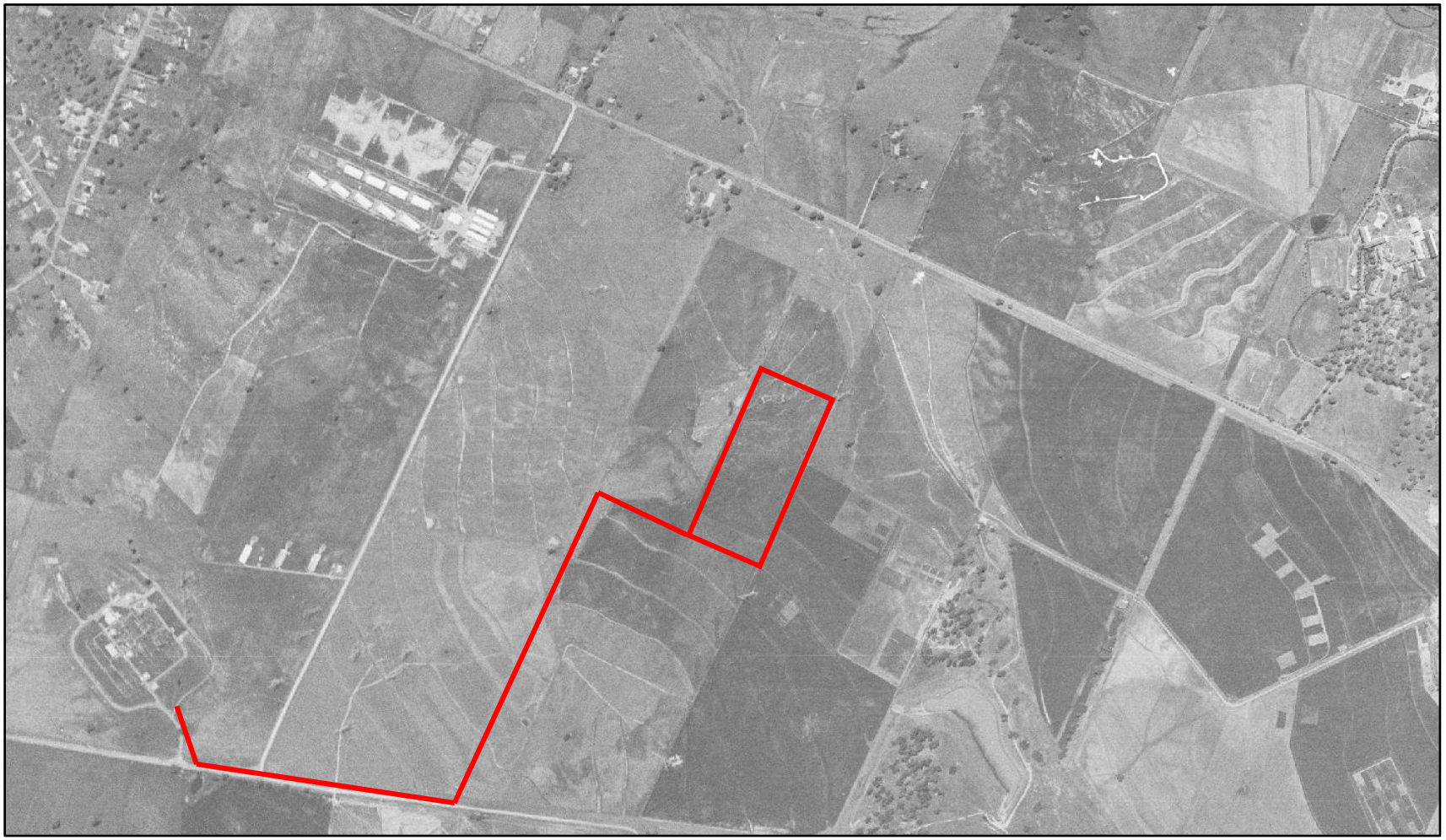
Figure 6 – Heritage Map
474 Calala Lane, Calala, NSW, 2340

Image source: Intra Maps (2022)

Project: Preliminary Site Investigation
Client: Equis Energy
ENV Project Number: 218049



LEGEND

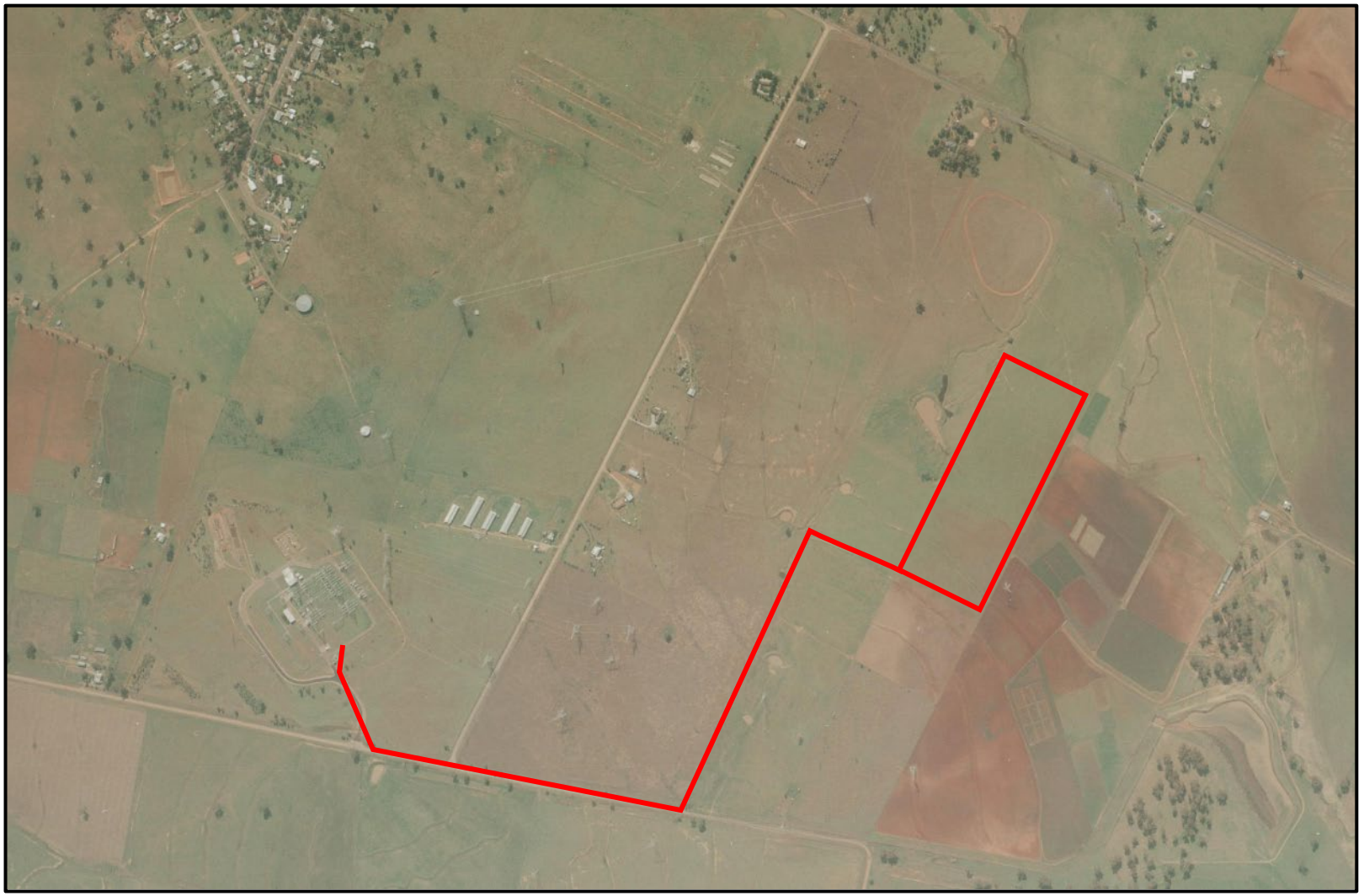
Investigation Area (approximate)

Image source: NSW Historical Imagery Viewer

ENV Solutions
ENVIRONMENTAL | ASBESTOS | REMEDIATION | RESOURCE RECOVERY

Figure 7 – Historical Imagery – 1971
474 Calala Lane, Calala, NSW, 2340

Project: Preliminary Site Investigation
Client: Equis Energy
ENV Project Number: 218049



LEGEND

Investigation Area (approximate)

Proposed Transmission Line (approximate)

Image source: NSW Historical Imagery Viewer

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Figure 8 – Historical Imagery – 1989
474 Calala Lane, Calala, NSW, 2340

Project: Preliminary Site Investigation
Client: Equis Energy
ENV Project Number: 218049

LEGEND

Investigation Area (approximate)

Image source: NSW Historical Imagery Viewer

Figure 9 – Historical Imagery – 1993
474 Calala Lane, Calala, NSW, 2340

Project: Preliminary Site Investigation
Client: Equis Energy
ENV Project Number: 218049

LEGEND

Investigation Area (Approximate)

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Figure 10 – Historical Imagery – 1998
474 Calala Lane, Calala, NSW, 2340

Image source: NSW Historical Imagery Viewer

Project: Preliminary Site Investigation
Client: Equis Energy
ENV Project Number: 218049

LEGEND

Investigation Area (approximate)

Image source: Google Earth Pro

ENV Solutions
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Figure 11 – Historical Imagery – 2004
474 Calala Lane, Calala, NSW, 2340

Project: Preliminary Site Investigation
Client: Equis Energy
ENV Project Number: 218049

LEGEND

Investigation Area (Approximate)

Image source: Google Earh Pro

ENV Solutions
ENVIRONMENTAL | ASBESTOS | REMEDIATION | RESOURCE RECOVERY

Figure 12 – Historical Imagery – 2013
474 Calala Lane, Calala, NSW, 2340

Project: Preliminary Site Investigation
Client: Equis Energy
ENV Project Number: 218049

LEGEND

Investigation Area (Approximate)

Image source: Intra Maps (2022)

ENV Solutions
ENVIRONMENTAL | ASBESTOS | REMEDIATION | RESOURCE RECOVERY

Figure 13 – Historical Imagery – 2022
474 Calala Lane, Calala, NSW, 2340

Project: Preliminary Site Investigation
Client: Equis Energy
ENV Project Number: 218049

LEGEND

Investigation Area (approximate)

Proposed Transmission Line (approximate)

Sampling Location (approximate)

Image source: Intra Maps (2022)

ENV Solutions
ENVIRONMENTAL | ASBESTOS | REMEDIATION | RESOURCE RECOVERY

Figure 14 – Sampling Plan S-01 – S-24
474 Calala Lane, Calala, NSW, 2340

Project: Preliminary Site Investigation
Client: Equis Energy
ENV Project Number: 218049

LEGEND

Investigation Area (Approximate)

Sampling Location (approximate)

Image source: Intra Maps (2022)

ENV Solutions
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Figure 15 – Sampling Plan S-25 – S-30
474 Calala Lane, Calala, NSW, 2340

Project: Preliminary Site Investigation
Client: Equis Energy
ENV Project Number: 218049

APPENDIX B

Proposed Plans

EQUIS

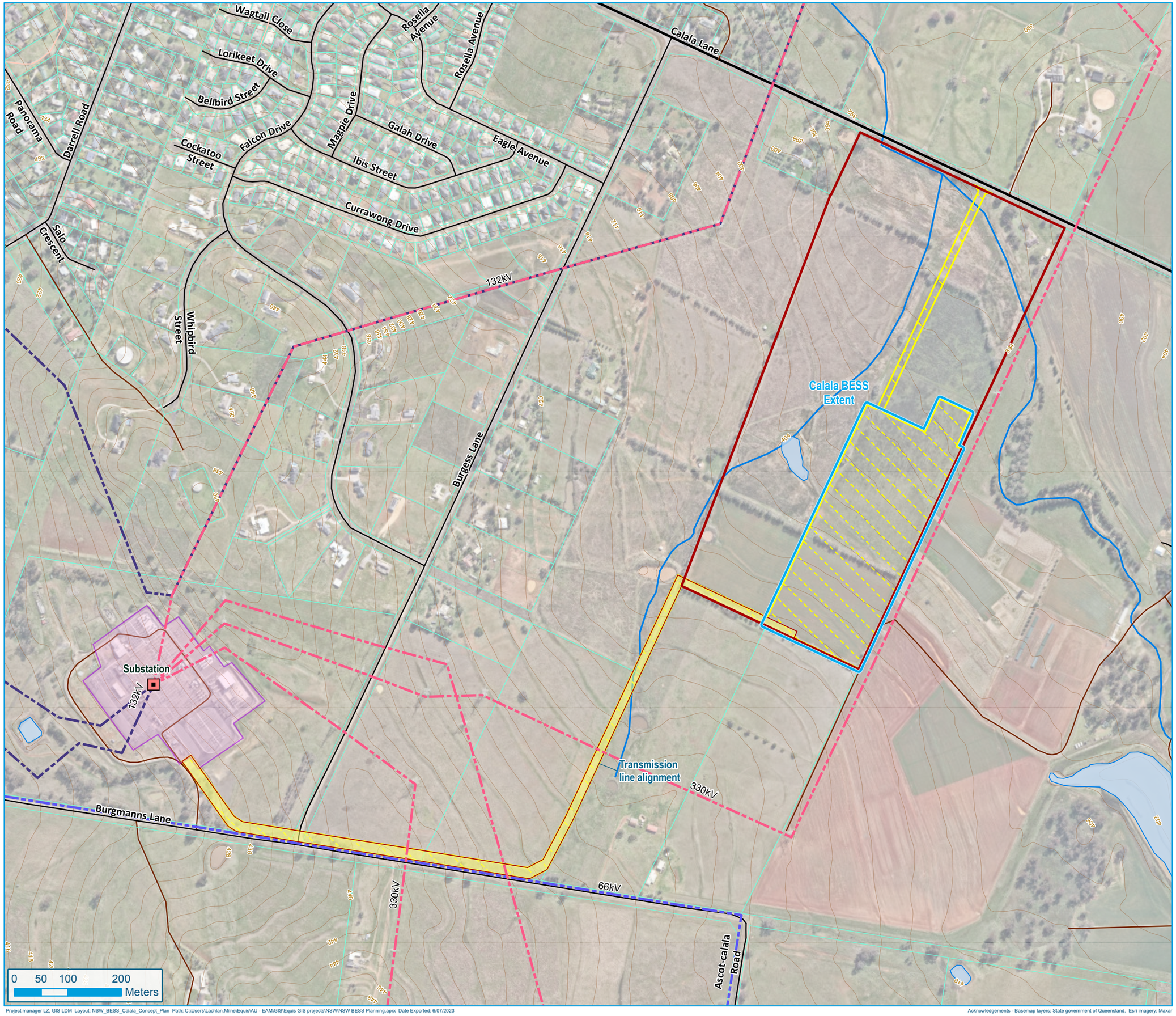
Calala BESS

300MW - 1200MWh

Concept plan

Part of Lot: 17/DP629969

A-104



Legend

- Calala BESS extent
- Existing electricity substation
- Development footprint
- Subject site
- Transmission line alignment
- Property parcel
- Existing substation

Existing transmission line - Capacity (kV)

- 66
- 132
- 330

Scale: 1:6,500 @ A3

Spatial Reference: GDA2020 MGA Zone 56

Notes: This plan is indicative for development approval only and subject to detailed design changes. It contains highly confidential and proprietary information that are of independent, economic value to Equis. This drawing and design shall not be reproduced, amended, disclosed or distributed to others with out the express written consent of Equis.

Project manager LZ, GIS LDM Layout: NSW_BESS_Calala_Concept_Plan Path: C:\Users\Lachlan.Milne\Equis\AU - EAM\GIS\Equis GIS projects\NSW\NSW BESS Planning.aprx Date Exported: 6/07/2023

Acknowledgements - Basemap layers: State government of Queensland. Esri imagery: Maxar

APPENDIX C

Photographs

PHOTOGRAPHIC LOG

Client Name	Site Location	Project
Equis Energy	474 Calala Lane, Calala, NSW	PSI

Photo No.	Date
1	5 July 2023

Description

Soil profile at S-01.

Photo No.	Date
2	5 July 2023

Description

S-01, QA1A & QC1A being mixed and collected.

ENV Solutions
ENVIRONMENTAL | ASBESTOS | REMEDIATION | RESOURCE RECOVERY

PHOTOGRAPHIC LOG

Client Name	Site Location	Project
Equis Energy	474 Calala Lane, Calala, NSW	PSI

Photo No.	Date
3	5 July 2023

Description
Site overview.

Photo No.	Date
4	5 July 2023

Description
Site overview.

ENV Solutions
ENVIRONMENTAL | ASBESTOS | REMEDIATION | RESOURCE RECOVERY

PHOTOGRAPHIC LOG

Client Name	Site Location	Project
Equis Energy	474 Calala Lane, Calala, NSW	PSI

Photo No.	Date
5	5 July 2023

Description
Proposed transmission line.

Photo No.	Date
6	5 July 2023

Description
Proposed transmission line.

APPENDIX D

Laboratory Results and Documentation

	Halogenated Benzenes	Inorganics		Metals								Organochlorine Pesticides								
	Hexachlorobenzene	Moisture Content	Moisture Content (dried @ 103°C)	Arsenic	Cadmium	Chromium (III+VI)	Copper	Lead	Mercury	Nickel	Zinc	Organochlorine pesticides EPAVic	Other organochlorine pesticides EPAVic	4,4-DDE	a-BHC	Aldrin	Aldrin + Dieldrin	b-BHC	Chlordane	Chlordane (cis)
	mg/kg	%	%	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.05	0.1	1	2	0.4	1	1	1	0.1	1	1	0.1	0.1	0.05	0.05	0.05	0.05	0.05	0.1	0.1
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind				160																
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil	80			3,000	900		240,000	1,500	730	6,000	400,000						45		530	
Field ID	**Date**																			
S-01	**07 Jul 2023**	<0.05		17	7.3	<0.5	41	40	15	<0.1	22	76	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	
QA1A	**07 Jul 2023**	<0.05		17	4.5	<0.5	28	25	9.2	<0.1	13	47	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	
QC1A	**07 Jul 2023**	<0.1	17		<4	<0.4	21	23	8	1.5	12	39			<0.1	<0.1	<0.1		<0.1		<0.1
S-02	**07 Jul 2023**	<0.05		19	6.6	<0.5	29	38	12	<0.1	21	86	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	
S-03	**07 Jul 2023**	<0.05		23	6.2	<0.5	28	33	12	<0.1	18	82	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	
S-04	**07 Jul 2023**	<0.05		39	7.0	<0.5	36	35	17	<0.1	20	75	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	
S-05	**07 Jul 2023**	<0.05		21	6.2	<0.5	33	34	15	<0.1	19	76	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	
S-06	**07 Jul 2023**	<0.05		19	6.1	<0.5	31	34	13	<0.1	20	84	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	
S-07	**07 Jul 2023**	<0.05		21	5.2	<0.5	29	29	12	<0.1	18	72	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	
S-08	**07 Jul 2023**	<0.05		19	6.4	<0.5	33	26	11	<0.1	13	41	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	
S-09	**07 Jul 2023**	<0.05		22	8.0	<0.5	39	34	15	<0.1	20	57	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	
S-10	**07 Jul 2023**	<0.05		23	8.6	<0.5	39	33	15	<0.1	19	56	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	
S-11	**07 Jul 2023**	<0.05		23	7.7	<0.5	36	30	13	<0.1	17	50	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	
S-12	**07 Jul 2023**	<0.05		21	6.9	<0.5	38	30	13	<0.1	18	55	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	
S-13	**07 Jul 2023**	<0.05		25	7.0	<0.5	31	30	12	<0.1	17	59	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	
S-14	**07 Jul 2023**	<0.05		25	6.6	<0.5	30	28	12	<0.1	15	49	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	
S-15	**07 Jul 2023**	<0.05		23	7.5	<0.5	36	31	14	<0.1	17	51	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	
S-16	**07 Jul 2023**	<0.05		27	7.6	<0.5	39	33	14	<0.1	20	58	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	
S-17	**07 Jul 2023**	<0.05		28	6.1	<0.5	32	28	13	<0.1	13	40	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	
S-18	**07 Jul 2023**	<0.05		27	8.0	<0.5	37	30	14	<0.1	17	56	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	
QA2A	**07 Jul 2023**	<0.05		26	6.5	<0.5	33	26	12	<0.1	14	50	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	
QC2A	**07 Jul 2023**	<0.1	27		4	<0.4	19	18	8	<0.1	9	26			<0.1	<0.1	<0.1		<0.1		<0.1
S-19	**07 Jul 2023**	<0.05		30	6.5	<0.5	30	25	12	<0.1	14	50	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	
S-20	**07 Jul 2023**	<0.05		25	5.8	<0.5	28	26	11	<0.1	12	44	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	
S-21	**07 Jul 2023**	<0.05		28	6.0	<0.5	33	26	12	<0.1	16	51	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	
S-22	**07 Jul 2023**	<0.05		27	7.1	<0.5	23	26	11	<0.1	14	55	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	
S-23	**07 Jul 2023**	<0.05		27	6.4	<0.5	28	27	12	<0.1	14	54	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	
S-24	**07 Jul 2023**	<0.05		28	5.6	<0.5	27	23	9.8	<0.1	14	49	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	
S-25	**07 Jul 2023**	<0.05		16	5.0	<0.5	18	32	10	<0.1	16	73	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	
S-26	**07 Jul 2023**	<0.05		17	6.1	<0.5	24	29	13	<0.1	16	58	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	
S-27	**07 Jul 2023**	<0.05		16	4.5	<0.5	22	22	7.9	<0.1	13	75	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	
S-28	**07 Jul 2023**	<0.05		23	2.5	<0.5	38	29	<5	<0.1	17	58	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	
S-29	**07 Jul 2023**	<0.05		24	2.7	<0.5	36	46	5.1	<0.1	17	58	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	
S-30	**07 Jul 2023**	<0.05		25	4.7	<0.5	24	49	7.5	<0.1	13	82	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	

Statistics

Number of Results	**34**	**2**	**32**	**34**	**34**	**34**	**34**	**34**	**34**	**34**	**34**	**32**	**32**	**34**	**34**	**34**	**32**	**34**	**32**	**2**
Number of Detects	**0**	**2**	**32**	**33**	**0**	**34**	**34**	**33**	**1**	**34**	**34**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<0.05**	**17**	**16**	**2.5**	**<0.4**	**18**	**18**	**<5**	**<0.1**	**9**	**26**	**<0.1**	**<0.1**	**<0.05**	**<0.05**	**<0.05**	**<0.05**	**<0.05**	**<0.1**	**<0.1**
Minimum Detect	**ND**	**17**	**16**	**2.5**	**ND**	**18**	**18**	**5.1**	**1.5**	**9**	**26**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<0.1**	**27**	**39**	**8.6**	**<0.5**	**41**	**49**	**17**	**1.5**	**22**	**86**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.05**	**<0.1**	**<0.1**	**<0.1**
Maximum Detect	**ND**	**27**	**39**	**8.6**	**ND**	**41**	**49**	**17**	**1.5**	**22**	**86**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**0.026**	**22**	**23**	**6**	**0.25**	**31**	**30**	**12**	**0.093**	**16**	**59**	**0.05**	**0.05**	**0.026**	**0.026**	**0.026**	**0.025**	**0.026**	**0.05**	**0.05**
Median Concentration *	**0.025**	**22**	**23**	**6.3**	**0.25**	**31**	**29.5**	**12**	**0.05**	**16.5**	**56**	**0.05**	**0.05**	**0.025**	**0.025**	**0.025**	**0.025**	**0.025**	**0.05**	**0.05**
Standard Deviation *	**0.006**	**7.1**	**4.9**	**1.6**	**0.012**	**6.2**	**6.4**	**3**	**0.25**	**3.1**	**15**	**0**	**0**	**0.006**	**0.006**	**0.006**	**0**	**0.006**	**0**	**0**
95% UCL (Student's-t) *	**0.0282**	**53.57**	**24.92**	**6.481**	**0.251**	**32.65**	**32.08**	**12.43**	**0.165**	**17**	**62.83**	**0.05**	**0.05**	**0.0282**	**0.0282**	**0.0282**	**0.025**	**0.0282**	**0.05**	**0.05**
% of Detects	**0**	**100**	**100**	**97**	**0**	**100**	**100**	**97**	**3**	**100**	**100**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**0**	**0**	**3**	**100**	**0**	**0**	**3**	**97**	**0**	**0**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

2013, NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil

	Organochlorine Pesticides															
	Chlordane (trans)	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.1	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
NEPM 2013 Table 1B(5) Generic EIL - Comm/Ind				640												
NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil					3,600					100				50		2,500
Field ID	**Date**															
S-01	**07 Jul 2023**		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
QA1A	**07 Jul 2023**		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
QC1A	**07 Jul 2023**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	<0.1	<0.1	<0.1
S-02	**07 Jul 2023**		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
S-03	**07 Jul 2023**		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
S-04	**07 Jul 2023**		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
S-05	**07 Jul 2023**		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
S-06	**07 Jul 2023**		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
S-07	**07 Jul 2023**		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
S-08	**07 Jul 2023**		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
S-09	**07 Jul 2023**		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
S-10	**07 Jul 2023**		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
S-11	**07 Jul 2023**		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
S-12	**07 Jul 2023**		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
S-13	**07 Jul 2023**		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
S-14	**07 Jul 2023**		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
S-15	**07 Jul 2023**		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
S-16	**07 Jul 2023**		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
S-17	**07 Jul 2023**		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
S-18	**07 Jul 2023**		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
QA2A	**07 Jul 2023**		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
QC2A	**07 Jul 2023**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	<0.1	<0.1	<0.1
S-19	**07 Jul 2023**		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
S-20	**07 Jul 2023**		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
S-21	**07 Jul 2023**		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
S-22	**07 Jul 2023**		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
S-23	**07 Jul 2023**		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
S-24	**07 Jul 2023**		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
S-25	**07 Jul 2023**		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
S-26	**07 Jul 2023**		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
S-27	**07 Jul 2023**		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
S-28	**07 Jul 2023**		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
S-29	**07 Jul 2023**		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
S-30	**07 Jul 2023**		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

Statistics

Number of Results	**2**	**34**	**34**	**34**	**34**	**34**	**34**	**34**	**34**	**34**	**34**	**32**	**34**	**34**	**34**	**34**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration	**<0.1**	**<0.05**	**<0.05**	**<0.05**	**<0.05**	**<0.05**	**<0.05**	**<0.05**	**<0.05**	**<0.05**	**<0.05**	**<0.05**	**<0.05**	**<0.05**	**<0.05**	**<0.05**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.05**	**<0.1**	**<0.1**	**<0.1**	**<0.1**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**0.05**	**0.026**	**0.026**	**0.026**	**0.026**	**0.026**	**0.026**	**0.026**	**0.026**	**0.026**	**0.026**	**0.025**	**0.026**	**0.026**	**0.026**	**0.026**
Median Concentration *	**0.05**	**0.025**	**0.025**	**0.025**	**0.025**	**0.025**	**0.025**	**0.025**	**0.025**	**0.025**	**0.025**	**0.025**	**0.025**	**0.025**	**0.025**	**0.025**
Standard Deviation *	**0**	**0.006**	**0.006**	**0.006**	**0.006**	**0.006**	**0.006**	**0.006**	**0.006**	**0.006**	**0.006**	**0**	**0.006**	**0.006**	**0.006**	**0.006**
95% UCL (Student's-t) *	**0.05**	**0.0282**	**0.0282**	**0.0282**	**0.0282**	**0.0282**	**0.0282**	**0.0282**	**0.0282**	**0.0282**	**0.0282**	**0.025**	**0.0282**	**0.0282**	**0.0282**	**0.0282**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

2013, NEPM 2013 Table 1A(1) HILs Comm/Ind D Soil

ENV Services Pty Ltd
Level 1, 2247 Gold Coast Highway
Nobby Beach
QLD 4218

Attention: **Tim Bischof**

Report **1006014-S**
Project name CALALA SOIL SAMPLING
Project ID 218049
Received Date Jul 07, 2023

Client Sample ID			**S-01**	**S-02**	**S-03**	**S-04**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**B23-JI0014386**	**B23-JI0014387**	**B23-JI0014388**	**B23-JI0014389**
Date Sampled			**Jul 07, 2023**	**Jul 07, 2023**	**Jul 07, 2023**	**Jul 07, 2023**
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
a-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
b-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
d-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
g-HCH (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Dibutylchlorendate (surr.)	1	%	67	71	74	64
Tetrachloro-m-xylene (surr.)	1	%	136	134	131	130
Heavy Metals						
Arsenic	2	mg/kg	7.3	6.6	6.2	7.0
Cadmium	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chromium	5	mg/kg	41	29	28	36
Copper	5	mg/kg	40	38	33	35
Lead	5	mg/kg	15	12	12	17
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	22	21	18	20
Zinc	5	mg/kg	76	86	82	75

Client Sample ID			S-01	S-02	S-03	S-04
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B23-JI0014386	B23-JI0014387	B23-JI0014388	B23-JI0014389
Date Sampled			Jul 07, 2023	Jul 07, 2023	Jul 07, 2023	Jul 07, 2023
Test/Reference	LOR	Unit				
Sample Properties						
% Moisture	1	%	17	19	23	39

Client Sample ID			S-05	S-06	S-07	S-08
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B23-JI0014390	B23-JI0014391	B23-JI0014392	B23-JI0014393
Date Sampled			Jul 07, 2023	Jul 07, 2023	Jul 07, 2023	Jul 07, 2023
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
a-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
b-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
d-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
g-HCH (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Dibutylchlorendate (surr.)	1	%	74	95	70	71
Tetrachloro-m-xylene (surr.)	1	%	130	145	129	80
Heavy Metals						
Arsenic	2	mg/kg	6.2	6.1	5.2	6.4
Cadmium	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chromium	5	mg/kg	33	31	29	33
Copper	5	mg/kg	34	34	29	26
Lead	5	mg/kg	15	13	12	11
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	19	20	18	13
Zinc	5	mg/kg	76	84	72	41
Sample Properties						
% Moisture	1	%	21	19	21	19

Client Sample ID			S-09	S-10	S-11	S-12
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B23-JI0014394	B23-JI0014395	B23-JI0014396	B23-JI0014397
Date Sampled			Jul 07, 2023	Jul 07, 2023	Jul 07, 2023	Jul 07, 2023
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
a-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
b-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
d-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
g-HCH (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Dibutylchlorendate (surr.)	1	%	75	61	65	70
Tetrachloro-m-xylene (surr.)	1	%	85	129	112	132
Heavy Metals						
Arsenic	2	mg/kg	8.0	8.6	7.7	6.9
Cadmium	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chromium	5	mg/kg	39	39	36	38
Copper	5	mg/kg	34	33	30	30
Lead	5	mg/kg	15	15	13	13
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	20	19	17	18
Zinc	5	mg/kg	57	56	50	55
Sample Properties						
% Moisture	1	%	22	23	23	21

Client Sample ID			S-13	S-14	S-15	S-16
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B23-JI0014398	B23-JI0014399	B23-JI0014400	B23-JI0014401
Date Sampled			Jul 07, 2023	Jul 07, 2023	Jul 07, 2023	Jul 07, 2023
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
a-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
b-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
d-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
g-HCH (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Dibutylchlorendate (surr.)	1	%	60	74	74	72
Tetrachloro-m-xylene (surr.)	1	%	77	82	89	92
Heavy Metals						
Arsenic	2	mg/kg	7.0	6.6	7.5	7.6
Cadmium	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chromium	5	mg/kg	31	30	36	39
Copper	5	mg/kg	30	28	31	33
Lead	5	mg/kg	12	12	14	14
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	17	15	17	20
Zinc	5	mg/kg	59	49	51	58
Sample Properties						
% Moisture	1	%	25	25	23	27

Client Sample ID			S-17	S-18	S-19	S-20
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B23-JI0014402	B23-JI0014403	B23-JI0014404	B23-JI0014405
Date Sampled			Jul 07, 2023	Jul 07, 2023	Jul 07, 2023	Jul 07, 2023
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
a-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
b-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
d-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
g-HCH (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Dibutylchlorendate (surr.)	1	%	74	75	72	72
Tetrachloro-m-xylene (surr.)	1	%	87	90	107	88
Heavy Metals						
Arsenic	2	mg/kg	6.1	8.0	6.5	5.8
Cadmium	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chromium	5	mg/kg	32	37	30	28
Copper	5	mg/kg	28	30	25	26
Lead	5	mg/kg	13	14	12	11
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	13	17	14	12
Zinc	5	mg/kg	40	56	50	44
Sample Properties						
% Moisture	1	%	28	27	30	25

Client Sample ID			S-21	S-22	S-23	S-24
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B23-JI0014406	B23-JI0014407	B23-JI0014408	B23-JI0014409
Date Sampled			Jul 07, 2023	Jul 07, 2023	Jul 07, 2023	Jul 07, 2023
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
a-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
b-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
d-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
g-HCH (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Dibutylchlorendate (surr.)	1	%	71	79	71	73
Tetrachloro-m-xylene (surr.)	1	%	99	138	96	131
Heavy Metals						
Arsenic	2	mg/kg	6.0	7.1	6.4	5.6
Cadmium	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chromium	5	mg/kg	33	23	28	27
Copper	5	mg/kg	26	26	27	23
Lead	5	mg/kg	12	11	12	9.8
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	16	14	14	14
Zinc	5	mg/kg	51	55	54	49
Sample Properties						
% Moisture	1	%	28	27	27	28

Client Sample ID			S-25	S-26	S-27	S-28
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B23-JI0014410	B23-JI0014411	B23-JI0014412	B23-JI0014413
Date Sampled			Jul 07, 2023	Jul 07, 2023	Jul 07, 2023	Jul 07, 2023
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
a-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
b-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
d-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
g-HCH (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Dibutylchlorendate (surr.)	1	%	73	72	99	74
Tetrachloro-m-xylene (surr.)	1	%	91	87	115	87
Heavy Metals						
Arsenic	2	mg/kg	5.0	6.1	4.5	2.5
Cadmium	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chromium	5	mg/kg	18	24	22	38
Copper	5	mg/kg	32	29	22	29
Lead	5	mg/kg	10	13	7.9	< 5
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	16	16	13	17
Zinc	5	mg/kg	73	58	75	58
Sample Properties						
% Moisture	1	%	16	17	16	23

Client Sample ID			S-29	S-30	QA1A	QA2A
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			B23-JI0014414	B23-JI0014415	B23-JI0014416	B23-JI0014417
Date Sampled			Jul 07, 2023	Jul 07, 2023	Jul 07, 2023	Jul 07, 2023
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
a-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
b-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
d-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
g-HCH (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Dibutylchlorendate (surr.)	1	%	67	72	74	74
Tetrachloro-m-xylene (surr.)	1	%	87	86	91	90
Heavy Metals						
Arsenic	2	mg/kg	2.7	4.7	4.5	6.5
Cadmium	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chromium	5	mg/kg	36	24	28	33
Copper	5	mg/kg	46	49	25	26
Lead	5	mg/kg	5.1	7.5	9.2	12
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	17	13	13	14
Zinc	5	mg/kg	58	82	47	50
Sample Properties						
% Moisture	1	%	24	25	17	26

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
Organochlorine Pesticides	Brisbane	Jul 10, 2023	14 Days
- Method: LTM-ORG-2220 OCP and PCB in Soil and Water (USEPA 8270)			
Metals M8	Brisbane	Jul 10, 2023	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
% Moisture	Brisbane	Jul 07, 2023	14 Days
- Method: LTM-GEN-7080 Moisture			

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Nobby Beach
QLD 4218

Project Name: CALALA SOIL SAMPLING
Project ID: 218049

Order No.:
Report #: 1006014
Phone:
Fax:

Received: Jul 7, 2023 7:15 AM
Due: Jul 14, 2023
Priority: 5 Day
Contact Name: Tim Bischof

Eurofins Analytical Services Manager : Peter Brand

Sample Detail						Organochlorine Pesticides	Metals M8	Moisture Set
Brisbane Laboratory - NATA # 1261 Site # 20794						X	X	X
External Laboratory								
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**			
1	S-01	Jul 07, 2023		Soil	B23-Jl0014386	X	X	X
2	S-02	Jul 07, 2023		Soil	B23-Jl0014387	X	X	X
3	S-03	Jul 07, 2023		Soil	B23-Jl0014388	X	X	X
4	S-04	Jul 07, 2023		Soil	B23-Jl0014389	X	X	X
5	S-05	Jul 07, 2023		Soil	B23-Jl0014390	X	X	X
6	S-06	Jul 07, 2023		Soil	B23-Jl0014391	X	X	X
7	S-07	Jul 07, 2023		Soil	B23-Jl0014392	X	X	X
8	S-08	Jul 07, 2023		Soil	B23-Jl0014393	X	X	X
9	S-09	Jul 07, 2023		Soil	B23-Jl0014394	X	X	X
10	S-10	Jul 07, 2023		Soil	B23-Jl0014395	X	X	X
11	S-11	Jul 07, 2023		Soil	B23-Jl0014396	X	X	X
12	S-12	Jul 07, 2023		Soil	B23-Jl0014397	X	X	X
13	S-13	Jul 07, 2023		Soil	B23-Jl0014398	X	X	X

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Sample Detail						Organochlorine Pesticides	Metals M8	Moisture Set
Brisbane Laboratory - NATA # 1261 Site # 20794						X	X	X
14	S-14	Jul 07, 2023		Soil	B23-Jl0014399	X	X	X
15	S-15	Jul 07, 2023		Soil	B23-Jl0014400	X	X	X
16	S-16	Jul 07, 2023		Soil	B23-Jl0014401	X	X	X
17	S-17	Jul 07, 2023		Soil	B23-Jl0014402	X	X	X
18	S-18	Jul 07, 2023		Soil	B23-Jl0014403	X	X	X
19	S-19	Jul 07, 2023		Soil	B23-Jl0014404	X	X	X
20	S-20	Jul 07, 2023		Soil	B23-Jl0014405	X	X	X
21	S-21	Jul 07, 2023		Soil	B23-Jl0014406	X	X	X
22	S-22	Jul 07, 2023		Soil	B23-Jl0014407	X	X	X
23	S-23	Jul 07, 2023		Soil	B23-Jl0014408	X	X	X
24	S-24	Jul 07, 2023		Soil	B23-Jl0014409	X	X	X
25	S-25	Jul 07, 2023		Soil	B23-Jl0014410	X	X	X
26	S-26	Jul 07, 2023		Soil	B23-Jl0014411	X	X	X
27	S-27	Jul 07, 2023		Soil	B23-Jl0014412	X	X	X
28	S-28	Jul 07, 2023		Soil	B23-Jl0014413	X	X	X
29	S-29	Jul 07, 2023		Soil	B23-Jl0014414	X	X	X

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Sample Detail						Organochlorine Pesticides	Metals M8	Moisture Set
Brisbane Laboratory - NATA # 1261 Site # 20794						X	X	X
30	S-30	Jul 07, 2023		Soil	B23-Jl0014415	X	X	X
31	QA1A	Jul 07, 2023		Soil	B23-Jl0014416	X	X	X
32	QA2A	Jul 07, 2023		Soil	B23-Jl0014417	X	X	X
Test Counts						32	32	32

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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. SVOCs recoveries 20 – 150%

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
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4.4'-DDD	mg/kg	< 0.05			0.05	Pass	
4.4'-DDE	mg/kg	< 0.05			0.05	Pass	
4.4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-HCH	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-HCH	mg/kg	< 0.05			0.05	Pass	
d-HCH	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-HCH (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.05			0.05	Pass	
Aldrin and Dieldrin (Total)*	mg/kg	< 0.05			0.05	Pass	
DDT + DDE + DDD (Total)*	mg/kg	< 0.05			0.05	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.5			0.5	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	90			70-130	Pass	
4.4'-DDD	%	88			70-130	Pass	
4.4'-DDE	%	92			70-130	Pass	
4.4'-DDT	%	120			70-130	Pass	
a-HCH	%	92			70-130	Pass	
Aldrin	%	96			70-130	Pass	
b-HCH	%	93			70-130	Pass	
d-HCH	%	90			70-130	Pass	
Dieldrin	%	86			70-130	Pass	
Endosulfan I	%	88			70-130	Pass	
Endosulfan II	%	89			70-130	Pass	
Endosulfan sulphate	%	97			70-130	Pass	
Endrin	%	83			70-130	Pass	
Endrin aldehyde	%	77			70-130	Pass	
Endrin ketone	%	89			70-130	Pass	
g-HCH (Lindane)	%	90			70-130	Pass	

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Heptachlor			%	81			70-130	Pass	
Heptachlor epoxide			%	87			70-130	Pass	
Hexachlorobenzene			%	94			70-130	Pass	
Methoxychlor			%	82			70-130	Pass	
LCS - % Recovery									
Heavy Metals									
Arsenic			%	99			80-120	Pass	
Cadmium			%	96			80-120	Pass	
Chromium			%	99			80-120	Pass	
Copper			%	95			80-120	Pass	
Lead			%	93			80-120	Pass	
Mercury			%	93			80-120	Pass	
Nickel			%	91			80-120	Pass	
Zinc			%	95			80-120	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Chlordanes - Total	B23-JI0014386	CP	%	90			70-130	Pass	
4.4'-DDD	B23-JI0014386	CP	%	86			70-130	Pass	
4.4'-DDE	B23-JI0014386	CP	%	91			70-130	Pass	
a-HCH	B23-JI0014386	CP	%	91			70-130	Pass	
Aldrin	B23-JI0014386	CP	%	96			70-130	Pass	
b-HCH	B23-JI0014386	CP	%	88			70-130	Pass	
d-HCH	B23-JI0014386	CP	%	87			70-130	Pass	
Dieldrin	B23-JI0014386	CP	%	90			70-130	Pass	
Endosulfan I	B23-JI0014386	CP	%	89			70-130	Pass	
Endosulfan II	B23-JI0014386	CP	%	88			70-130	Pass	
Endosulfan sulphate	B23-JI0014386	CP	%	96			70-130	Pass	
Endrin	B23-JI0014386	CP	%	87			70-130	Pass	
Endrin ketone	B23-JI0014386	CP	%	90			70-130	Pass	
g-HCH (Lindane)	B23-JI0014386	CP	%	89			70-130	Pass	
Heptachlor	B23-JI0014386	CP	%	82			70-130	Pass	
Heptachlor epoxide	B23-JI0014386	CP	%	85			70-130	Pass	
Hexachlorobenzene	B23-JI0014386	CP	%	92			70-130	Pass	
Methoxychlor	B23-JI0014386	CP	%	81			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	B23-JI0014386	CP	%	111			75-125	Pass	
Cadmium	B23-JI0014386	CP	%	118			75-125	Pass	
Chromium	B23-JI0014386	CP	%	111			75-125	Pass	
Copper	B23-JI0014386	CP	%	113			75-125	Pass	
Lead	B23-JI0014386	CP	%	111			75-125	Pass	
Mercury	B23-JI0014386	CP	%	116			75-125	Pass	
Nickel	B23-JI0014386	CP	%	102			75-125	Pass	
Zinc	B23-JI0014386	CP	%	98			75-125	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	B23-JI0014396	CP	%	99			75-125	Pass	
Cadmium	B23-JI0014396	CP	%	103			75-125	Pass	
Chromium	B23-JI0014396	CP	%	104			75-125	Pass	
Copper	B23-JI0014396	CP	%	101			75-125	Pass	
Lead	B23-JI0014396	CP	%	96			75-125	Pass	
Mercury	B23-JI0014396	CP	%	113			75-125	Pass	
Nickel	B23-JI0014396	CP	%	92			75-125	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Zinc	B23-JI0014396	CP	%	102			75-125	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Chlordanes - Total	B23-JI0014406	CP	%	110			70-130	Pass	
4.4'-DDE	B23-JI0014406	CP	%	107			70-130	Pass	
4.4'-DDT	B23-JI0014406	CP	%	123			70-130	Pass	
a-HCH	B23-JI0014406	CP	%	116			70-130	Pass	
Aldrin	B23-JI0014406	CP	%	112			70-130	Pass	
b-HCH	B23-JI0014406	CP	%	109			70-130	Pass	
d-HCH	B23-JI0014406	CP	%	109			70-130	Pass	
Dieldrin	B23-JI0014406	CP	%	127			70-130	Pass	
Endosulfan I	B23-JI0014406	CP	%	112			70-130	Pass	
Endosulfan II	B23-JI0014406	CP	%	111			70-130	Pass	
Endosulfan sulphate	B23-JI0014406	CP	%	100			70-130	Pass	
Endrin	B23-JI0014406	CP	%	111			70-130	Pass	
Endrin aldehyde	B23-JI0014406	CP	%	73			70-130	Pass	
g-HCH (Lindane)	B23-JI0014406	CP	%	101			70-130	Pass	
Heptachlor	B23-JI0014406	CP	%	103			70-130	Pass	
Heptachlor epoxide	B23-JI0014406	CP	%	108			70-130	Pass	
Hexachlorobenzene	B23-JI0014406	CP	%	111			70-130	Pass	
Methoxychlor	B23-JI0014406	CP	%	127			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	B23-JI0014406	CP	%	79			75-125	Pass	
Cadmium	B23-JI0014406	CP	%	82			75-125	Pass	
Chromium	B23-JI0014406	CP	%	81			75-125	Pass	
Copper	B23-JI0014406	CP	%	78			75-125	Pass	
Lead	B23-JI0014406	CP	%	78			75-125	Pass	
Mercury	B23-JI0014406	CP	%	88			75-125	Pass	
Zinc	B23-JI0014406	CP	%	76			75-125	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Chlordanes - Total	B23-JI0014417	CP	%	108			70-130	Pass	
4.4'-DDE	B23-JI0014417	CP	%	108			70-130	Pass	
4.4'-DDT	B23-JI0014417	CP	%	120			70-130	Pass	
a-HCH	B23-JI0014417	CP	%	119			70-130	Pass	
Aldrin	B23-JI0014417	CP	%	107			70-130	Pass	
b-HCH	B23-JI0014417	CP	%	109			70-130	Pass	
d-HCH	B23-JI0014417	CP	%	111			70-130	Pass	
Dieldrin	B23-JI0014417	CP	%	129			70-130	Pass	
Endosulfan I	B23-JI0014417	CP	%	121			70-130	Pass	
Endosulfan II	B23-JI0014417	CP	%	115			70-130	Pass	
Endosulfan sulphate	B23-JI0014417	CP	%	100			70-130	Pass	
Endrin	B23-JI0014417	CP	%	100			70-130	Pass	
Endrin aldehyde	B23-JI0014417	CP	%	71			70-130	Pass	
g-HCH (Lindane)	B23-JI0014417	CP	%	108			70-130	Pass	
Heptachlor	B23-JI0014417	CP	%	105			70-130	Pass	
Heptachlor epoxide	B23-JI0014417	CP	%	107			70-130	Pass	
Hexachlorobenzene	B23-JI0014417	CP	%	110			70-130	Pass	
Methoxychlor	B23-JI0014417	CP	%	115			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	B23-JI0014417	CP	%	88			75-125	Pass	
Cadmium	B23-JI0014417	CP	%	91			75-125	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Chromium	B23-JI0014417	CP	%	93			75-125	Pass	
Copper	B23-JI0014417	CP	%	88			75-125	Pass	
Lead	B23-JI0014417	CP	%	87			75-125	Pass	
Mercury	B23-JI0014417	CP	%	90			75-125	Pass	
Nickel	B23-JI0014417	CP	%	83			75-125	Pass	
Zinc	B23-JI0014417	CP	%	89			75-125	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	B23-JI0014390	CP	mg/kg	6.2	7.2	13	30%	Pass	
Chromium	B23-JI0014390	CP	mg/kg	33	33	<1	30%	Pass	
Copper	B23-JI0014390	CP	mg/kg	34	36	6.0	30%	Pass	
Lead	B23-JI0014390	CP	mg/kg	15	18	14	30%	Pass	
Mercury	B23-JI0014390	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	B23-JI0014390	CP	mg/kg	19	20	4.5	30%	Pass	
Zinc	B23-JI0014390	CP	mg/kg	76	75	1.4	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	B23-JI0014391	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	B23-JI0014391	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	B23-JI0014391	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	B23-JI0014391	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-HCH	B23-JI0014391	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	B23-JI0014391	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-HCH	B23-JI0014391	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-HCH	B23-JI0014391	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	B23-JI0014391	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	B23-JI0014391	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	B23-JI0014391	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	B23-JI0014391	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	B23-JI0014391	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	B23-JI0014391	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	B23-JI0014391	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-HCH (Lindane)	B23-JI0014391	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	B23-JI0014391	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	B23-JI0014391	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	B23-JI0014391	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	B23-JI0014391	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	B23-JI0014395	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	B23-JI0014395	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	B23-JI0014395	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	B23-JI0014395	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-HCH	B23-JI0014395	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	B23-JI0014395	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-HCH	B23-JI0014395	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-HCH	B23-JI0014395	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	B23-JI0014395	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	B23-JI0014395	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	B23-JI0014395	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	B23-JI0014395	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	B23-JI0014395	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	B23-JI0014395	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	

Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Endrin ketone	B23-JI0014395	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-HCH (Lindane)	B23-JI0014395	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	B23-JI0014395	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	B23-JI0014395	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	B23-JI0014395	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	B23-JI0014395	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	B23-JI0014395	CP	mg/kg	8.6	8.0	7.7	30%	Pass	
Chromium	B23-JI0014395	CP	mg/kg	39	38	4.6	30%	Pass	
Copper	B23-JI0014395	CP	mg/kg	33	31	5.3	30%	Pass	
Lead	B23-JI0014395	CP	mg/kg	15	14	9.1	30%	Pass	
Nickel	B23-JI0014395	CP	mg/kg	19	17	9.5	30%	Pass	
Zinc	B23-JI0014395	CP	mg/kg	56	51	8.6	30%	Pass	
Duplicate									
Sample Properties				Result 1	Result 2	RPD			
% Moisture	B23-JI0014395	CP	%	23	22	6.9	30%	Pass	
Duplicate									
Sample Properties				Result 1	Result 2	RPD			
% Moisture	B23-JI0014405	CP	%	25	25	1.0	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	B23-JI0014414	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	B23-JI0014414	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	B23-JI0014414	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	B23-JI0014414	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-HCH	B23-JI0014414	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	B23-JI0014414	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-HCH	B23-JI0014414	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-HCH	B23-JI0014414	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	B23-JI0014414	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	B23-JI0014414	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	B23-JI0014414	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	B23-JI0014414	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	B23-JI0014414	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	B23-JI0014414	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	B23-JI0014414	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-HCH (Lindane)	B23-JI0014414	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	B23-JI0014414	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	B23-JI0014414	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	B23-JI0014414	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	B23-JI0014414	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	B23-JI0014414	CP	mg/kg	2.7	2.3	14	30%	Pass	
Cadmium	B23-JI0014414	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chromium	B23-JI0014414	CP	mg/kg	36	34	7.4	30%	Pass	
Copper	B23-JI0014414	CP	mg/kg	46	40	15	30%	Pass	
Lead	B23-JI0014414	CP	mg/kg	5.1	< 5	4.9	30%	Pass	
Mercury	B23-JI0014414	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	B23-JI0014414	CP	mg/kg	17	15	13	30%	Pass	
Zinc	B23-JI0014414	CP	mg/kg	58	56	4.1	30%	Pass	
Duplicate									
Sample Properties				Result 1	Result 2	RPD			
% Moisture	B23-JI0014414	CP	%	24	23	3.1	30%	Pass	

Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	B23-Jl0014416	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	B23-Jl0014416	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	B23-Jl0014416	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	B23-Jl0014416	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-HCH	B23-Jl0014416	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	B23-Jl0014416	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-HCH	B23-Jl0014416	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-HCH	B23-Jl0014416	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	B23-Jl0014416	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	B23-Jl0014416	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	B23-Jl0014416	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	B23-Jl0014416	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	B23-Jl0014416	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	B23-Jl0014416	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	B23-Jl0014416	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-HCH (Lindane)	B23-Jl0014416	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	B23-Jl0014416	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	B23-Jl0014416	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	B23-Jl0014416	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	B23-Jl0014416	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Duplicate									
Sample Properties				Result 1	Result 2	RPD			
% Moisture	B23-Jl0014416	CP	%	17	17	<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	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Authorised by:

Paige Howarth	Analytical Services Manager
Jonathon Angell	Senior Analyst-Metal
Jonathon Angell	Senior Analyst-Organic
Jonathon Angell	Senior Analyst-Sample Properties
Sarah McCallion	Senior Analyst-Organic

Glenn Jackson
Managing Director

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

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

Measurement uncertainty of test data is available on request or please click here.

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CERTIFICATE OF ANALYSIS 327714

Client Details

Client	ENV Services Pty Ltd
Attention	Timothy Bischof
Address	313 River St, Ballina, NSW, 2478

Sample Details

Your Reference	**218049 Calala Soil Sampling**
Number of Samples	2 Soil
Date samples received	12/07/2023
Date completed instructions received	12/07/2023

Analysis Details

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

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

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

Report Details

Date results requested by	17/07/2023
Date of Issue	17/07/2023

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Results Approved By
Hannah Nguyen, Metals Supervisor
Liam Timmins, Organics Supervisor

Authorised By
Nancy Zhang, Laboratory Manager

Organochlorine Pesticides in soil			
Our Reference		327714-1	327714-2
Your Reference	UNITS	QC1A	QC2A
Date Sampled		07/07/2023	07/07/2023
Type of sample		Soil	Soil
Date extracted	-	13/07/2023	13/07/2023
Date analysed	-	14/07/2023	14/07/2023
alpha-BHC	mg/kg	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1
Surrogate TCMX	%	92	96

Acid Extractable metals in soil			
Our Reference	UNITS	327714-1	327714-2
Your Reference		QC1A	QC2A
Date Sampled		07/07/2023	07/07/2023
Type of sample		Soil	Soil
Date prepared	-	13/07/2023	13/07/2023
Date analysed	-	14/07/2023	14/07/2023
Arsenic	mg/kg	<4	4
Cadmium	mg/kg	<0.4	<0.4
Chromium	mg/kg	21	19
Copper	mg/kg	23	18
Lead	mg/kg	8	8
Mercury	mg/kg	1.5	<0.1
Nickel	mg/kg	12	9
Zinc	mg/kg	39	26

Moisture			
Our Reference		327714-1	327714-2
Your Reference	UNITS	QC1A	QC2A
Date Sampled		07/07/2023	07/07/2023
Type of sample		Soil	Soil
Date prepared	-	13/07/2023	13/07/2023
Date analysed	-	14/07/2023	14/07/2023
Moisture	%	17	27

Method ID	Methodology Summary
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-MS/GC-MSMS. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	[NT]
Date extracted	-			13/07/2023	[NT]	[NT]	[NT]	[NT]	13/07/2023	[NT]
Date analysed	-			14/07/2023	[NT]	[NT]	[NT]	[NT]	14/07/2023	[NT]
alpha-BHC	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	100	[NT]
HCB	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	104	[NT]
gamma-BHC	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	104	[NT]
delta-BHC	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	97	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	94	[NT]
gamma-Chlordane	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	102	[NT]
Dieldrin	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	110	[NT]
Endrin	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	86	[NT]
Endosulfan II	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	94	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	95	[NT]
Methoxychlor	mg/kg	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	94	[NT]	[NT]	[NT]	[NT]	106	[NT]

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			13/07/2023	[NT]	[NT]	[NT]	[NT]	13/07/2023	[NT]
Date analysed	-			14/07/2023	[NT]	[NT]	[NT]	[NT]	14/07/2023	[NT]
Arsenic	mg/kg	4	Metals-020	<4	[NT]	[NT]	[NT]	[NT]	94	[NT]
Cadmium	mg/kg	0.4	Metals-020	<0.4	[NT]	[NT]	[NT]	[NT]	87	[NT]
Chromium	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	90	[NT]
Copper	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	91	[NT]
Lead	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	89	[NT]
Mercury	mg/kg	0.1	Metals-021	<0.1	[NT]	[NT]	[NT]	[NT]	111	[NT]
Nickel	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	85	[NT]
Zinc	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	89	[NT]

Result Definitions

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

Quality Control Definitions

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

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

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

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

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

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

Where matrix spike recoveries fall below the lower limit of the acceptance criteria (e.g. for non-labile or standard Organics <60%), positive result(s) in the parent sample will subsequently have a higher than typical estimated uncertainty (MU estimates supplied on request) and in these circumstances the sample result is likely biased significantly low.

Measurement Uncertainty estimates are available for most tests upon request.

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

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

APPENDIX E

RPD Calculations

RPD Calculations - Soil Samples

				Halogenated Benzenes	Inorganics		Metals							
				Hexachlorobenzene	Moisture Content	Moisture Content (dried @ 103°C)	Arsenic	Cadmium	Chromium (III+VI)	Copper	Lead	Mercury	Nickel	Zinc
				mg/kg	%	%	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL				0.05	0.1	1	2	0.4	1	1	1	0.1	1	1
Lab Report Number	**Field ID**	**Date**	**Matrix Type**											
1006014	**S-01**	**07 Jul 2023**	**Soil**	<0.05		17	7.3	<0.5	41	40	15	<0.1	22	76
1006014	**QA1A**	**07 Jul 2023**	**Soil**	<0.05		17	4.5	<0.5	28	25	9.2	<0.1	13	47
RPD				0		0	47	0	38	46	48	0	51	47
1006014	**S-01**	**07 Jul 2023**	**Soil**	<0.05		17	7.3	<0.5	41	40	15	<0.1	22	76
327714	**QC1A**	**07 Jul 2023**	**Soil**	<0.1	17		<4	<0.4	21	23	8	1.5	12	39
RPD				0			58	0	65	54	61	175	59	64
1006014	**S-18**	**07 Jul 2023**	**Soil**	<0.05		27	8.0	<0.5	37	30	14	<0.1	17	56
1006014	**QA2A**	**07 Jul 2023**	**Soil**	<0.05		26	6.5	<0.5	33	26	12	<0.1	14	50
RPD				0		4	21	0	11	14	15	0	19	11
1006014	**S-18**	**07 Jul 2023**	**Soil**	<0.05		27	8.0	<0.5	37	30	14	<0.1	17	56
327714	**QC2A**	**07 Jul 2023**	**Soil**	<0.1	27		4	<0.4	19	18	8	<0.1	9	26
RPD				0			67	0	64	50	55	0	62	73

***RPDs have only been considered where a concentration is greater than 1 times the EQL.**

****Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range are: 81 (1 - 10 x EQL); 50 (10 - 30 x EQL); 30 (> 30 x EQL))**

*****Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory**

RPD Calculations - Soil Samples

				Organochlorine Pesticides																	
				Organochlorine pesticides EPAVic	Other organochlorine pesticides EPAVic	4,4-DDE	a-BHC	Aldrin	Aldrin + Dieldrin	b-BHC	Chlordane	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL				0.1	0.1	0.05	0.05	0.05	0.05	0.05	0.1	0.1	0.1	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Lab Report Number	**Field ID**	**Date**	**Matrix Type**																		
1006014	**S-01**	**07 Jul 2023**	**Soil**	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1006014	**QA1A**	**07 Jul 2023**	**Soil**	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
RPD				0	0	0	0	0	0	0	0			0	0	0	0	0	0	0	0
1006014	**S-01**	**07 Jul 2023**	**Soil**	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
327714	**QC1A**	**07 Jul 2023**	**Soil**			<0.1	<0.1	<0.1		<0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
RPD						0	0	0		0				0	0	0	0	0	0	0	0
1006014	**S-18**	**07 Jul 2023**	**Soil**	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1006014	**QA2A**	**07 Jul 2023**	**Soil**	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
RPD				0	0	0	0	0	0	0	0			0	0	0	0	0	0	0	0
1006014	**S-18**	**07 Jul 2023**	**Soil**	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
327714	**QC2A**	**07 Jul 2023**	**Soil**			<0.1	<0.1	<0.1		<0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
RPD						0	0	0		0				0	0	0	0	0	0	0	0

***RPDs have only been considered where a concentration is greater than 1 times the EQL.**

****Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier ran**

*****Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any**

RPD Calculations - Soil Samples

				Organochlorine Pesticides						
				Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Methoxychlor
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL				0.05	0.05	0.05	0.05	0.05	0.05	0.05
Lab Report Number	**Field ID**	**Date**	**Matrix Type**							
1006014	**S-01**	**07 Jul 2023**	**Soil**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1006014	**QA1A**	**07 Jul 2023**	**Soil**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
RPD				0	0	0	0	0	0	0
1006014	**S-01**	**07 Jul 2023**	**Soil**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
327714	**QC1A**	**07 Jul 2023**	**Soil**	<0.1	<0.1		<0.1	<0.1	<0.1	<0.1
RPD				0	0		0	0	0	0
1006014	**S-18**	**07 Jul 2023**	**Soil**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1006014	**QA2A**	**07 Jul 2023**	**Soil**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
RPD				0	0	0	0	0	0	0
1006014	**S-18**	**07 Jul 2023**	**Soil**	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
327714	**QC2A**	**07 Jul 2023**	**Soil**	<0.1	<0.1		<0.1	<0.1	<0.1	<0.1
RPD				0	0		0	0	0	0

***RPDs have only been considered where a concentration is greater than 1 times the EQL.**

****Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier ran**

*****Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any**