

## **Finley BESS**

### **Preliminary Site Investigation**

BESS Pacific Pty Ltd C/- Gransolar  
Development Australia

P001993\_PSI\_001B

Rev: B

22 January 2026





**Premise**

PART OF THE  
Amey GROUP

© Premise 2026

This report has been prepared by Premise Australia for BESS Pacific Pty Ltd C/- Gransolar Development Australia; may only be used and relied on by BESS Pacific Pty Ltd C/- Gransolar Development Australia; must not be copied to, used by, or relied on by any persons other than BESS Pacific Pty Ltd C/- Gransolar Development Australia without the prior written consent of Premise. If BESS Pacific Pty Ltd C/- Gransolar Development Australia wishes to provide this Report to a third party recipient to use and rely upon, the recipient agrees: to acknowledge that the basis on which this Report may be relied upon is consistent with the principles in this section of the Report; and to the maximum extent permitted by law, Premise shall not have, and the recipient forever releases Premise from, any liability to recipient for loss or damage howsoever in connection with, arising from or in the respect of this Report whether such liability arises in contract, tort including negligence.

Document Reference: P001993\_PSI\_001B

Document Authorisation					
Revision	Revision Date	Document Details			
Draft	3/09/2025	Draft Document			
Final	22/01/2026	Final Document			
Prepared by		Reviewed by		Authorised by	
Brendan Stuart Senior Environmental Scientist		Daniel Balkin Senior Town Planner	<i>DB</i>	Brendan Stuart Senior Environmental Scientist	



# CONTENTS

<b>1. INTRODUCTION.....</b>	<b>1</b>
1.1 BACKGROUND.....	1
1.2 OBJECTIVES.....	1
1.3 INVESTIGATION AREA.....	2
1.4 SCOPE OF WORK.....	3
<b>2. SITE DESCRIPTION.....</b>	<b>5</b>
2.1 SITE DEFINITION.....	5
2.2 SITE SETTING.....	5
2.2.1 REGIONAL SETTING.....	5
2.2.2 LOCAL SETTING.....	5
2.3 TOPOGRAPHY AND SURFACE WATER.....	6
2.4 REGIONAL AND SITE GEOLOGY.....	6
2.5 REGIONAL HYDROGEOLOGY.....	7
<b>3. SITE HISTORICAL REVIEW.....</b>	<b>9</b>
3.1 NSW EPA RECORDS.....	9
3.1.1 SCHEDULED ACTIVITIES AND/OR ENVIRONMENTAL NOTICES.....	9
3.1.2 CONTAMINATED SITES REGISTER.....	9
3.2 PREVIOUS TITLE INFORMATION.....	9
3.3 HISTORIC AERIAL PHOTOGRAPHY.....	10
3.4 SUMMARY OF SITE HISTORY INFORMATION.....	11
<b>4. SITE RECONNAISSANCE.....</b>	<b>12</b>
4.1 WASTE MANAGEMENT / LANDFILLING.....	12
4.2 STORMWATER.....	12
4.3 CHEMICAL AND FUEL STORAGE / SPILLS.....	12
4.4 ASBESTOS.....	12
<b>5. ENVIRONMENTAL INVESTIGATION.....</b>	<b>13</b>
5.1 POTENTIAL CONTAMINATION ISSUES.....	13
5.1.1 POTENTIAL SOURCES.....	13
5.1.2 CHEMICALS OF POTENTIAL CONCERN (COPC).....	13
5.2 DATA QUALITY OBJECTIVES.....	13
5.2.1 STEP 1 – STATE THE PROBLEM.....	13
5.2.2 STEP 2 – IDENTIFY THE DECISION.....	14
5.2.3 STEP 3 – IDENTIFY THE INPUTS TO THE DECISION.....	14
5.2.4 STEP 4 – DEFINE THE STUDY BOUNDARIES.....	14
5.2.5 STEP 5 – DEVELOP A DECISION RULE.....	15
5.2.6 STEP 6 – SPECIFY LIMITS ON DECISION ERRORS.....	16
5.2.7 STEP 7 – OPTIMISE THE DESIGN.....	17
5.3 SOIL INVESTIGATION CRITERIA.....	17
5.3.1 HUMAN HEALTH ENVIRONMENTAL GUIDELINE VALUES.....	17



5.3.2 ECOLOGICAL ASSESSMENT GUIDELINES VALUES ..... 18

5.4 SAMPLING AND ANALYSIS STRATEGY ..... 18

5.4.1 METHODOLOGY ..... 18

5.4.2 SAMPLE ANALYSIS ..... 18

5.5 SAMPLING OBSERVATIONS AND ANALYTICAL RESULTS ..... 19

5.6 QUALITY OF ANALYTICAL DATA ..... 19

5.6.1 OUTLINE ..... 19

5.6.2 QA/QC ASSESSMENT ..... 20

**6. DISCUSSION ..... 21**

6.1 CONCEPTUAL SITE MODEL ..... 21

6.1.1 INCOMPLETE PATHWAYS ..... 22

6.1.2 CHARACTERISATION OF RESIDUAL RISKS ..... 22

6.2 SUMMARY ..... 22

**7. CONCLUSIONS ..... 23**

7.1 SUMMARY ..... 23

**TABLES**

Table 1 – Summary of Property Description Details ..... 5

Table 2 – Adjacent Properties Descriptions ..... 6

Table 3 – Groundwater Bores within 500 m of Site ..... 8

Table 4 – Title History, Lot 3 DP 740920 ..... 9

Table 5 – Summary of Aerial Photo Information ..... 10

Table 6 – Soil Assessment Methodology Summary ..... 18

**FIGURES**

Figure 1 – Site Locality ..... 2

Figure 2 – Site Investigation Area ..... 3

Figure 3 – Extent of Hydrogeological Landscape Groups ..... 7

Figure 4 – Registered Groundwater Bores Proximal to Site ..... 8

Figure 5 – Investigation Sampling Locations ..... 19

Figure 6 – Conceptual Site Model ..... 21



## DATA TABLES

**TABLE 1:** Finley BESS - Site Assessment, Soil Sampling Analytical Results

## APPENDICES

- A. Registered Groundwater Bore Records
- B. Title Records
- C. Historic Aerial Photography
- D. Analytical Certificates
- E. Analytical Laboratory QA/QC & Chain of Custody Documents

# 1. INTRODUCTION

## 1.1 Background

Premise was engaged by BESS Arctic Pty Ltd C/- Gransolar Development Australia (Gransolar) to conduct a Preliminary Site Investigation (PSI) for the site as part of a due-diligence investigation prior to development of a Battery Energy Storage System (BESS) with a delivery capacity of approximately 100 MW<sub>AC</sub> / 200 MWh, connecting via underground transmission line directly to the existing Transgrid Finley Substation. The site is located to the north-east of the intersection of Broockmanns Road and Canalla Road, Finley, 2713 (the site) as shown in **Figure 1**, and comprises the south-west portion of Lot 3 on deposited plan (DP) 740920.

The site is located approximately 5.5 km west of the Finley township. The site is the subject of this PSI based on the potential increase of risk resulting from future construction and operation of a 100 MW<sub>AC</sub> / 200 MWh BESS on the site.

Development of the site would necessitate determination of development applications by the consent authority. Clause 4.6 of the *Resilience and Hazards State Environmental Planning Policy (R&H SEPP)* requires that a consent authority must consider contamination and remediation in determining a development application and must not grant consent unless:

- (a) it has considered whether the land is contaminated, and*
- (b) if the land is contaminated, it is satisfied that the land is suitable in its contaminated state (or will be suitable, after remediation) for the purpose for which the development is proposed to be carried out, and*
- (c) if the land requires remediation to be made suitable for the purpose for which the development is proposed to be carried out, it is satisfied that the land will be remediated before the land is used for that purpose.*

With regard to due-diligence investigations as a prelude to development approval, this PSI is recommended by the *Managing Land Contamination – Planning Guidelines* (Department of Urban Affairs and Planning, 1998) under the *NSW State Environmental Planning Policy (Resilience and Hazards) 2021 (R&H SEPP)*.

This PSI is based on a desktop review of available information, a site walkover reconnaissance, analysis of targeted soil samples and a search of historical records.

## 1.2 Objectives

This PSI has been prepared in general accordance with the NSW EPA publication *Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Land* (EPA, April 2020). The overall objective is to identify the potential for land contamination at the site. Where land is not considered to be suitable for proposed land uses, recommendations for management and/or remediation to minimise risk to the environment, future occupants and contractors would be included.

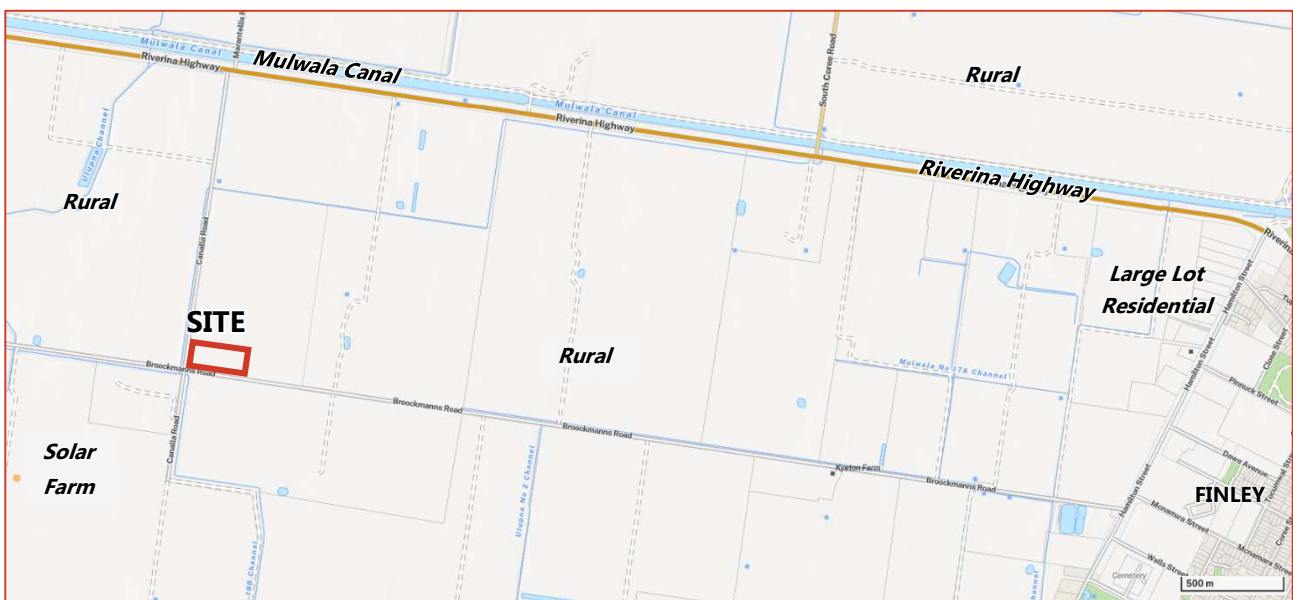
The specific objective of the PSI was to assess the extent of potential soil contamination at the site to have resulted from historic operations at or in proximity to the site. Findings of this investigation are intended to assist the developer of the site in understanding the nature and extent of potential contamination risks at the site which may preclude or prohibit approval(s) by the consent authority in determination of development

applications associated with a change of land use. The data collected is also intended to identify potential contaminant sources and to evaluate remediation or mitigation options.

This PSI provides data relating to the type, extent and level of contamination in the investigation area, by assessing:

- > known site history and operations;
- > contaminant distribution in surface soil;
- > the adequacy and completeness of all information available to be used in making decisions on remediation to further characterise potential impacts to areas of the site;
- > the scope of any further investigation required; and
- > any interim management measures required to limit exposure.

**Figure 1 – Site Locality**



### 1.3 Investigation Area

The investigation area is shown in **Figure 2** and comprises the south-west portion of Lot 3, DP 740920. This title has direct frontage to both Brookmans Road and Canalla Road, with the 'Mulwala No. 19 Channel' being present to the immediate west of Canalla Road, approximately 25 m west of the site boundary.

The potential for chemicals of potential concern (COPC) to be present in the soil of the site requires assessment. Elevated COPC may be representative of a contamination risk to human health and environmental receptors.

Figure 2 – Site Investigation Area



## 1.4 Scope of Work

The scope of work for this assessment consisted of the following components:

- > Review of the following third-party documents:
  - Existing environmental reports for the site or portions of the site;
  - Published topographical, geological and soil maps of the area;
  - Details of groundwater bores located within 500 m of the site and registered on the groundwater bore database, maintained by the NSW Office of Water (<https://realtimedata.waternsw.com.au/water.stm>);
  - The public register managed by the NSW EPA for information on scheduled activities and penalty notices issued under the Protection of the Environment Operations Act;
  - The database managed by the NSW Environment Protection Authority (EPA) for information on notices issued under the Contaminated Land Management Act 1997;
  - Aerial photographs – selected historical aerial photographs of the site available for review to provide evidence of the history of development of the site and indications of potential sources of contamination;
  - Historic title information and charting maps.
- > Site inspection – A site inspection by Premise personnel of the site and surrounding areas was undertaken to provide further information, via visual inspection, of potential sources and areas of significant environmental liability. The site inspection focused on the following:
  - Areas where operational processes may have occurred, including waste management, water management, site structures, surfaces and infrastructure.
  - Areas of potential landfilling.
  - Potential impacts of neighbouring land uses.
  - Sensitivity of the receiving environment.

- > Collection of samples from surface soil at the site in accordance with the NSW EPA publications *Contaminated Land Guidelines, Sampling Design Part 1 – Application* (2022), and *Contaminated Land Guidelines, Sampling Design Part 2 – Interpretation* (2022).
- > Laboratory analysis for chemicals of potential concern (COPC) to establish potential for residual chemical impacts.
- > Preparation of this factual report detailing the assessment findings in accordance with the NSW EPA publication *Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Land* (EPA, 2020).

An overview of the neighbouring area was also conducted to identify the presence and proximity of sensitive receptors which could be significantly impacted upon by the site, and off-site operations which could have a significant impact on land contamination at the site.



## 2. SITE DESCRIPTION

### 2.1 Site Definition

Table 1 – Summary of Property Description Details

Feature	Details
Site Address <sup>1</sup>	Brookmanns Road, Finley NSW (land title to north-east of the intersection of Broockmanns Road and Canalla Road)
Title Identification Details <sup>1</sup>	Lot 3 in DP 740920 (Portion)
Current Ownership	Russell Frederick Anderson & Terri Leanne Anderson
Current Site Use and Zoning <sup>2</sup>	Land Use: Low Intensity Agriculture (Cropping) Zoning: Primary Production (RU1 zoning)
Future Site Use	100 MW <sub>AC</sub> / 200 MWh Battery Energy Storage System
Previous Environmental Reports	Nil
Site Area <sup>1</sup>	3.5 hectares (approximately)
Sources: 1: Spatial Collaboration Portal Website developed by NSW Government, Spatial Services. <a href="https://portal.spatial.nsw.gov.au/explorer/index.html">https://portal.spatial.nsw.gov.au/explorer/index.html</a> (accessed August 2025). 2: Berrigan Local Environmental Plan 2013, under the Environmental Planning and Assessment Act 1979.	

### 2.2 Site Setting

#### 2.2.1 REGIONAL SETTING

The site is comprised entirely of the south-western portion of Lot 3 in DP 740920, at Broockmanns Road, Finley, approximately 5.5 km west of the Finley township. The site is in a rural / agricultural area.

The south and west of the site are bordered by Broockmanns Road and Canalla Road, respectively. To the immediate west of Canalla Road is the 'Mulwala No. 19 Channel'.

The following sensitive receptors are located within the vicinity of the site:

- > Watercourses, including contributory drainage features, discharging to irrigation channel infrastructure. Such drainage pathways are considered to be sensitive receptors insofar as their connectivity with off-site waterways.
- > Current users of the site, and future workers / occupants of the site.
- > Residents of dwellings in proximity to the site.
- > Groundwater present in aquifer(s) underlying the site.

#### 2.2.2 LOCAL SETTING

No structures exist within the investigation area of the site. The site itself consists of cropped land, and a perimeter fence at the western and southern boundaries.

Land uses adjacent to the site were obtained from the site inspection conducted by Premise personnel in July 2025. The local area surrounding the site is displayed in **Figure 1**. Identified adjacent land uses are summarised in **Table 2**:

**Table 2 – Adjacent Properties Descriptions**

Feature	Details
North	Cropping – Residual portion of Lot 3 DP 740920
South	Broockmanns Road, and agriculture beyond (Transgrid Substation is to the south-west)
East	Cropping – Residual portion of Lot 3 DP 740920, Homestead beyond
West	Canalla Road, Mulwala No. 19 Channel, and agriculture beyond (Transgrid Substation is to the south-west)

### 2.3 Topography and Surface Water

Topographical site information was obtained from the:

- > Berrigan 8026-N, 1:50,000 Scale, Topographic Map, 2022 Edition (NSW Department of Customer Service, Spatial Services); and
- > Site visit in July 2025

The site of the investigation area consists of a generally level landscape with undiscernible slope. The elevation at the site is approximately 109 m to 110 m Australian Height Datum (mAHD), existing as a generally flat landscape.

The surface water body of the 'Mulwala No. 19 Channel' is located in close proximity to the west of the site.

No defined drainage pathways exist at the site, and the majority of overland surface flow is presumed to be absorbed into the site. Based on the local topography, the catchment of surface water flow at the site is considered unlikely to include off-site areas.

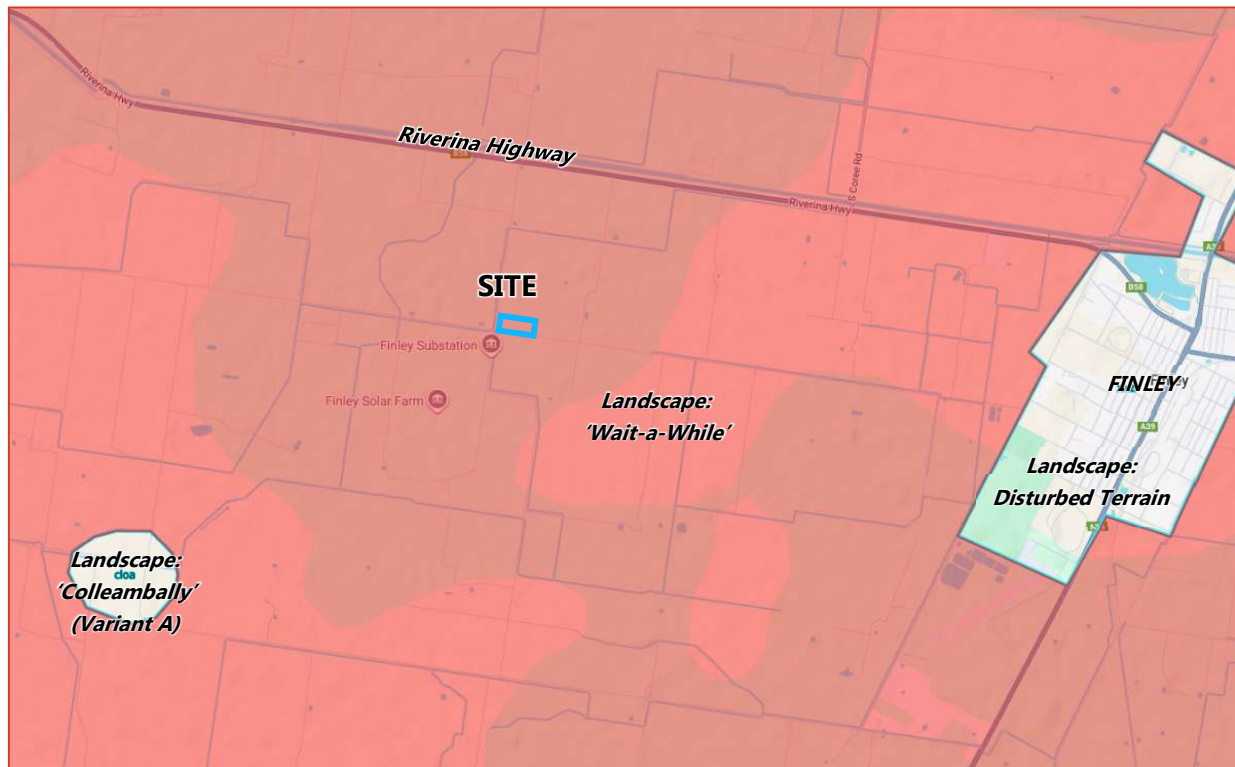
### 2.4 Regional and Site Geology

Mapped hydrogeological landscapes around the site are shown in **Figure 3**. The entirety of the site lies on the 'Wait-a-While' hydrogeological landscape. During the site inspection the soils were identified to be 'Brown Sodosols' across the site, consisting of silty loam topsoil overlying a predominantly clay subsoil.

The Jerilderie SI/55-14 Geological 1 : 250,000 Series Sheet (Second Edition, Geological Survey of NSW, 1976) indicates the underlying geology comprises Quaternary era deposits of clay, silty clay, sand and gravel of the Shepparton Formation.



**Figure 3 – Extent of Hydrogeological Landscape Groups**



The NSW Department of Climate Change, Energy, the Environment and Water (DCCEEW) Acid Sulfate Soils Risk project has mapped the occurrence of acid sulfate soils within areas of NSW. The area encompassing the investigation area has not been assessed for the potential presence of acid sulfate within the landform of the surrounding region.

The NSW Heads of Asbestos Coordination Authorities (HACA) *Mapping of Naturally Occurring Asbestos in NSW* (2015) has assessed the geology surrounding the site (i.e., alluvial sediments) as having low potential for naturally occurring asbestos (NOA) to be found within 10 m of the ground surface.

## 2.5 Regional Hydrogeology

A search for registered groundwater users located proximal to the site was undertaken using the WaterNSW on-line database (<https://realtimedata.waternsw.com.au/water.stm>), in August 2025. The results indicated that there are no groundwater bores registered at within the investigation area and a single bore registered within 500 m of the title boundary. Locations of the closest bores to the site are provided in **Figure 4**, and hydrogeology particulars are detailed in **Table 3**.

Figure 4 – Registered Groundwater Bores Proximal to Site



Table 3 – Groundwater Bores within 500 m of Site

Licence Reference and Registered Use	Distance from site	Depth	Uppermost Water Bearing Zone
GW502918 (Stock, Domestic)	460 m (to east)	2.73 m	No data

Registration details of the above groundwater bore are included in **Appendix A**.

Premise has considered the surrounding land uses (refer **Section 3**) and notes the potential for unregistered bores for irrigation, stock and/or domestic purposes proximal to the site.

### 3. SITE HISTORICAL REVIEW

A review of the site history was undertaken to assess historical use of the site, and in particular to identify activities with the potential to contaminate soil and/or groundwater at the site.

#### 3.1 NSW EPA Records

##### 3.1.1 SCHEDULED ACTIVITIES AND/OR ENVIRONMENTAL NOTICES

A search of the NSW EPA on-line register (<https://www.epa.nsw.gov.au/prpoeoapp/>) was undertaken in August 2025 for environment protection licences (EPLs) and/or penalty notices issued under the Protection of the Environment Operations Act (POEO) 1997. The search indicated that no EPLs have been issued for titles comprising properties located within 500 metres of the site.

No clean-up notices relating to the site or surrounding properties have been issued by the NSW EPA.

##### 3.1.2 CONTAMINATED SITES REGISTER

A search of the NSW EPA on-line register (<https://app.epa.nsw.gov.au/prclmapp/searchregister.aspx>) and 'List of Notified Sites' was undertaken in August 2025 for contaminated land notices issued or regulated under the Contaminated Land Management (CLM) Act 1997. The search indicated that the NSW EPA holds no contaminated land notices relating to the site or properties within 500 m of the site. No properties were recorded as having been notified to the NSW EPA as potentially contaminated.

#### 3.2 Previous Title Information

Historic title information was sought for titles comprising the site. Previous title ownership particulars are attached in **Appendix B** and summarised in **Table 4**:

Table 4 – Title History, Lot 3 DP 740920

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
08.02.1912 (part 1) 13.03.1912 (part 2) (1912 to 1929)	Alexander Eskine (Farmer) (and Deceased Estate)	Volume 1694 Folio 102 (Crown Grant) & Volume 2312 Folio 13 (Crown Grant)
08.03.1929 (1929 to 1958)	Norman Percy Eagle (Storekeeper)	Volume 1694 Folio 102 (Crown Grant) Volume 6658 Folio 160 Volume 2312 Folio 13 (Crown Grant)
21.03.1958 (1958 to 2008)	Nairana Pastoral Co. Pty. Limited	Volume 6658 Folio 160 (Crown Grant) Volume 2312 Folio 13 (Crown Grant) Volume 7707 Folio 37 3/740920

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
01.09.2008 (2008 to 2016)	Colin David Loughridge Leanna Joy Loughridge	3/740920
25.10.2016 (2016 to date)	Russell Frederick Anderson Terri Leanne Anderson	3/740920

An easement generally aligned east-to-west of width 30.48 m (100 feet) and dated 1963 for a transmission line exists on the site, however is not considered to be relevant to this PSI.

### 3.3 Historic Aerial Photography

An historical aerial photography survey was undertaken for the site, with a total of seven (7) photographs identified and reviewed. The historical aerial photographs that were reviewed spanned a period of approximately 51 years, with the most recent from 2019, to the earliest in 1968. Aerial photographs, as attached in **Appendix C**, were reviewed to track changes in use of the site and surrounding properties over time. Key observations made during the review of aerial photos are summarised in **Table 5** as follows:

**Table 5 – Summary of Aerial Photo Information**

Date	Site Activity	Surrounding Land Use
1968	The site consists agricultural land (cropping or pasture). No trees are present.	The Mulwala No. 19 Channel and Mulwala No. 19B Channel are present to the west and south-west of the site. The Riverina Highway exists to the south of the site
1976	The vegetative cover across the site has been altered. Other aspects of the area encompassing the site are generally unchanged.	Land uses of the surrounding area do not appear to have been significantly altered.
1991	Site appears to have been subject to strip-grazing or smaller agricultural plots. The area encompassing the remainder of the site is generally unchanged.	The Transgrid Finley Substation is now present to the south-west of the site. Minor inundation associated with irrigation canals has occurred to the site’s south. Land uses of the remainder of the surrounding area do not appear to have been significantly altered.
1996	The vegetative cover across the site has been altered. Other aspects of the area encompassing the site are generally unchanged.	A wind-break has been planted to the south-east of the site. Land uses of the remainder of the surrounding area do not appear to have been significantly altered.
2011	The vegetative cover across the site has been altered.	Land uses of the surrounding area do not appear to have been significantly altered.



Date	Site Activity	Surrounding Land Use
	Other aspects of the area encompassing the site are generally unchanged.	
2019	The area encompassing the site is generally unchanged.	Land uses of the surrounding area do not appear to have been significantly altered.

### 3.4 Summary of Site History Information

The site of the investigation area appears to not contain any structures and has not been actively utilised beyond low-intensity agricultural uses, primarily cropping and/or pasture.

No evidence of landfilling was apparent from the historic aerial photography, and no evidence of significant 'cut' and/or 'fill' occurring exists.

The following chemicals are potential contaminants at areas of the site based on known historic uses:

- > Agricultural chemical application
  - Organochlorine pesticides (OCPs) and Organophosphorus pesticides (OPPs)
  - Phenoxyacid Herbicides
  - Heavy metals



## 4. SITE RECONNAISSANCE

Observations from the site inspection are summarised below.

### 4.1 Waste Management / Landfilling

Evidence of wastes having been disposed on the site by burial / landfilling was not identified at the site. The ground surface was observed to be generally even, and no areas of potential subsidence were apparent.

Stressed vegetation, which may be indicative of soil and/or groundwater contamination, was generally not apparent at any locations during the site inspection.

No stockpiled material or material of unknown origin was observed at the site.

Based on observations there is little potential for 'cut-and-fill' civil works of significance to have occurred at the site.

### 4.2 Stormwater

The majority of site stormwater would be infiltrated, however sheet flow may be generated and discharge to the Mulwala No. 19 Channel and/or Mulwala No. 19B Channel to the west and south-west of the site. No ponded water was evident during the site inspection in July 2025.

### 4.3 Chemical and Fuel Storage / Spills

No evidence of storage fuels or oils chemicals was observed at the site.

No findings of the historic aerial photography review (refer to **Section 3.3**) indicate the presence (historic or otherwise) of bulk chemical storage infrastructure at the site.

No sheep dips or cattle dips were observed at the site or anecdotally known to have been constructed.

### 4.4 Asbestos

Based on the findings of this assessment, the overall potential for forms of asbestos to have resulted in contamination at the site is considered to be low.

## 5. ENVIRONMENTAL INVESTIGATION

### 5.1 Potential Contamination Issues

#### 5.1.1 POTENTIAL SOURCES

Based on the historic and predominantly agricultural uses of the site, activities that are considered to have the potential to adversely impact the soil and groundwater environment are limited to those associated with application of agricultural chemicals.

#### 5.1.2 CHEMICALS OF POTENTIAL CONCERN (COPC)

COPC associated with previous uses of the site and considered to have the potential to adversely impact the underlying soil and groundwater environments include:

- > Heavy metals
  - Arsenic (As)
  - Cadmium (Cd)
  - Chromium (Cr)
  - Copper (Cu)
  - Lead (Pb)
  - Mercury (Hg)
  - Nickel (Ni)
  - Zinc (Zn)
- > Organochlorine pesticides (OCPs)
- > Organophosphorus pesticides (OPPs)
- > Phenoxyacid Herbicides

### 5.2 Data Quality Objectives

The Data Quality Objectives (DQOs) process is used to define the type, quantity and quality of data needed to support decisions relating to the environmental condition of a site.

A summary of the site-specific DQO process to be adopted in this investigation is provided in the following sections, in the context of the seven-step iterative planning approach provided in the 'Amended ASC NEPM' (NEPC, 2013), and the United States Environment Protection Agency (US EPA) documents *Guidance on Systematic Planning Using the Data Quality Objectives Process* (2006) and *Data Quality Objectives Process for Hazardous Waste Site Investigations* (2000).

#### 5.2.1 STEP 1 – STATE THE PROBLEM

The primary objective is to assess for the presence and extent of contamination in soil at the site in the context of the proposed future land use scenarios i.e., construction and operation of the 100 MW<sub>AC</sub> / 200 MWh BESS on the site.

The main problems are:

- > At present there is limited data and existing data gaps on the contamination status of the site.

- > Contamination remaining at the site may present an unacceptable risk to human health and/or ecological receptors.

The investigation area is illustrated in **Figure 2**.

### 5.2.2 STEP 2 – IDENTIFY THE DECISION

The principal study question that arises from Step 1 is:

*What scope of work is required to assess the potential risks posed by contamination and obtain sufficient data to enable conclusive statements to be made on land use suitability; or allow the development of strategies to remediate and/or manage the contamination to an end land use that is suitable for the proposed redevelopment?*

Project decisions include:

- > Does the environmental media at the site contain concentrations of chemicals of potential concern (COPC) above the investigation criteria for the current and proposed land use?
- > Do current concentrations of contaminants pose a human health or ecological risk to the receptors of concern?
- > What are the pathways of exposure for human and ecological receptors?
- > Is there sufficient data to develop the scope for further investigation or remedial strategies?
- > Is there sufficient data to establish whether portions of the site are currently suitable for the intended land uses?
- > Can the site be made suitable for the proposed future land use?

### 5.2.3 STEP 3 – IDENTIFY THE INPUTS TO THE DECISION

The primary inputs required include:

- > Relevant background data provided and any relevant data obtained from previous investigations.
- > New data collected and observations made during field works, which may include information on potential contaminant migration pathways (e.g., stormwater drainage and groundwater flow directions).
- > Results of chemical analyses of samples for the identified COPC.
- > Assessment of the suitability of new and old data for the purposes of environmental assessment through application of data quality indicators (DQIs), namely precision, accuracy, representativeness, completeness and comparability (PARCC) parameters.
- > Assessment of the data in the context of the adopted investigation criteria.

### 5.2.4 STEP 4 – DEFINE THE STUDY BOUNDARIES

The spatial boundaries are limited to:

- > Lateral – as defined by the areas illustrated in **Figure 2**, i.e., the development area.
- > Vertical – from the existing ground level to the depth necessary to collect soil data to delineate the vertical extent of impact.

Temporal boundaries are not considered to be necessary in the context of this investigation.

### 5.2.5 STEP 5 – DEVELOP A DECISION RULE

The decision rules will be:

- > If the concentrations of contaminants in the new data exceed investigation criteria; then assess the need to further investigate the extent of impacts on-site and off-site.
- > If it is assessed that contamination at the site poses an unacceptable risk to human health and/or the environment; then make recommendations for potential management options necessary to remove/reduce the risk.
- > If aesthetic issues (i.e., visible waste material) identified during field observations pose potential concerns for the future development, then consider similar recommendations for potential management options necessary to remove/reduce the concern.

Decision criteria for QA/QC measures are defined below. A decision on the acceptance of the analytical data will be made on the basis of the Data Quality Indicators (DQI) in the context of the 'PARCC' parameters as follows.

- > Precision: A quantitative measure of the variability (or reproducibility) of data.
- > Accuracy: A quantitative measure of the closeness of reported data to the "true" value.
- > Representativeness: The confidence (expressed qualitatively) that data are representative of each media present on-site.
- > Completeness: A measure of the amount of useable data from a data collection activity.
- > Comparability: The confidence (expressed qualitatively) that data may be considered to be equivalent for each sampling and analytical event.

The quantitative and qualitative measures/criteria employed to enable application of these parameters are described as follows:

#### **Precision**

Suitable criteria and/or performance indicators for assessment of precision include:

- > Performance of laboratory duplicate sample sets through calculation of relative percentage differences (RPD).

The RPDs will be assessed as acceptable if less than 30%. RPDs that exceed this range may be considered where:

- > Results are less than 10 times the limit of reporting (LOR) – RPDs values of 100% or less would be acceptable in consideration of all other DQI data.
- > Results are less than 20 times the LOR and the RPD value is less than 50%.
- > Elevated organic compounds are detected, where field observations indicated organic matter or volatile compounds to be present, and the RPD is less than 50%.
- > Heterogeneous materials and variations in soil types and compositions are encountered.

#### **Accuracy (Bias)**

The closeness of the reported data to the 'true' value is assessed through review of performance of:

- > Method blanks, which are analysed for the analytes targeted in the primary samples.
- > Matrix spike and matrix spike duplicate sample sets (to be specifically requested to be performed by the primary laboratory, for each sample batch submitted).

- > Laboratory control samples.
- > Surrogates.

### **Representativeness**

To ensure the data produced by the laboratory is representative of conditions encountered in the field, the following steps are taken by the laboratory and subsequently reviewed:

- > Blank samples will be run in parallel with field samples to confirm there are no unacceptable instances of laboratory cross-contamination.
- > Review of relative percentage differences (RPD) values for field or laboratory duplicates to provide an indication that the samples are generally homogeneous, with no unacceptable instances of significant sample matrix heterogeneities.

The appropriateness of collection methodologies, handling, storage and preservation techniques will be assessed to ensure/confirm there was minimal opportunity for sample interference or degradation (e.g., volatile loss during transport due to incorrect preservation / transport methods).

A review of the methodology used to collect all soil samples will also ensure the representativeness of the data.

### **Completeness**

In validating the degree of completeness of the analytical data sets acquired during the program the following is considered:

- > Whether standard operating procedures (SOPs) for sampling protocols have been adhered to.
- > Copies of all COC documentation are reviewed and presented.
- > Have sufficient soil samples have been collected and analysed.

It can therefore be considered whether the proportion of 'useable data' generated in the data collection activities is sufficient for the purposes of the land use assessment.

### **Comparability**

Given that the reported data set can comprise several data sets from separate sampling events, issues of comparability between data sets are reduced through adherence to Standard Operating Procedures (SOPs) and regulator endorsed or made guidelines and standards on each data gathering activity.

In addition, the data will be collected by experienced field staff and NATA accredited laboratory methodologies will be engaged in all laboratory operations.

## **5.2.6 STEP 6 – SPECIFY LIMITS ON DECISION ERRORS**

Specific limits for this project are in accordance with the appropriate guidance made or endorsed by the NSW EPA, appropriate indicators of data quality, and standard procedures for field sampling and handling.

This step also examines the certainty of conclusive statements based on the available site data collected to quantify the allowable errors in decision making. This should include the following points to quantify tolerable limits:

A decision can be made based on whether the calculated 95% Upper Confidence Limit of the arithmetic mean concentration of a chemical in soil, within a specified soil data set, will satisfy the given site criteria. Therefore, a limit on the decision error will be 5% that a conclusive statement regarding a specified soil data set may be incorrect.

For the 95% Upper Confidence Limit of the arithmetic mean concentration of a chemical in soil to be considered, the standard deviation of the results should be less than 50% of the relevant investigation or screening level, and no single value should exceed 250% of the relevant investigation or screening level.

### 5.2.7 STEP 7 – OPTIMISE THE DESIGN

The investigation program presented for the area identified in **Figure 2** is aimed at obtaining the necessary data to allow the identified decisions in Step 2 to be made.

The sampling design is presented in detail in **Section 5.4** of this document. A comprehensive Sampling and Analysis Quality Plan (SAQP), identified in *Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Land* (EPA, April 2020) as a requirement of a Stage 1 PSI where sampling is undertaken, has not been prepared as a component of this investigation. Premise notes this as a deviation from the guidelines, however considers a SAQP to not be warranted based on the relatively low-risk historic uses of the site as identified in the desktop portion of this investigation.

## 5.3 Soil Investigation Criteria

The primary guidance document for environmental site assessment in Australia, which is approved by the EPA under Section 105 of the Contaminated Land Management Act 1997, is the *National Environment Protection (Assessment of Site Contamination) Measure 1999* (NEPM). *Schedule B2 (Site Characterisation)* and *Schedule B3 (Laboratory Analysis of Contaminated Soil)* are of particular relevance to this PSI.

The EPA has also made the following guidelines that are relevant to this PSI:

- > Contaminated Land Guidelines, Sampling Design Part 1 – Application (EPA, 2022)
- > Contaminated Land Guidelines, Sampling Design Part 2 – Interpretation (EPA, 2022)
- > Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Land (EPA, 2020)
- > Guidelines for the NSW Site Auditor Scheme, 3rd edition (EPA 2017)
- > Guidelines for the assessment and management of groundwater contamination (EPA 2007)
- > Guidelines on the duty to report contamination under the Contaminated Land Management Act 1997 (EPA 2015)

and has approved the:

- > Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZG 2018)

The work described in this PSI was carried out in general accordance with the guidelines listed above.

### 5.3.1 HUMAN HEALTH ENVIRONMENTAL GUIDELINE VALUES

The National Environment Protection Council (NEPC) *National Environment Protection (Assessment of Site Contamination) Measure, 1999* (amended 2013) provides a framework for the use of investigation and screening levels. The framework (i.e. the 'Amended ASC NEPM') is applicable for assessing human health risk via all relevant pathways of exposure and covers a broad range of metals and organic substances.

#### Health Investigation Levels

The Amended ASC NEPM (NEPC, 2013) Health Investigation Levels (HILs) have been developed to be protective of human health. Based on the current and proposed land use and zoning for the investigation area, concentrations of contaminants in soil at the site are to be conservatively compared against the residential (with access to soil) 'HIL A' land use HILs.

### 5.3.2 ECOLOGICAL ASSESSMENT GUIDELINES VALUES

#### Ecological Investigation Levels

Ecological investigations levels (EILs) from the Amended ASC NEPM (NEPC, 2013) are applicable for assessing risk to natural terrestrial ecosystems, including plants and animals. These EILs depend on specific soil physicochemical properties, age of impacts and land use scenarios, and generally apply to the top two metres of soil. Based on the intended future land uses of the site.

Based on the current land uses and zoning for the site, the 'Urban Residential' EILs are to be adopted as investigation criteria at the site.

EILs will not be adopted as validation criteria for soil under slabs, roads and buildings. In other areas where soils are accessible, EILs will be considered.

## 5.4 Sampling and Analysis Strategy

### 5.4.1 METHODOLOGY

The following table outlines the scope and method of the assessment.

**Table 6 – Soil Assessment Methodology Summary**

Activity / Item	Details
Date of Field Activities	30 July 2025
Samples Collected	Sample locations are shown in <b>Figure 5</b> . Eight (8) soil samples were collected in a combined systematic / judgemental sampling pattern from across the site.
Sample Depth	Shallow soil samples were collected at each of eight (8) locations, at a depth corresponding to soil most likely to have been impacted by off-site COPC sources (i.e., in the upper 15 cm and within the root zone). Sample locations were extended to a depth of 0.4 m below ground level (mBGL) to visually assess for the presence of fill or buried waste.
Methodology	Soil samples were collected directly by hand auger or trowel. All samples were placed in clean, laboratory-supplied acid washed solvent rinsed glass jars with seal-insert lids.
Sample Preservation	Samples were stored on ice in a chilled container whilst on-site and in transit to the laboratory.
Decontamination	Re-usable equipment was decontaminated before each use using decontamination solution, then rinsed in potable water. Dedicated single-use items were not decontaminated, but were disposed following use. Nitrile gloves used for sampling were changed between each sample.

### 5.4.2 SAMPLE ANALYSIS

Eight (8) samples of soil where potential for COPC impacts to be present were submitted to ALS Laboratories (ALS) for analysis. ALS is NATA (National Association of Testing Authorities) certified for the analyses performed.



Samples were analysed COPC described in **Section 5.1.2**, as appropriate.

**Figure 5 – Investigation Sampling Locations**



## 5.5 Sampling Observations and Analytical Results

Soil descriptions were logged as a consisting of silty loam topsoil overlying a predominantly clay subsoil across the site. No evidence of buried waste or stained material was apparent during collection of soil samples to a depth of 0.4 mBGL.

Soil analytical results are presented in the laboratory certificates in **Appendix D** and summarised in **Table 1** (attached). Results were compared to human health and ecological criteria adopted from the Amended ASC NEPM (NEPC, 2013), as detailed in **Section 5.3**.

Findings of the soil investigation indicated no exceedances of residential HIL criteria or urban residential EIL criteria:

Premise notes the conservative nature of the adopted EILs, which corresponds to the 'added contaminant limit' (ACL), which is not an absolute concentration, but rather "*the added concentration (above the ambient background concentration) of a contaminant above which further appropriate investigation and evaluation of the impact on ecological values is required*" (NEPC, 2013).

## 5.6 Quality of Analytical Data

### 5.6.1 OUTLINE

Analytical data validation is the process of assessing whether data are in compliance with method requirements and project specifications. The primary objectives of this process are to ensure that data of known quality are reported, and to identify if the data can be used to fulfil the overall project objectives.

The adopted data validation process is based on guidance documents published by the United States Environmental Protection Agency (USEPA) and the National Environment Protection Council. These include the following guidelines:

- > USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Methods Data Review (EPA 540-R-2017-001, dated January 2017);
- > USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (EPA 540-R-2017-002, dated January 2017); and
- > NEPC (2013), National Environment Protection (Assessment of Site Contamination) Measure, 1999, Guideline on Investigation Levels for Soil and Groundwater.

The process involves the checking of analytical procedure compliance and the assessment of the accuracy and precision of analytical data from a range of quality control measurements, generated from both field sampling and analytical programs.

### 5.6.2 QA/QC ASSESSMENT

Specific elements that have been checked and assessed for this project include:

- > Preservation and storage of samples upon collection and during transport to the laboratory;
- > Holding times;
- > Use of appropriate analytical procedures;
- > Required limit of reporting (LOR);
- > Frequency of conducting quality control measurements;
- > Laboratory blanks;
- > Laboratory duplicates;
- > Matrix spike / matrix spike duplicates (MS/MSDs);
- > Surrogates (or System Monitoring Compounds); and
- > The occurrence of apparently unusual or anomalous results, e.g., laboratory results that appear to be inconsistent with field observations or measurements.

Laboratory chain of custody (COC) documentation and analytical QA/QC reports are included in **Appendix E**.

The coverage provided by the systematic / judgemental sampling pattern from across the site is considered to have sufficiently delineated lateral impacts.

On the basis of the analytical data validation procedure employed, the overall quality of the analytical data produced is considered to be of an acceptable standard for interpretive use.

## 6. DISCUSSION

### 6.1 Conceptual Site Model

A conceptual site model (CSM) for the site has been prepared to identify contamination sources and transport mechanisms, and exposure pathways to receptors. An 'incomplete' linkage between the source and the receptor (indicated by a '✕') indicates the risk to that receptor is considered to be negligible. Based on the current investigation findings, linkages in the CSM between sources and receptors are illustrated below in **Figure 6**.

**Figure 6 – Conceptual Site Model**

CSM Aspect	Comments				
Primary Source	Agricultural Land Uses / Chemical Storage				
	↓				
Potential Contaminant	Pesticides / Herbicides / Hydrocarbons				
	↓				
Release Mechanism	Spills / Application				
	✕ <sub>1</sub>				
Media Impacted	On-Site Soil				
	↓		↓		
Pathways	Sediment Migration		Direct Contact		
	↓	↓	↓	↓	
Potential Receptors	Aquatic Ecology	Recreational Users	Site Personnel Future Occupants	Terrestrial Ecology	
	↓	↓	↓	↓	
Exposure Route	Flora / Fauna Uptake	Ingestion / Direct Contact	Inhalation / Ingestion	Flora / Fauna Uptake	
	↓	↓	↓	↓	
Source / Pathway / Receptor Linkage	Incomplete linkage – Low risk to receptors				
Pathway Legend:					
↓	Complete	↓	Potentially Complete	✕	Incomplete

**TABLE 1: Finley BESS - Site Assessment  
Soil Sampling Analytical Results  
JULY 2025**



Group	Analyte	LOR	Units	Criteria Ecol. / Health		Sample ID	F_01_150	F_02_150	F_03_150	F_04_150	F_05_150	F_06_150	F_07_150	F_08_150
						Sample Date	30/07/2025	30/07/2025	30/07/2025	30/07/2025	30/07/2025	30/07/2025	30/07/2025	30/07/2025
						PS	PS	PS	PS	PS	PS	PS	PS	
Physical Parameters	Moisture Content	1	%	-	-	16.2	12.3	15.2	14.4	13.1	18.8	14.2	14.9	
OC Pesticides	Aldrin	0.05	mg/kg	-	3	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
	Aldrin + Dieldrin (sum)	0.05	mg/kg	-	6	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
	Alpha BHC	0.05	mg/kg	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
	Alpha Chlordane	0.05	mg/kg	-	25	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
	Alpha Endosulfan	0.05	mg/kg	-	90	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
	Beta BHC	0.05	mg/kg	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
	Beta Endosulfan	0.05	mg/kg	-	90	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
	p,p'-DDD	0.05	mg/kg	-	40	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
	p,p'-DDE	0.05	mg/kg	-	40	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
	p,p'-DDT	0.2	mg/kg	-	40	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	
	DDD + DDE + DDT (sum)	0.05	mg/kg	-	240	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
	Delta BHC	0.05	mg/kg	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
	Dieldrin	0.05	mg/kg	-	3	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
	Endosulfan (sum)	0.05	mg/kg	-	270	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
	Endosulfan sulphate	0.05	mg/kg	-	90	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
	Endrin	0.05	mg/kg	-	10	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
	Endrin aldehyde	0.05	mg/kg	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
	Endrin ketone	0.05	mg/kg	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
	Heptachlor	0.05	mg/kg	-	6	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
	Heptachlor epoxide	0.05	mg/kg	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
	Hexachlorobenzene (HCB)	0.05	mg/kg	-	10	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
	Lindane (gamma BHC)	0.05	mg/kg	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
	Methoxychlor	0.2	mg/kg	-	300	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	
	Total Chlordane (sum)	0.05	mg/kg	-	50	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
	trans-Chlordane	0.05	mg/kg	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
OP Pesticides	Azinphos-methyl	0.05	mg/kg	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
	Bromophos Ethyl	0.05	mg/kg	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
	Carbophenothion	0.05	mg/kg	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
	Chlorfenvinphos	0.05	mg/kg	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
	Chlorpyrifos (Chlorpyrifos Ethyl)	0.05	mg/kg	-	160	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
	Chlorpyrifos-methyl	0.05	mg/kg	-	160	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
	Demeton-S-methyl	0.05	mg/kg	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
	Diazinon (Dimpylate)	0.05	mg/kg	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
	Dichlorvos	0.05	mg/kg	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
	Dimethoate	0.05	mg/kg	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
	Ethion	0.05	mg/kg	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
	Fenamiphos	0.05	mg/kg	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
	Fenthion	0.05	mg/kg	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
	Malathion	0.05	mg/kg	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
	Monocrotophos	0.2	mg/kg	-	-	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	
	Parathion-ethyl (Parathion)	0.2	mg/kg	-	-	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	
	Parathion-methyl	0.2	mg/kg	-	-	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	
	Pirimiphos-ethyl	0.05	mg/kg	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
	Prothiofos	0.05	mg/kg	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	

**TABLE 1: Finley BESS - Site Assessment  
Soil Sampling Analytical Results  
JULY 2025**



Group	Analyte	LOR	Units	Sample ID		F_01_150	F_02_150	F_03_150	F_04_150	F_05_150	F_06_150	F_07_150	F_08_150
				Criteria	Sample Date	30/07/2025	30/07/2025	30/07/2025	30/07/2025	30/07/2025	30/07/2025	30/07/2025	30/07/2025
				Ecot. / Health	PS	PS	PS	PS	PS	PS	PS	PS	PS
Phenoxyacetic Acid Herbicides	2.4.5-T	0.02	mg/kg	-	600	-	-	< 0.04	-	-	-	< 0.04	-
	2.4.5-TP (Silvex)	0.02	mg/kg	-	-	-	-	< 0.04	-	-	-	< 0.04	-
	2.4-D	0.02	mg/kg	-	900	-	-	< 0.04	-	-	-	< 0.04	-
	2.4-DB	0.02	mg/kg	-	-	-	-	< 0.04	-	-	-	< 0.04	-
	2.4-DP	0.02	mg/kg	-	-	-	-	< 0.04	-	-	-	< 0.04	-
	4-Chlorophenoxy acetic acid	0.02	mg/kg	-	-	-	-	< 0.04	-	-	-	< 0.04	-
	Clopyralid	0.02	mg/kg	-	-	-	-	< 0.04	-	-	-	< 0.04	-
	Dicamba	0.02	mg/kg	-	-	-	-	< 0.04	-	-	-	< 0.04	-
	Fluroxypyr	0.02	mg/kg	-	-	-	-	< 0.04	-	-	-	< 0.04	-
	MCPA	0.02	mg/kg	-	600	-	-	< 0.04	-	-	-	< 0.04	-
	MCPB	0.02	mg/kg	-	600	-	-	< 0.04	-	-	-	< 0.04	-
	Mecoprop	0.02	mg/kg	-	600	-	-	< 0.04	-	-	-	< 0.04	-
	Picloram	0.02	mg/kg	-	4500	-	-	< 0.04	-	-	-	< 0.04	-
	Triclopyr	0.02	mg/kg	-	-	-	-	< 0.04	-	-	-	< 0.04	-
Trace Metals	Arsenic (As)	5	mg/kg	100	100	6	6	8	7	6	7	7	7
	Cadmium (Cd)	1	mg/kg	-	20	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
	Chromium (Cr)	2	mg/kg	250	-	30	27	30	30	29	28	29	28
	Copper (Cu)	5	mg/kg	130	6000	15	12	18	17	14	17	16	16
	Lead (Pb)	5	mg/kg	1100	300	17	12	16	16	14	16	15	15
	Mercury (Hg)	0.1	mg/kg	-	40	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
	Nickel (Ni)	2	mg/kg	170	400	14	10	19	16	12	15	14	15
	Zinc (Zn)	5	mg/kg	270	7400	24	19	29	28	22	29	28	28

mg/kg milligrams per kilogram  
LOR limit of reporting  
PS primary sample  
FD field duplicate  
TEQ toxicity equivalent quotient  
D / ND detect / non-detect  
Criteria Criteria adopted from *National Environment Protection (Assessment of Site Contamination) Measure 1999* (NEPC 2013):  
'HIL' A (Residential with garden/accessible soil), and/or Management Limits (Residential, parkland and public open space)  
'EIL' A (Urban residential and public open space)

	within criteria
	HIL criteria exceeded
	EIL criteria exceeded
	HIL & EIL criteria exceeded



# **APPENDIX A**

## **REGISTERED GROUNDWATER BORE RECORDS**



# WaterNSW Work Summary

**GW502918**

**Licence:**

**Licence Status:**

**Authorised Purpose(s):  
Intended Purpose(s):**

**Work Type:** Bore

**Work Status:** Supply Obtained

**Construct.Method:**

**Owner Type:**

**Commenced Date:**

**Completion Date:** 12/08/2000

**Final Depth:** 2.73 m

**Drilled Depth:** 2.73 m

**Contractor Name:** (None)

**Driller:**

**Assistant Driller:**

**Property:**

**GWMA:**

**GW Zone:**

**Standing Water Level (m):**

**Salinity Description:**

**Yield (L/s):**

## Site Details

**Site Chosen By:**

**County**

**Parish**

**Cadastre**

**Form A:  
Licensed:**

UNKNOWN

**Region:** 50 - Murray

**CMA Map:**

**River Basin:** - Unknown

**Grid Zone:**

**Scale:**

**Area/District:**

**Elevation:** 0.00 m (A.H.D.)

**Northing:** 6055085.000

**Latitude:** 35°38'20.4"S

**Elevation Source:** Unknown

**Eastings:** 366213.000

**Longitude:** 145°31'20.4"E

**GS Map:** -

**MGA Zone:** 55

**Coordinate Source:** Unknown

## Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1	1	Casing	Fibreglass	0.00	2.13				
1	1	Opening	Slots	2.13	2.73			0	

## Remarks

01/11/2005: Form A Remarks:

BQbore 1417

15/12/2009: Updated details as per existing data.

\*\*\* End of GW502918 \*\*\*

Warning To Clients: This raw data has been supplied to the WaterNSW by drillers, licensees and other sources. WaterNSW does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.



# APPENDIX B

## TITLE RECORDS





ABN: 36 092 724 251  
Ph: 02 9099 7400  
(Ph: 0412 199 304)

Level 14, 135 King Street, Sydney  
Sydney 2000  
GPO Box 4103 Sydney NSW 2001  
DX 967 Sydney

**Summary of Owners Report**

**Address: - Riverina Highway, Finley NSW 2713**

**Description: - Lot 3 D.P.740920**

<b><u>Date of Acquisition and term held</u></b>	<b><u>Registered Proprietor(s) &amp; Occupations where available</u></b>	<b><u>Reference to Title at Acquisition and sale</u></b>
08.02.1912 (part 1) 13.03.1912 (part 2) (1912 to 1929)	Alexander Eskine (Farmer) (And his Deceased Estate)	Volume 1694 Folio 102 (Crown Grant) & Volume 2312 Folio 13 (Crown Grant)
08.03.1929 (1929 to 1958)	Norman Percy Eagle (Storekeeper)	Volume 1694 Folio 102 (Crown Grant) Now Volume 6658 Folio 160 Also Volume 2312 Folio 13 (Crown Grant)
21.03.1958 (1958 to 2008)	Nairana Pastoral Co. Pty. Limited	Volume 6658 Folio 160 (Crown Grant) & Volume 2312 Folio 13 (Crown Grant) Then Volume 7707 Folio 37 Now 3/740920
01.09.2008 (2008 to 2016)	Colin David Loughridge Leanna Joy Loughridge	3/740920
25.10.2016 (2016 to date)	# Russell Frederick Anderson # Terri Leanne Anderson	3/740920

**# Denotes current registered proprietors**

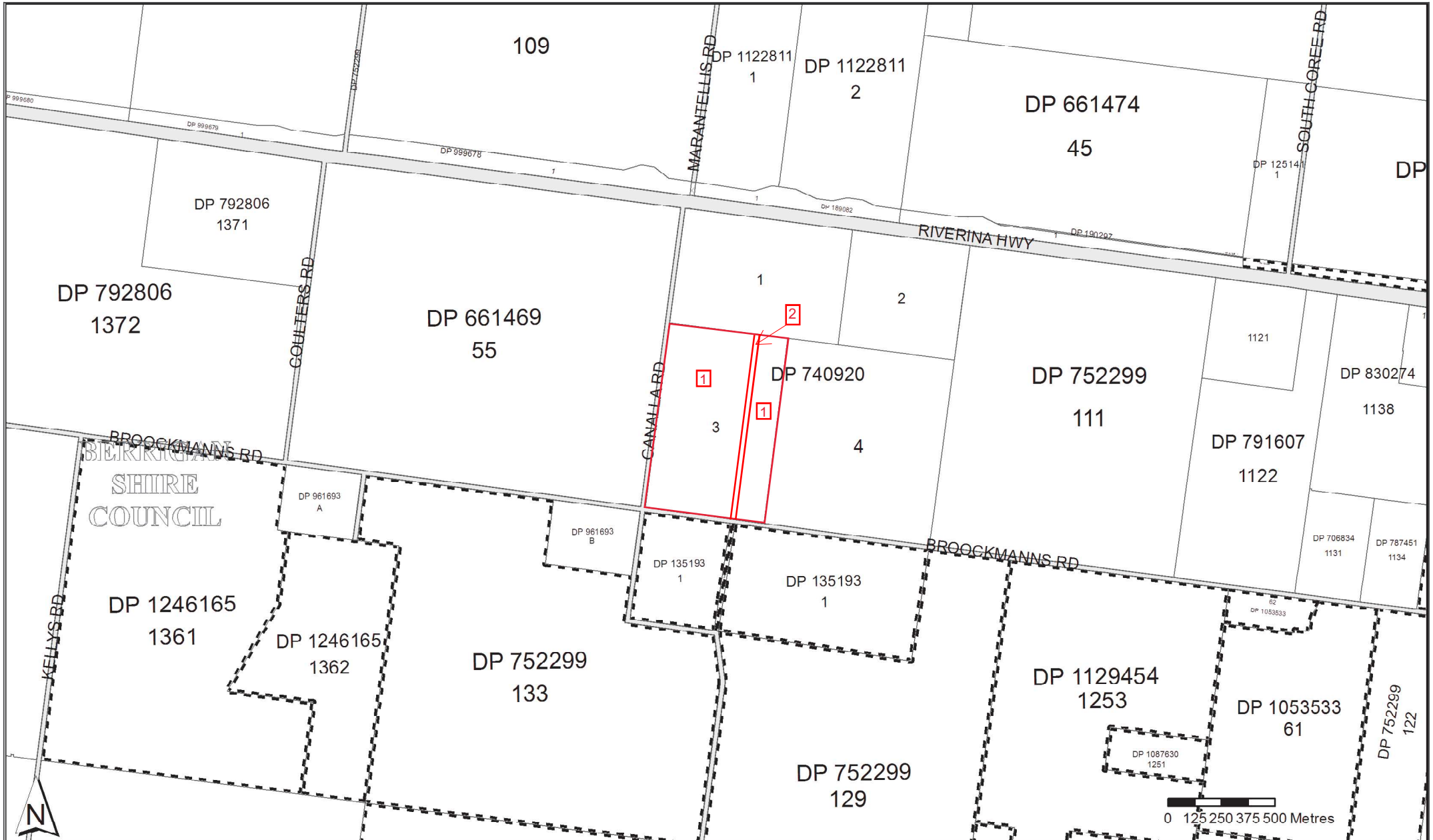
**Leases: - NIL**

**Easements: -**

03.01.1963 (J48605) Easement for Transmission Line 30.48 metres wide

---

Yours Sincerely  
Ashleigh Taylor-Reeve  
(Checked by Mark Groll)  
7 August 2025





SEARCH DATE

5/8/2025 1:48PM

FOLIO: 3/740920

First Title(s): VOL 1694 FOL 102 VOL 2312 FOL 13

Prior Title(s): VOL 7707 FOL 37

Recorded	Number	Type of Instrument	C.T. Issue
6/4/1987	DP740920	DEPOSITED PLAN	FOLIO CREATED EDITION 1
1/9/2008	AE183913	DISCHARGE OF MORTGAGE	
1/9/2008	AE183914	TRANSFER	
1/9/2008	AE183915	MORTGAGE	EDITION 2
25/10/2016	AK869311	DISCHARGE OF MORTGAGE	
25/10/2016	AK869312	TRANSFER	
25/10/2016	AK869313	MORTGAGE	EDITION 3
9/9/2018	AN695392	DEPARTMENTAL DEALING	EDITION 4 CORD ISSUED

\*\*\* END OF SEARCH \*\*\*

Form: 01T  
Release: 3.4  
www.lands.nsw.gov.au

**TRANSFER**  
New South Wales  
Real Property Act 1900



**AE183914W**

**PRIVACY NOTE:** Section 31B of the Real Property Act 1900 (RP Act) authorises the use of this form for the establishment and maintenance of the Real Property Register. The Register is made available to any person for search upon payment of a fee, if any.

**STAMP DUTY**

Office of State Revenue use only	NEW SOUTH WALES DUTY 25-07-2008 0005081615-001 SECTION 18(2) DUTY \$ *****2.00
----------------------------------	---

(A) **FOLIO OF THE REGISTER** Folio Identifier 3/740920

(B) <b>LODGED BY</b>	Document Collection Box 4SA	Name, Address or DX, Telephone, and LLPN if any LLPN: 1230119 NATIONAL AUSTRALIA BANK 197 Prospect Highway Seven Hills NSW 2147 46A Fax: 8326 8404	CODES T TW (Sheriff)
	Reference: 08HL8902		

(C) **TRANSFEROR** NAIRANA PASTORAL CO. PTY. LIMITED ACN 008 402 426

(D) **CONSIDERATION** The transferor acknowledges receipt of the consideration of \$ 133,028.00 and as regards

(E) **ESTATE** the above folio of the Register transfers to the transferee an estate in fee simple

(F) **SHARE TRANSFERRED**

(G) Encumbrances (if applicable):

(H) **TRANSFeree** COLIN DAVID LOUGHRIDGE and LEANNA JOY LOUGHRIDGE

(I) **TENANCY:** Joint Tenants

**DATE**

(J) Certified correct for the purposes of the Real Property Act 1900 and executed on behalf of the corporation named below by the authorised person(s) whose signature(s) appear(s) below pursuant to the authority specified.  
 Corporation: NAIRANA PASTORAL CO. PTY. LIMITED 008 402 426  
 Authority: section 127 of the Corporations Act 2001

Signature of authorised person: Michael Adrian Lawlor Signature of authorised person:  
 Name of authorised person: Michael Adrian Lawlor Name of authorised person:  
 Office held: Sole Director/Secretary Office held:

Certified correct for the purposes of the Real Property Act 1900 by the person whose signature appears below.

Signature:

Signatory's name: GERARD KEVIN MCCARTHY  
Signatory's capacity: transferee's solicitor



FOLIO: 3/740920

SEARCH DATE	TIME	EDITION NO	DATE
5/8/2025	1:47 PM	4	9/9/2018

LAND

LOT 3 IN DEPOSITED PLAN 740920  
AT FINLEY  
LOCAL GOVERNMENT AREA BERRIGAN  
PARISH OF ULUPNA COUNTY OF DENISON  
TITLE DIAGRAM DP740920

FIRST SCHEDULE

RUSSELL FREDERICK ANDERSON  
TERRI LEANNE ANDERSON  
AS JOINT TENANTS (T AK869312)

SECOND SCHEDULE (5 NOTIFICATIONS)

- 1 LAND EXCLUDES MINERALS AND IS SUBJECT TO RESERVATIONS AND CONDITIONS IN FAVOUR OF THE CROWN - SEE CROWN GRANT(S)
- 2 EASEMENT(S) AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM CREATED BY: J48605 FOR TRANSMISSION LINE 30.48 METRES WIDE
- 3 EASEMENT(S) APPURTENANT TO THE LAND ABOVE DESCRIBED CREATED BY: DP740920 TO DRAIN WATER 10 METRES WIDE
- 4 DP740920 RESTRICTION(S) ON THE USE OF LAND
- 5 AK869313 MORTGAGE TO NATIONAL AUSTRALIA BANK LIMITED

NOTATIONS

UNREGISTERED DEALINGS: NIL

\*\*\* END OF SEARCH \*\*\*

Primary Appn. No.

Reference to Last Title s

Vol. 2312 Fol. 13

" 6658 " 160



CANCELLED REGISTER BOOK.

Vol. 7707 Fol. 37

DW Issued on Transfer No. G941582

39745 12.58 K 2064-1 V. C. N. Hight, Government Printer

NAIRANA PASTORAL CO. PTY. LIMITED, is now the proprietor of an Estate in Fee Simple,  
 subject nevertheless to the reservations and conditions, if any, contained in the Grants hereinafter referred to, and also subject to such encumbrances,  
 liens, and interests as are notified hereon, in that piece of land  
 in the Shire of Berrigan Parish of Ulupna, and County of Denison  
 shown in the plan hereon and therein edged red being Portions 26 and 128 granted on 7th May 1906 by Crown Grant Volume 1694  
 Folio 102 and part of 9 acres 2 roods granted on 5th November 1912 by Crown Grant Volume 2312 Folio 13.  
 EXCEPTING THEREOUT:- (a) the road colored brown in plan hereon.  
 (b) the minerals reserved by the Crown Grants.

In witness whereof I have hereunto signed my name and affixed my Seal, this Eleventh day of June, 1959

Signed in the presence of

*J. Hartman*

*Jawatson*  
Registrar-General



No. J48605 NOTICE OF RESUMPTION  
 ELECTRICITY COMMISSION of NEW SOUTH WALES is the  
 proprietor of an easement for transmission line affecting that part of  
 the land within described shown as 100 feet wide on the plan hereon  
 freed from all other interests  
 Entered 3rd January 1963

*Jawatson*  
REGISTRAR GENERAL

Interests created pursuant to Section 88B Conveyancing Act, 1919,  
by the registration of D.P. 740920

Registered 30-3-1987

Registrar General

Area: 465 ac 2rd. Exclusive of the area of the road coloured brown.

Scale: 20 chains to one inch.

G941582 DW ADW

NOTIFICATION REFERRED TO

No. G941582 MORTGAGE dated 1st March 1958  
 from the said Naيرانا Pastoral Co Pty Limited  
 to The Commercial Banking Company of  
 Sydney Limited  
 Entered 6th July 1958  
*Jawatson*  
 REGISTRAR GENERAL

DP 740920 Registered 31-3-1987  
 This folio is cancelled as to whole/ upon creation  
 of computer folios for lots 1, 2, 3, 4 in the  
 abovementioned plan.

G941582

*N/A 740920*



# APPENDIX C



HISTORIC AERIAL PHOTOGRAPHY





Sources: © State of NSW, Department of Customer Service, Spatial Services; 2025  
© Grainsolar Development 2025; ESRI 2025

File: P001993\_01\_MASTER.aprx Prepared By: malin.heppner Date: 25/07/2025

- Legend**
-  Title Boundary
  -  Lease Area Boundary

0 50 100m





Finley BESS



Sources: © State of NSW, Department of Customer Service, Spatial Services; 2025  
Grensolar Development 2025; ESRI 2025

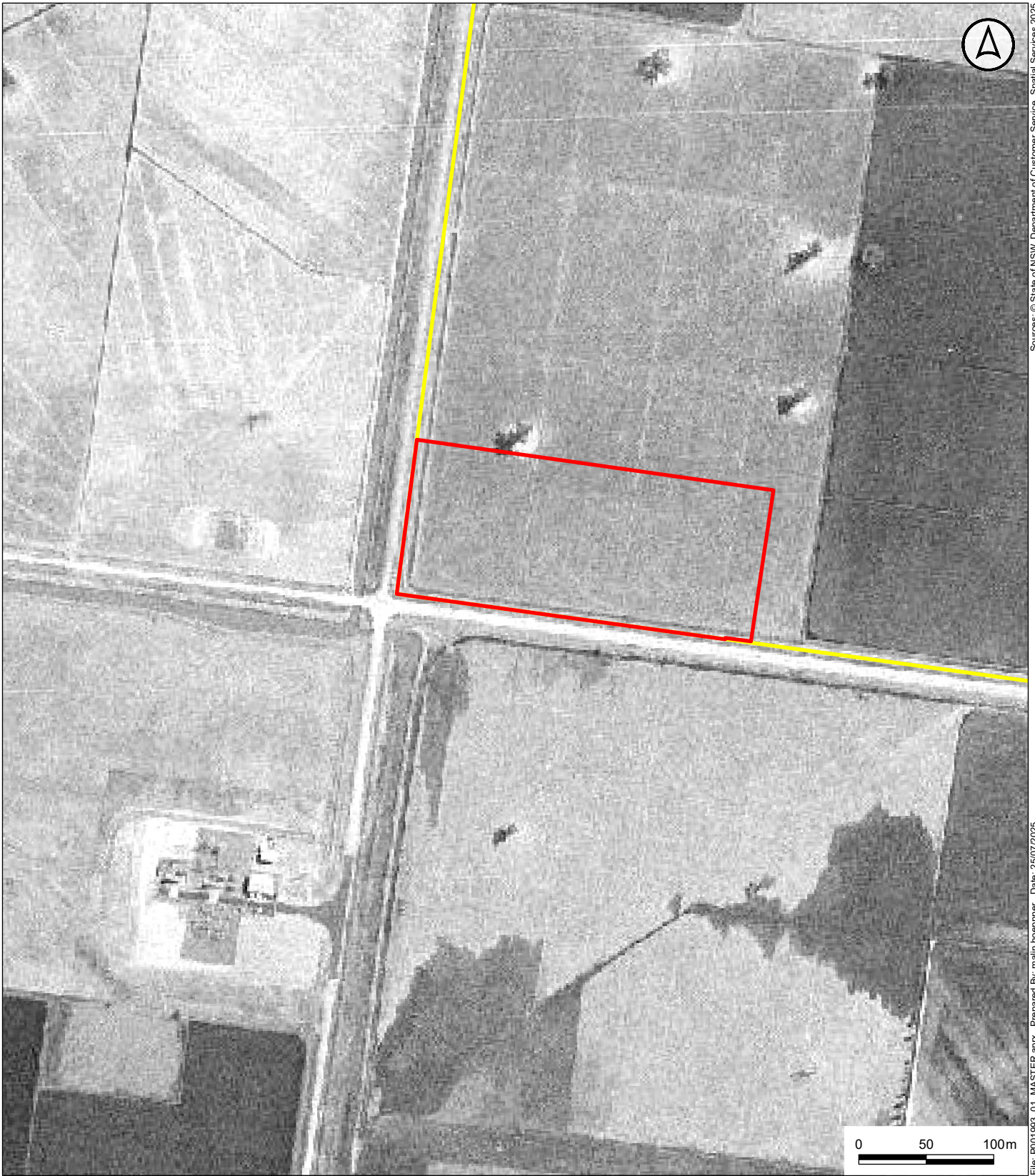
File: P001993\_01\_MASTER.aprx Prepared By: malin.heppner Date: 25/07/2025

**Legend**

-  Title Boundary
-  Lease Area Boundary





**Finley BESS**



Sources: © State of NSW, Department of Customer Service, Spatial Services; 2025  
© Grainsolar Development 2025; ESRI 2025

File: P001993\_01\_MASTER.aprx Prepared By: malin.heppner Date: 25/07/2025

**Legend**

-  Title Boundary
-  Lease Area Boundary

0 50 100m





Finley BESS



Sources: © State of NSW, Department of Customer Service, Spatial Services 2025  
© Grainsolar Development 2025; ESRI 2025

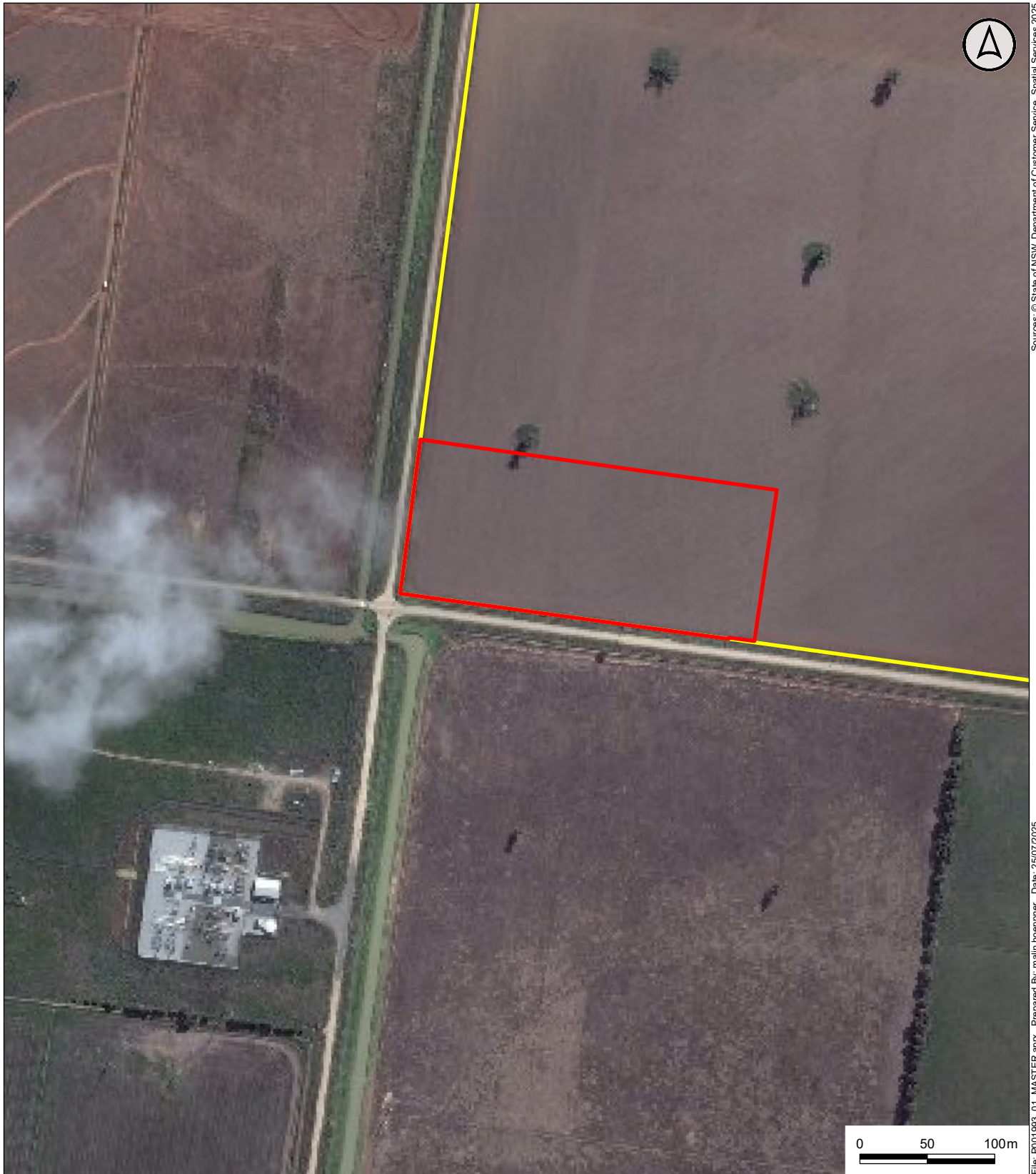
File: P001893\_01\_MASTER.aprx Prepared By: malin.heppner Date: 25/07/2025



**Legend**

-  Title Boundary
-  Lease Area Boundary



**Finley BESS**



- Legend**
-  Title Boundary
  -  Lease Area Boundary

0 50 100m



Finley BESS

Historical Aerial Imagery  
2011

Sources: © State of NSW, Department of Customer Service, Spatial Services, 2025  
© Grainsolar Development 2025; ESRI 2025  
File: P001893\_01\_MASTER.aprx Prepared By: malin.heppner Date: 25/07/2025





**Legend**

- Title Boundary
- Lease Area Boundary

0 50 100m



**Finley BESS**



# **APPENDIX D**

## **ANALYTICAL CERTIFICATES**





## CERTIFICATE OF ANALYSIS

Work Order : **ES2523788**  
Client : **PREMISE NSW Pty Ltd**  
Contact : **BRENDAN STUART**  
Address : 154 Peisley St,  
Orange 2800  
Telephone : 02 6393 5000  
Project : P001993 - Finley  
Order number : P001993  
C-O-C number : ----  
Sampler : ----  
Site : ----  
Quote number : EN/222  
No. of samples received : 8  
No. of samples analysed : 8

Page : 1 of 9  
Laboratory : Environmental Division Sydney  
Contact : Customer Services ES  
Address : 277-289 Woodpark Road Smithfield NSW Australia 2164  
Telephone : +61-2-8784 8555  
Date Samples Received : 05-Aug-2025 09:00  
Date Analysis Commenced : 05-Aug-2025  
Issue Date : 11-Aug-2025 13:27



This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

**Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.**

### Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW



## General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
^ = This result is computed from individual analyte detections at or above the level of reporting  
ø = ALS is not NATA accredited for these tests.  
~ = Indicates an estimated value.

- EP202: Particular samples required dilution due to matrix interferences. LOR values have been adjusted accordingly.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)		Sample ID		F_01_150	F_02_150	F_03_150	F_04_150	F_05_150
Sampling date / time		30-Jul-2025 00:00		30-Jul-2025 00:00	30-Jul-2025 00:00	30-Jul-2025 00:00	30-Jul-2025 00:00	30-Jul-2025 00:00
Compound	CAS Number	LOR	Unit	ES2523788-001	ES2523788-002	ES2523788-003	ES2523788-004	ES2523788-005
				Result	Result	Result	Result	Result
<b>EA055: Moisture Content (Dried @ 105-110°C)</b>								
Moisture Content	----	1.0	%	16.2	12.3	15.2	14.4	13.1
<b>EG005(ED093)T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	6	6	8	7	6
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	30	27	30	30	29
Copper	7440-50-8	5	mg/kg	15	12	18	17	14
Lead	7439-92-1	5	mg/kg	17	12	16	16	14
Nickel	7440-02-0	2	mg/kg	14	10	19	16	12
Zinc	7440-66-6	5	mg/kg	24	19	29	28	22
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
<b>EP068A: Organochlorine Pesticides (OC)</b>								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	F_01_150	F_02_150	F_03_150	F_04_150	F_05_150
Sampling date / time				30-Jul-2025 00:00	30-Jul-2025 00:00	30-Jul-2025 00:00	30-Jul-2025 00:00	30-Jul-2025 00:00	
Compound	CAS Number	LOR	Unit	ES2523788-001	ES2523788-002	ES2523788-003	ES2523788-004	ES2523788-005	
				Result	Result	Result	Result	Result	
<b>EP068B: Organophosphorus Pesticides (OP) - Continued</b>									
Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	
Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	
Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	
Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	
<b>EP202A: Phenoxyacetic Acid Herbicides by LCMS</b>									
4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	----	----	<0.04	----	----	
2,4-DB	94-82-6	0.02	mg/kg	----	----	<0.04	----	----	
Dicamba	1918-00-9	0.02	mg/kg	----	----	<0.04	----	----	
Mecoprop	93-65-2	0.02	mg/kg	----	----	<0.04	----	----	
MCPA	94-74-6	0.02	mg/kg	----	----	<0.04	----	----	
2,4-DP	120-36-5	0.02	mg/kg	----	----	<0.04	----	----	
2,4-D	94-75-7	0.02	mg/kg	----	----	<0.04	----	----	
Triclopyr	55335-06-3	0.02	mg/kg	----	----	<0.04	----	----	
2,4,5-TP (Silvex)	93-72-1	0.02	mg/kg	----	----	<0.04	----	----	
2,4,5-T	93-76-5	0.02	mg/kg	----	----	<0.04	----	----	
MCPB	94-81-5	0.02	mg/kg	----	----	<0.04	----	----	
Picloram	1918-02-1	0.02	mg/kg	----	----	<0.04	----	----	
Clopyralid	1702-17-6	0.02	mg/kg	----	----	<0.04	----	----	
Fluroxypyr	69377-81-7	0.02	mg/kg	----	----	<0.04	----	----	
<b>EP068S: Organochlorine Pesticide Surrogate</b>									
Dibromo-DDE	21655-73-2	0.05	%	85.5	75.5	91.4	81.7	72.9	
<b>EP068T: Organophosphorus Pesticide Surrogate</b>									
DEF	78-48-8	0.05	%	82.8	78.8	90.3	83.4	76.0	
<b>EP202S: Phenoxyacetic Acid Herbicide Surrogate</b>									
2,4-Dichlorophenyl Acetic Acid	19719-28-9	0.02	%	----	----	78.1	----	----	



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)		Sample ID		F_06_150	F_07_150	F_08_150	----	----
Sampling date / time		30-Jul-2025 00:00		30-Jul-2025 00:00	30-Jul-2025 00:00	30-Jul-2025 00:00	----	----
Compound	CAS Number	LOR	Unit	ES2523788-006	ES2523788-007	ES2523788-008	-----	-----
				Result	Result	Result	----	----
<b>EA055: Moisture Content (Dried @ 105-110°C)</b>								
Moisture Content	----	1.0	%	18.8	14.2	14.9	----	----
<b>EG005(ED093)T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	7	7	7	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	----	----
Chromium	7440-47-3	2	mg/kg	28	29	28	----	----
Copper	7440-50-8	5	mg/kg	17	16	16	----	----
Lead	7439-92-1	5	mg/kg	16	15	15	----	----
Nickel	7440-02-0	2	mg/kg	15	14	15	----	----
Zinc	7440-66-6	5	mg/kg	29	28	28	----	----
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	----	----
<b>EP068A: Organochlorine Pesticides (OC)</b>								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
<sup>^</sup> Total Chlordane (sum)	----	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	<0.05	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	F_06_150	F_07_150	F_08_150	----	----
Sampling date / time				30-Jul-2025 00:00	30-Jul-2025 00:00	30-Jul-2025 00:00	----	----	
Compound	CAS Number	LOR	Unit	ES2523788-006	ES2523788-007	ES2523788-008	-----	-----	
				Result	Result	Result	----	----	
<b>EP068A: Organochlorine Pesticides (OC) - Continued</b>									
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
<sup>^</sup> Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	<0.2	----	----	
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	<0.2	----	----	
<sup>^</sup> Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
<sup>^</sup> Sum of DDD + DDE + DDT	72-54-8/72-55-9/5 0-2	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
<b>EP068B: Organophosphorus Pesticides (OP)</b>									
Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	<0.2	----	----	
Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	<0.2	----	----	
Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	<0.2	----	----	
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	F_06_150	F_07_150	F_08_150	----	----
Sampling date / time				30-Jul-2025 00:00	30-Jul-2025 00:00	30-Jul-2025 00:00	----	----	
Compound	CAS Number	LOR	Unit	ES2523788-006	ES2523788-007	ES2523788-008	-----	-----	
				Result	Result	Result	----	----	
<b>EP068B: Organophosphorus Pesticides (OP) - Continued</b>									
Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
<b>EP202A: Phenoxyacetic Acid Herbicides by LCMS</b>									
4-Chlorophenoxy acetic acid	122-88-3	0.02	mg/kg	----	<0.04	----	----	----	
2,4-DB	94-82-6	0.02	mg/kg	----	<0.04	----	----	----	
Dicamba	1918-00-9	0.02	mg/kg	----	<0.04	----	----	----	
Mecoprop	93-65-2	0.02	mg/kg	----	<0.04	----	----	----	
MCPA	94-74-6	0.02	mg/kg	----	<0.04	----	----	----	
2,4-DP	120-36-5	0.02	mg/kg	----	<0.04	----	----	----	
2,4-D	94-75-7	0.02	mg/kg	----	<0.04	----	----	----	
Triclopyr	55335-06-3	0.02	mg/kg	----	<0.04	----	----	----	
2,4,5-TP (Silvex)	93-72-1	0.02	mg/kg	----	<0.04	----	----	----	
2,4,5-T	93-76-5	0.02	mg/kg	----	<0.04	----	----	----	
MCPB	94-81-5	0.02	mg/kg	----	<0.04	----	----	----	
Picloram	1918-02-1	0.02	mg/kg	----	<0.04	----	----	----	
Clopyralid	1702-17-6	0.02	mg/kg	----	<0.04	----	----	----	
Fluroxypyr	69377-81-7	0.02	mg/kg	----	<0.04	----	----	----	
<b>EP068S: Organochlorine Pesticide Surrogate</b>									
Dibromo-DDE	21655-73-2	0.05	%	81.5	82.8	79.4	----	----	
<b>EP068T: Organophosphorus Pesticide Surrogate</b>									
DEF	78-48-8	0.05	%	84.3	86.1	79.7	----	----	
<b>EP202S: Phenoxyacetic Acid Herbicide Surrogate</b>									
2,4-Dichlorophenyl Acetic Acid	19719-28-9	0.02	%	----	73.0	----	----	----	



## Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP068S: Organochlorine Pesticide Surrogate</b>			
Dibromo-DDE	21655-73-2	49	147
<b>EP068T: Organophosphorus Pesticide Surrogate</b>			
DEF	78-48-8	35	143
<b>EP202S: Phenoxyacetic Acid Herbicide Surrogate</b>			
2,4-Dichlorophenyl Acetic Acid	19719-28-9	45	139



# **APPENDIX E**

**ANALYTICAL LABORATORY QA/QC & CHAIN OF CUSTODY DOCUMENTS**





# CHAIN OF CUSTODY

ALS Laboratory:  
please tick →

ADELAIDE 21 Burma Road Pooraka SA 5095  
Ph: 08 8359 0890 E: adelaide@alsglobal.com

BRISBANE 32 Shand Street Stafford QLD 4053  
Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com

GLADSTONE 46 Callmondah Drive Clinton QLD 4680  
Ph: 07 7471 5600 E: gladstone@alsglobal.com

MACKAY 78 Harbour Road Mackay QLD 4740  
Ph: 07 4944 0177 E: mackay@alsglobal.com

MELBOURNE 2-4 Westall Road Springvale VIC 3171  
Ph: 03 8549 9600 E: samples.melbourne@alsglobal.com

MUDGEES 27 Sydney Road Mudgee NSW 2850  
Ph: 02 6372 6735 E: mudgee.mail@alsglobal.com

NEWCASTLE 5 Rose Gum Road Warabrook NSW 2304  
Ph: 02 4968 9433 E: samples.newcastle@alsglobal.com

NOWRA 4/13 Geary Place North Nowra NSW 2541  
Ph: 024423 2063 E: nowra@alsglobal.com

PERTH 10 Hod Way Malaga WA 6000  
Ph: 08 9209 7655 E: samples.perth@alsglobal.com

SYDNEY 277-289 Woodpark Road Smithfield NSW 2164  
Ph: 02 8784 8555 E: samples.sydney@alsglobal.com

TOWNSVILLE 14-15 Desma Court Bohle QLD 4818  
Ph: 07 4796 0600 E: townsville.environmental@alsglobal.com

WOLLONGONG 99 Kenny Street Wollongong NSW 2500  
Ph: 02 4225 3125 E: portkembla@alsglobal.com

<b>CLIENT:</b> Premise Australia		<b>TURNAROUND REQUIREMENTS :</b>		<input checked="" type="checkbox"/> Standard TAT (List due date):		<b>FOR LABORATORY USE ONLY (Circle)</b>	
<b>OFFICE:</b> Orange		(Standard TAT may be longer for some tests e.g.. Ultra Trace Organics)		<input type="checkbox"/> Non-Standard or urgent TAT (List due date):		Custody Seal Intact? Yes No N/A	
<b>PROJECT:</b> P001993 - Finley		<b>ALS QUOTE NO.:</b> EN/222/24		<b>COC SEQUENCE NUMBER (Circle)</b>		Free ice / frozen ice bricks present upon receipt? Yes No N/A	
<b>ORDER NUMBER:</b> P001993				COC: ① 2 3 4 5 6 7		Random Sample Temperature on Receipt: °C	
<b>PROJECT MANAGER:</b> B. Stuart		<b>CONTACT PH:</b>		OF: ① 2 3 4 5 6 7		Other comment:	
<b>SAMPLER:</b> B. Searl		<b>SAMPLER MOBILE:</b> 0418 607 830		<b>RELINQUISHED BY:</b>		<b>RECEIVED BY:</b>	
<b>COC emailed to ALS? ( YES / NO)</b>		<b>EDD FORMAT (or default):</b>		Premise		FA 5	
<b>Email Reports to</b> brendan.stuart@premise.com.au				<b>DATE/TIME:</b>		<b>DATE/TIME:</b>	
<b>Email Invoice to</b> accounts@premise.com.au				04/08/2025		5/8/2 8:40	

**COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:**

ALS USE	SAMPLE DETAILS MATRIX: SOLID (S) WATER (W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).								Additional Information								
	LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL CONTAINERS	S-12 OC / OP Pesticides	S-2 8 Metals (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	EP202 Phenoxy Acid Herbicides (16 analytes)	S-7 TRH (C6-C40) / BTEXN / PAH	EA200 Asbestos - in 500g Soil (pres/abs)	S-19 TRH (C6-C40) / BTEXN / PAH / Phenols / OC / OP / PCB / 8 Metals									Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.	
	1	F_01_150	30/07/2025	S	JAR	1	X	X														
	2	F_02_150	30/07/2025	S	JAR	1	X	X														
	3	F_03_150	30/07/2025	S	JAR	1	X	X	X													
	4	F_04_150	30/07/2025	S	JAR	1	X	X														
	5	F_05_150	30/07/2025	S	JAR	1	X	X														
	6	F_06_150	30/07/2025	S	JAR	1	X	X														
	7	F_07_150	30/07/2025	S	JAR	1	X	X	X													
	8	F_08_150	30/07/2025	S	JAR	1	X	X														
<b>TOTAL</b>																						

Environmental Division  
Sydney  
Work Order Reference  
**ES2523788**

Telephone : - 61-2-8784 8555

**Water Container Codes:** P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic  
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;  
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.



## QA/QC Compliance Assessment to assist with Quality Review

Work Order	: ES2523788	Page	: 1 of 5
Client	: PREMISE NSW Pty Ltd	Laboratory	: Environmental Division Sydney
Contact	: BRENDAN STUART	Telephone	: +61-2-8784 8555
Project	: P001993 - Finley	Date Samples Received	: 05-Aug-2025
Site	: ----	Issue Date	: 11-Aug-2025
Sampler	: ----	No. of samples received	: 8
Order number	: P001993	No. of samples analysed	: 8

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

### Summary of Outliers

#### Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- For all regular sample matrices, where applicable to the methodology, **NO surrogate recovery outliers occur.**

#### Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

#### Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**



## Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EA055: Moisture Content (Dried @ 105-110°C)</b>							
<b>Soil Glass Jar - Unpreserved (EA055)</b>							
F_01_150, F_02_150,	30-Jul-2025	----	----	----	05-Aug-2025	13-Aug-2025	✓
F_03_150, F_04_150,							
F_05_150, F_06_150,							
F_07_150, F_08_150							
<b>EG005(ED093)T: Total Metals by ICP-AES</b>							
<b>Soil Glass Jar - Unpreserved (EG005T)</b>							
F_01_150, F_02_150,	30-Jul-2025	05-Aug-2025	26-Jan-2026	✓	06-Aug-2025	26-Jan-2026	✓
F_03_150, F_04_150,							
F_05_150, F_06_150,							
F_07_150, F_08_150							
<b>EG035T: Total Recoverable Mercury by FIMS</b>							
<b>Soil Glass Jar - Unpreserved (EG035T)</b>							
F_01_150, F_02_150,	30-Jul-2025	05-Aug-2025	27-Aug-2025	✓	07-Aug-2025	27-Aug-2025	✓
F_03_150, F_04_150,							
F_05_150, F_06_150,							
F_07_150, F_08_150							
<b>EP068A: Organochlorine Pesticides (OC)</b>							
<b>Soil Glass Jar - Unpreserved (EP068)</b>							
F_01_150, F_02_150,	30-Jul-2025	05-Aug-2025	13-Aug-2025	✓	06-Aug-2025	14-Sep-2025	✓
F_03_150, F_04_150,							
F_05_150, F_06_150,							
F_07_150, F_08_150							
<b>EP068B: Organophosphorus Pesticides (OP)</b>							
<b>Soil Glass Jar - Unpreserved (EP068)</b>							
F_01_150, F_02_150,	30-Jul-2025	05-Aug-2025	13-Aug-2025	✓	06-Aug-2025	14-Sep-2025	✓
F_03_150, F_04_150,							
F_05_150, F_06_150,							
F_07_150, F_08_150							

Page : 3 of 5  
 Work Order : ES2523788  
 Client : PREMISE NSW Pty Ltd  
 Project : P001993 - Finley



Matrix: **SOIL**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP202A: Phenoxyacetic Acid Herbicides by LCMS</b>								
<b>Soil Glass Jar - Unpreserved (EP202)</b> F_03_150,	F_07_150	30-Jul-2025	05-Aug-2025	13-Aug-2025	✔	11-Aug-2025	14-Sep-2025	✔



## Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Moisture Content	EA055	2	10	20.00	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	16	12.50	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	1	10	10.00	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	3	27	11.11	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	3	26	11.54	10.00	✔	NEPM 2013 B3 & ALS QC Standard
<b>Laboratory Control Samples (LCS)</b>							
Pesticides by GCMS	EP068	1	16	6.25	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	1	10	10.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	27	7.41	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	26	7.69	5.00	✔	NEPM 2013 B3 & ALS QC Standard
<b>Method Blanks (MB)</b>							
Pesticides by GCMS	EP068	1	16	6.25	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	1	10	10.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	27	7.41	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	26	7.69	5.00	✔	NEPM 2013 B3 & ALS QC Standard
<b>Matrix Spikes (MS)</b>							
Pesticides by GCMS	EP068	1	16	6.25	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	1	10	10.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	27	7.41	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	26	7.69	5.00	✔	NEPM 2013 B3 & ALS QC Standard



## Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> ) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM Schedule B(3).
Phenoxyacetic Acid Herbicides (LCMS - Standard DL)	EP202	SOIL	In house: LCMS (Electrospray in negative mode). Residues of acid herbicides are extracted from soil samples under the alkaline condition. An aliquot of the alkaline aqueous phase is taken and acidified before a SPE cleanup. After eluting off from the SPE cartridge, residues of acid herbicides are dissolved in HPLC mobile phase prior to instrument analysis.
Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Extraction for Phenoxy Acid Herbicides in Soils.	EP202-PR	SOIL	In-House: Alkaline extract followed by SPE clean up of acidified portion of the sample extract.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

