

Appendix P
PRELIMINARY SITE INVESTIGATION

Preliminary Site Investigation

Sundown Solar Farm

Prepared for Recurrent Energy

May 2025

Preliminary Site Investigation

Sundown Solar Farm

Recurrent Energy

E231160 PSI

May 2025

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1	14 May 2025	J. Lewis A. Meirau	J. Byrne	Draft
2	29 May 2025	J. Lewis	J. Byrne	Final

Approved by

J. Byrne

Jessica Byrne

Associate Environmental Engineer

29 May 2025

Level 3 175 Scott Street

Newcastle NSW 2300

ABN: 28 141 736 558

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ABN: 28 141 736 558

Executive Summary

Recurrent Energy proposes to develop the Sundown Solar Farm (the Project), which is a large-scale solar photovoltaic (PV) electricity generation facility and associated battery energy storage system (BESS). The Project will have a generation capacity of approximately 360 megawatts (MW) alternating current (AC). The BESS component will have an indicative capacity of up to 150 MW for a four-hour duration.

The electricity generated on-site will contribute to the national electricity grid via the existing Transgrid 330 kilovolt (kV) transmission line that traverses the Project area. The BESS will draw and store energy from the grid and/or from the Project during off-peak periods. This energy will be dispatched back into the grid during peak periods, thereby improving grid reliability and network stability.

The Project is located in Spring Mountain, approximately 30 kilometres (km) east of Inverell and 38 km west of Glen Innes in the New England Tablelands region of northern NSW, within the Inverell Shire Council local government areas (LGA). The Project is within the New England Renewable Energy Zone (REZ), centred around Armidale.

The Project's environmental impact statement (EIS) was submitted and subsequently exhibited on the Department of Planning, Housing and Infrastructure's (DPHI) Major Projects website from 7 July 2023 to 3 August 2023. Following public exhibition and receipt of submissions on the Project from the general public, government agencies, councils and special interest groups, a Submissions Report was prepared and submitted to DPHI.

EMM Consulting Pty Limited (EMM) has been engaged by Recurrent Energy to undertake a preliminary site investigation (PSI) in support of the Project. This PSI was undertaken for an area herein referred to as 'the disturbance footprint', as identified in the Submissions Report (EMM 2025), that will be impacted by construction and operation works required for the Project.

The objectives of this PSI were to:

- identify potential sources of contamination and determine contaminants of potential concern (CoPC) within the disturbance footprint
- evaluate the risk that any soil contamination may pose to human health and the environment
- outline options for further investigation and appropriate measures for management or remediation (as required).

To achieve the objectives, EMM completed a desktop review of available information and undertook a site inspection to assess current and historical potential contamination sources. The scope of work developed was based on the requirements of the National Environmental Protection Council (NEPC), National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended in 2013 (ASC NEPM 2013), and with consideration to the Secretary's Environmental Assessment Requirements (SEARS) and the State Environmental Planning Policy (Resilience and Hazards) 2021.

EMM undertook a historical review and site inspection of the disturbance footprint and found that there was the potential for contamination to be present based on historical land use practices including:

- historic agricultural land use
- use of farm machinery
- fuel/chemical storage
- waste burials and tips.

The conceptual site model (CSM) identified potentially complete contamination source-pathway-receptor (S-P-R) linkages at the following source areas, presenting a moderate contamination risk:

- disused diesel AST at area of interest (AOI) 11
- empty chemical container storage area at AOI 3.

Other AOIs were identified as presenting a low contamination risk.

The following recommendations are made with regards to making the disturbance footprint suitable for the proposed development works:

- Prior to construction commencing, targeted sampling is recommended in areas where a moderate contamination pathway risk has been identified within the disturbance footprint to assess risk and inform appropriate disposal and remediation measures during the construction phase.
- A construction environmental management plan (CEMP) should be developed and implemented to address the contamination sources identified in the CSM with a low risk.
- It is possible that potential contamination not identified during this PSI will be encountered during construction works. An unexpected finds protocol for managing potential and/or identified contamination should be prepared by an appropriately qualified contamination consultant and form part of the overall CEMP.

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Abbreviations

Abbreviation	Term
AC	alternating current
ACM	asbestos containing material
AOI	area of interest
ASC NEPM	National Environment Protection (Assessment of Site Contamination) Measure 1999
ASS	acid sulfate soils
BESS	battery energy storage system
BTEXN	benzene, toluene, ethylbenzene, xylene, naphthalene
CoPC	contaminants of potential concern
CSM	conceptual site model
DPHI	Department of Planning, Housing and Infrastructure
DSI	detailed site Investigation
EIS	environmental impact statement
EMM	EMM Consulting Pty Limited
EPA	Environment Protection Authority
GDE	groundwater dependant ecosystems
ha	hectare
km	kilometre
KV	kilovolt
m	metre
mAHD	metres Australian Height Datum
MW	megawatts
NEPC	National Environmental Protection Council
NSW	New South Wales
OCP	organochlorine pesticides
OPP	organophosphate pesticides
PAHs	polycyclic aromatic hydrocarbons
PV	photovoltaic
POEO Act	<i>Protection of the Environment Operations Act 1997 (NSW)</i>
PSI	preliminary site investigation
REZ	renewable energy zone
SEPP	State Environmental Planning Policy
S-P-R	source-pathway-receptor

Abbreviation	Term
SSD	state significant development
TRH	total recoverable hydrocarbons

1 Introduction

Recurrent Energy proposes to develop the Sundown Solar Farm (the Project), which is a large-scale solar photovoltaic (PV) electricity generation facility and associated battery energy storage system (BESS). The Project will have a generation capacity of approximately 360 megawatts (MW) alternating current (AC) with capacity to store approximately 150 MW for a 4-hour duration. The Project is State significant development (SSD) (SSD-8911).

The Project is approximately 30 kilometres (km) east of Inverell, in the New England Tablelands region of northern NSW, within the Inverell Shire local government area (LGA). The Project is within the New England Renewable Energy Zone (REZ), centred around Armidale. Energy generated will contribute to the national electricity grid via a new on-site substation connected to the existing Transgrid 330 kilovolt (KV) transmission line that transects the site.

The Project's environmental impact statement (EIS) was submitted and subsequently exhibited on the Department of Planning, Housing and Infrastructure's (DPHI) Major Projects website from 7 July 2023 to 3 August 2023. Following public exhibition and receipt of submissions on the Project from the general public, government agencies, councils and special interest groups, a Submissions Report was prepared and submitted to DPHI.

EMM Consulting Pty Limited (EMM) has been engaged by Recurrent Energy to undertake a preliminary site investigation (PSI) in support of the Project. This PSI was undertaken for an area herein referred to as 'the disturbance footprint', as identified in the Submissions Report (EMM 2025), that will be impacted by construction and operation works required for the Project.

The project area comprises the maximum area considered for the Project based on the extent of land where Recurrent Energy holds landholder agreements and the area of potential impact for road upgrades. The project area is comprised of three privately-owned properties predominately used for rural agricultural purposes including cropping and grazing. The disturbance footprint forms a subset of the project area and covers an area of approximately 612 hectares (ha) and includes a 9 km access road from the Gwydir Highway intersection.

Figure 1.1 provides the regional context for the project area. The project area layout including the disturbance footprint and key elements of the Project are presented in Figure 7.1.

1.1 Objectives

The objectives of this PSI are to:

- identify potential sources of contamination and determine contaminants of potential concern (CoPC) within the disturbance footprint
- evaluate the risk that any contamination may pose to human health and the environment
- outline options for further investigation, appropriate measures for management or remediation (as required).

1.2 Scope of work

To achieve the objectives, EMM completed a desktop review of available information and undertook a site inspection to assess current and historical potential contamination sources. The scope of work developed was based on the requirements of the National Environmental Protection Council (NEPC), National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended in 2013 (ASC NEPM 2013), and with consideration to the Secretary's Environmental Assessment Requirements (SEARS) and the State Environmental Planning Policy (Resilience and Hazards) 2021.

1.2.1 Desktop review

The desktop review included:

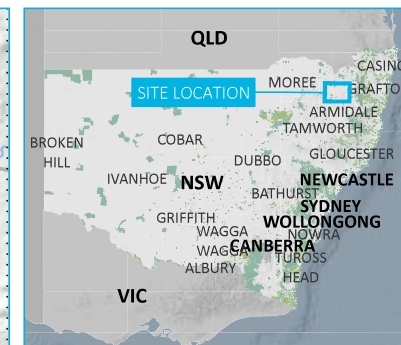
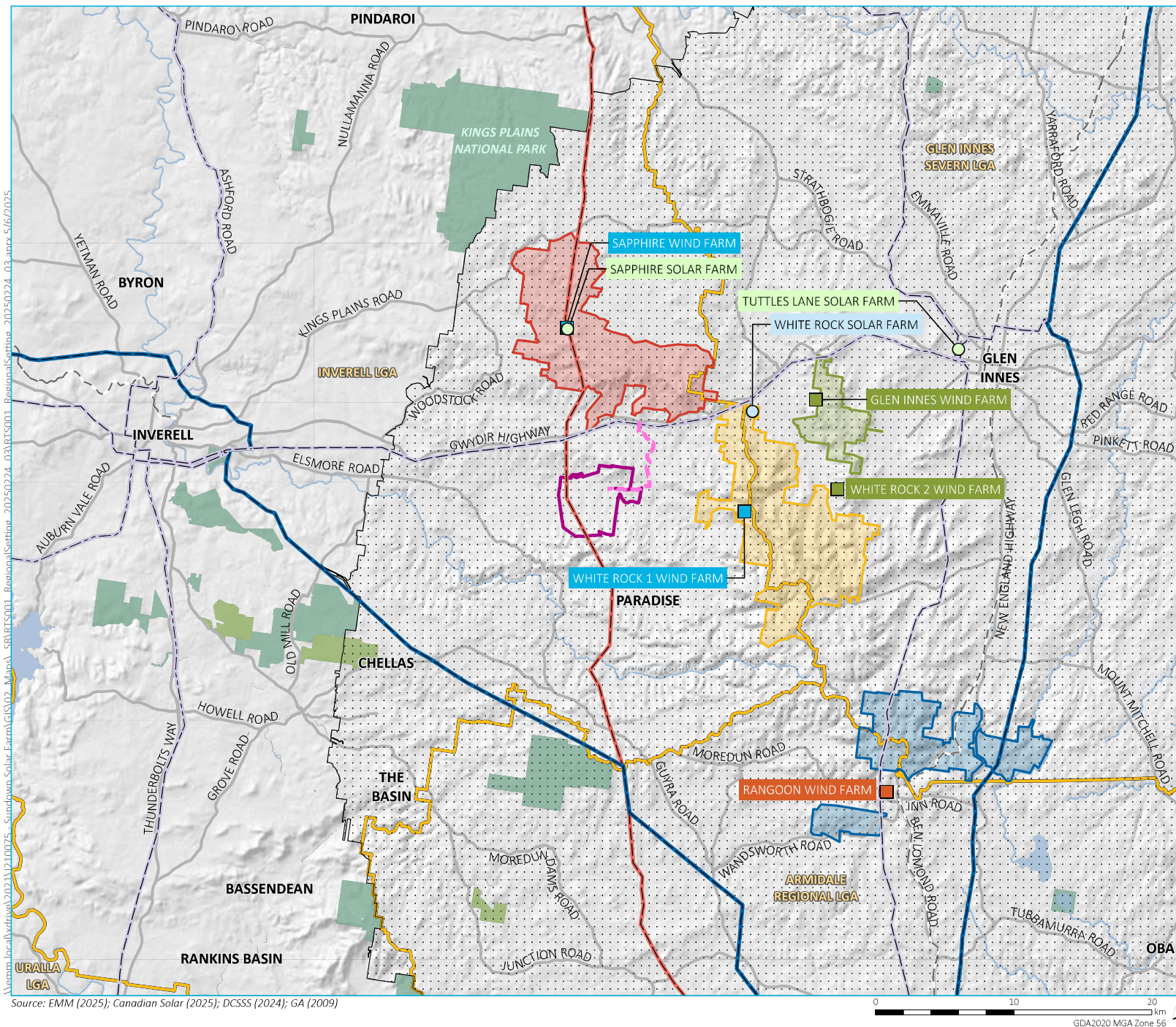
- a review of historical aerial photographs
- a review of soil, geology and other relevant maps such as acid sulfate soil and salinity
- a search for registered groundwater bores located within a 2 km radius of the disturbance footprint
- a search of NSW EPA records/databases
- the development of a preliminary conceptual site model (CSM) including a qualitative contamination risk level assessment. The risk level was considered to evaluate potential contamination liabilities and indicate whether further targeted investigations or Stage 2 detailed site investigation (DSI) would be required.

1.2.2 Site inspection

A site inspection was completed by EMM environmental scientists/engineers on 29-30 April 2025. The site inspection targeted:

- areas of interest (AOIs) identified in the desktop review
- areas identified in the Submissions Report (EMM 2025) proposed to accommodate key elements of the Project, including the BESS, substation, switchroom, construction and laydown areas, access roads and potential PV area (presented on Figure 7.1).

A drive-by inspection was completed for the remainder of the disturbance footprint. During this drive by inspection, any areas of potential interest identified by EMM were inspected and documented.



- KEY**
- Proposed Sundown Solar Farm (Project area)
 - Access road
 - New England Renewable Energy Zone
 - Solar development
 - Operational
 - Approved
 - Wind development
 - Operational
 - Approved
 - In planning
 - Electricity transmission line
 - 330 kV
 - 132 kV
 - 66 kV
 - Existing environment
 - Rail line
 - Major road
 - River
 - Named waterbody
 - NPWS reserve
 - State forest
 - Local government area

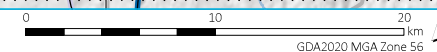
Regional setting

Sundown Solar Farm
Stage 1 Preliminary Site Investigation
Figure 1.1



\\emm-local\drive\2021\12\10075 - Sundown Solar Farm\GIS\02 - Maps\SR\RTS001 - Regional Setting - 20250224_03\RTS001_RegionalSetting_20250224_03.aprx 5/6/2025

Source: EMM (2025); Canadian Solar (2025); DCSSS (2024); GA (2009)



2 Background

Recurrent Energy proposes to develop the Project, which is a large-scale solar PV electricity generation facility and associated BESS. The Project will be within the NSW Government declared New England REZ and will play an important role in achieving the objectives of the REZ. The Project will also provide significant economic stimulus to the region through both construction-phase and operational-phase via employment opportunities and associated social and economic benefits.

The Project's EIS was submitted and subsequently exhibited on the DPHI Major Projects website from 7 July 2023 to 3 August 2023. Following public exhibition and receipt of submissions on the Project from the general public, government agencies, councils and special interest groups, a Submissions Report was prepared and submitted to DPHI.

In response to the Submissions Report, DPHI have requested a PSI (this document) be undertaken to assess potential contamination risks to proposed development works and future land use of the project area as a solar farm.

3 Regulatory framework

Applicable legislation informing this assessment includes:

- *NSW Contaminated Land Management Act 1997* (CLM Act)
- *NSW Protection of the Environment Operations Act 1997* (POEO Act)
- *NSW Environmental Planning and Assessment Act 2000* (EP&A Act)
- *NSW State Environmental Planning Policy (SEPP) (Resilience and Hazards) 2021* (formerly SEPP no.55 – Remediation of Land)
- *National Environment Protection (Assessment of Site Contamination) Measure 1999*, as amended on 16 May 2013 (ASC NEPM 2013)
- *NSW EPA 2017, Guidelines for the NSW Site Auditor Scheme*
- *NSW EPA 2020, Contaminated Land Guidelines: Consultants reporting on contaminated land.*

4 Environmental setting

4.1 Project area identification

The project area identification details are presented in Table 4.1.

Table 4.1 Project area description

Item	Details
Address	Sturmans Road, Spring Mountain NSW 2360
Total area (approximate)	Project area – 2,097 hectares (ha) Disturbance footprint – 612 ha which is the focus of this PSI
Owner	Private owners
Local government authority	Inverell Local Government Area
Lot numbers	Lot 148 DP 753299 (Glen Eisle), Lot 141 DP 753305 (Spring Valley) and Lot 1 DP 1064358 (Newstead)
Current zoning	RU1 – Primary Production
Current land use	Agriculture – cropping and grazing
Proposed land use	Solar farm
Elevation	720–850 metres Australian Height Datum (mAHD)
Project area location	Refer to Figure 1.1
Project area layout	Refer to Figure 7.1

4.2 Database search results

A review of publicly available data is summarised in Table 4.2 with search results provided in Appendix A together with accompanying mapping.

Table 4.2 Summary of the environmental setting

Aspect	Summary details
Geology and soils	
Soil and geology	The geology underlying the disturbance footprint is generally characterised by Maybole Volcanics Formation, comprising Lutetian to Priabonian aged olivine basalts interbedded with minor lithic sapphire and corundum bearing volcanoclastic and epiclastic units. The disturbance footprint also intersects areas of alluvial valley deposits along Kings Creek and Swan Brook (Quaternary to present), comprising fluvially deposited clay, silt, sand and gravel, and Alluvial Terrace deposits, comprising clay, silt, sand and gravel. Within the 500 m buffer is also areas of Sandon Beds formation, comprising late Devonian age to Carboniferous age low grade metamorphosed conglomerate, siltstone and mudstone. The surrounding area also includes Emmaville Volcanics, a felsic volcanic formation interbedded with conglomerate, sandstone and shale. Most of the development footprint is located on the vertosol and dermosol soil orders. Vertosols are typically highly productive soil types with high clay content and associated high nutrient status and water holding capacity. There are few modelled erosion constraints, likely due to the low-relief nature of that area, however vertosol and dermosol subsoils were observed to be dispersive, and prevention of erosion is critical to preserve topsoil, thereby maintaining the productivity of these soils and minimising subsoil exposure (EMM 2023). The other prominent soil types of the area are rudosols and tenosols, poorly developed soils that typically have low clay content and are weakly structured, sandy soils. They are typically benign from a soil chemistry perspective, being typically non-saline and non-sodic with poor fertility. Minor areas of sodosols present a high erosion risk (EMM 2023). The Australian Dryland Salinity Assessment at 1:2,500,000 (2001) identified the soils within the access road area as having high salinity hazard or risk in 2020 and 2050. Hydrogeological Landscapes from the Murray-Darling Basin Authority identified the areas in the disturbance footprint and surrounding area as having a non-saline salinity hazard (<3,000 milligrams per litre [mg/L]). Radon levels are reported to be 9 becquerels per cubic metre (Bq/m³).
Topography	The disturbance footprint comprises a topography at 720–850 mAHD, exhibiting an undulating sloped area with three valley formations in the northern and central portions (Kings Creek, Kateys Creek and Jessie Creek) of the project area. The area of highest elevation is within the south of the disturbance footprint.
Acid sulfate soils (ASS)	The Atlas of Australian Acid Sulfate Soils identifies ASS as having an extremely low probability of occurrence within the disturbance footprint.
Hydrology and hydrogeology	
Surface water features	Surface water features within the project area comprise of drainage channels (Kings Creek, Jessie Creek and Kateys Creek). Jessie Creek runs through the centre of the project area and separates the eastern and western portions on the disturbance footprint. Kateys Creek connects to Kings Creek and is within the western portion of the project area. Kings Creek runs west to east along the northern boundary line of the disturbance footprint. An unnamed watercourse extends from Kings Creek into the eastern portion of the project area. The access road (that forms part of the disturbance footprint) transects Chinamans Gully, Swan Brook and Wet Creek. Surface water drainage within the disturbance footprint is expected to comprise a combination of infiltration and overland flow into the surface water features identified above.

Aspect	Summary details
Aquifer	The disturbance footprint features one aquifer system exhibiting fractured or fissured, extensive aquifers of low to moderate productivity. Groundwater across the project area is considered to be non-saline (<3,000 mg/L).
Groundwater dependant ecosystems (GDEs)	Aquatic GDEs No potential for aquatic GDEs (ecosystems reliant on the surface expression of groundwater) has been identified within the disturbance footprint. Terrestrial GDEs Low, moderate and high potential terrestrial GDEs (ecosystems reliant on the subsurface presence of groundwater) have been identified within the disturbance footprint. The high potential terrestrial GDEs appear to be isolated to small, vegetated areas and within creek lines (Kings Creek, Jessie Creek and Kateys Creek) which are predominantly outside the disturbance footprint. Moderate potential areas encompass a large portion of the eastern surrounding area and along the access road. Small areas of low potential GDEs are present in the surrounding area, south of the disturbance footprint.
Groundwater bores	Two registered bores were identified within the disturbance footprint, authorised for stock and unknown purposes. A total of nine registered bores were identified within 2 km of the disturbance footprint and are registered for household use, agricultural irrigation and water supply for livestock.
Ecology and natural hazards	
Wetlands	No wetlands were identified within the disturbance footprint and surrounding (2 km buffer).
Bushfire prone land	Approximately 500 m either side of the access road (that forms part of the disturbance footprint) there is a large amount of isolated areas of vegetation category 1 with a vegetation buffer surrounding, and three small areas of vegetation category 2. The south-east area of the disturbance footprint contains three vegetation category 1 areas, as well as two isolated areas that are category 1 within 500 m of the disturbance footprint. The southern portion of the disturbance footprint contains two small, isolated areas that are predominantly out of the disturbance footprint area and are considered vegetation category 1, vegetation category 2 and a buffer zone. The western area of the disturbance footprint contains one vegetation category 1 area with a vegetation buffer zone that lies outside of the disturbance footprint area. Vegetation Category 1 is considered to be the highest risk for bushfire and vegetation category 2 is considered to be a lower risk.
Flood hazard	No flood planning areas or flood history were identified (Land Insight 2025). The probable maximum flood was assessed as part of a Water Assessment completed as part of the Sundown Solar Farm EIS (EMM 2023). The study found that Kings Creek and Kateys Creek are potential risks during a flooding event due to their proximity to the disturbance footprint.
Erosion hazard	The disturbance footprint and surrounding (500 m buffer) have the following erosion risks: • Wind erosion – Very low to moderate within the disturbance footprint and its surrounding areas. – Low to moderate along the access road and the access road's surrounding areas. • Water erosion – Very high risk in the northern portion of the access road area and in the south-west surrounding area. – High risk in the central portion of the project area adjacent to Jessie Creek. – Low to moderate risk throughout the remainder of the disturbance footprint and surrounding area. • Landslip erosion – Very high risk in the northern portion of the access road area and in the south-west surrounding area. – Very low risk in the remainder of the disturbance footprint.

Aspect	Summary details
Planning and heritage information	
Environmental planning instrument	The following environmental planning instruments were identified both within the disturbance footprint and surrounding (500 m buffer): • Biophysical Strategic Agricultural Land: State Environmental Planning Policy (Resources and Energy) 2021. • Minimum Lot Size (200-399.9 sq m): Inverell Local Environmental Plan 2012. • Land Application SEPP: Various policies including Biodiversity and Conservation, Sustainable Buildings, Housing, Transport and Infrastructure, Planning Systems, Primary Production, Industry and Employment, Exempt and Complying Development Codes, Resources and Energy, Design Quality of Residential Apartment Development, Resilience and Hazards. • Allowable Clearing Area: State Environmental Planning Policy (Biodiversity and Conservation) 2021. • Water Use Standards (30% and 40%): State Environmental Planning Policy (Sustainable Buildings) 2022. • Included Land Application: Inverell Local Environmental Plan 2012.
Heritage	No sites were identified by state and local heritage registers or the Australian heritage database register within the disturbance footprint or 200 m buffer.

5 Potential regulatory contamination issues

A review of the Land Insight report is summarised in Table 5.1 with search results provided in Appendix A together with accompanying mapping.

Table 5.1 Summary of potential regulatory contamination issues

Aspect	Summary details
NSW EPA records	The following NSW EPA records/databases were searched: • List of NSW contaminated sites notified to EPA. • Contaminated Land Records of Notice. • POEO Public Register: – Environment protection licences. – Audits and preliminary risk screen assessments. – Clean up, penalty notices and orders. NSW EPA records identified from these searches are listed below.
List of NSW contaminated sites notified to EPA	There are no sites which has been notified as contaminated to the NSW EPA within 1 km of the disturbance footprint.
Contaminated Land: Records of Notice	There are no sites listed on the NSW EPA Contaminated Land Record of Notices within 1 km of the disturbance footprint.
POEO Public Register - Environment protection licences	There is one current environment protection licence in the POEO Public Register within 1 km of the disturbance footprint: • License no. 20848, SWF1 Operations PTY LTD, Corner of Western Feeder and Waterloo Road Inverell NSW 2360, electricity works. There is one licence no longer in force that relates to a wider area: • License no. 12981 Forestry Corporation of New South Wales, Brigalow and Nandewar Community Conservation Area, logging operations.
POEO Public Register - Audits and preliminary risk screen assessments	There are five audits and preliminary risk screen assessments identified in the POEO Public Register within 1 km of the disturbance footprint: • (1529150) Compliance audit, Forestry Corporation of New South Wales, Brigalow and Nandewar Community Conservation Area, Dubbo NSW 2830, logging operations. • (1529151) Compliance audit, Forestry Corporation of New South Wales, Brigalow and Nandewar Community Conservation Area, Dubbo NSW 2830, logging operations. • (1529152) Compliance audit, Forestry Corporation of New South Wales, Brigalow and Nandewar Community Conservation Area, Dubbo NSW 2830, logging operations. • (1548774) Compliance audit, Forestry Corporation of New South Wales, Brigalow and Nandewar Community Conservation Area, Dubbo NSW 2830, logging operations. • (1548776) Compliance audit, Forestry Corporation of New South Wales, Brigalow and Nandewar Community Conservation Area, Dubbo NSW 2830, logging operations.
POEO Public Register - Clean up, penalty notices and orders	There are no clean up, penalty notices and orders in the POEO Public Register within 1 km of the disturbance footprint.

Aspect	Summary details
Other potentially contaminating activities	The following datasets from various sources containing other potential regulatory contamination issues within a minimum 200 m radius of the disturbance footprint were searched: • Contaminated Legacy Areas • Defence, Military Sites and Unexploded Ordnance (UXO) Areas • Former Gasworks Sites • Per- and Polyfluoroalkyl Substances (PFAS) Sites • Mines and Quarries (current and historical) • Landfills (current and historical) • National Pollutant Inventory (NPI) • Potentially Contaminating Activities¹ • Historical Business Directories. The records identified from these searches are listed below.
Contaminated Legacy Areas	No contaminated legacy areas were identified within 2 km of the disturbance footprint.
Defence, Military Sites and UXO Areas	No Defence, military sites and UXO Areas were identified within 2 km of the disturbance footprint.
Former Gasworks Sites	No former gasworks sites were identified within 2 km of the disturbance footprint.
PFAS sites	No PFAS sites were identified within 2 km of the disturbance footprint.
Mines and quarries (current and historical)	There are two mines/quarries that were identified within 500 m of the disturbance footprint. • Sturmans Road construction materials, status is unknown. Located 97.5 m south of the disturbance footprint. • Spring Mountain Road construction materials, status is unknown. Located 100.3 m south-west of the disturbance footprint.
Landfills (current and historical)	No landfills were identified within 500 m of the disturbance footprint.
National Pollutant Inventory	No NPI sites were identified within 500 m of the disturbance footprint.
Potential Contaminating Activities (PCAs)	No PCAs were identified within 200 m of the disturbance footprint.
Historical Business Directories	No historical business directories were identified within 200 m of the disturbance footprint.

¹ Land Insight proprietary dataset

6 Disturbance footprint history

A total of nine AOIs were identified during the desktop review. During the site inspection, an additional two AOIs were identified. The total list of AOIs is provided in Table 6.1 with further detail provided in the review of historical aerial images in Table 6.2 and site inspection notes in Table 7.1. The location of the AOIs is shown in Figure 7.1.

Table 6.1 Areas of interest

AOI no.	Title
AOI 1	Spring Mountain Road realignment
AOI 2	BESS/switchroom/substation
AOI 3	Cattle yard, shed and empty chemical container storage
AOI 4	Southern dam
AOI 5	South-western dam
AOI 6	North-eastern construction and laydown
AOI 7	South-eastern construction and laydown
AOI 8	South-western construction and laydown
AOI 9	Northern dam
AOI 10	Small waste pile
AOI 11	Disused aboveground storage tank (AST)

6.1 Previous investigations

No previous investigations relating to contamination at the disturbance footprint were available to EMM for review.

6.2 Historical aerial images

A review of historical aerial imagery for the period of 1962–2023 provided insights into the disturbance footprint historical and current land uses, as described in Table 6.2. The reviewed historical aeriels are provided in Appendix B.

Table 6.2 **Review of historical aerial images**

Year/image type	Area of interest (AOI) number	Description	Location
1962 – Black and White	General / whole of disturbance footprint	The disturbance footprint is generally sparsely vegetated with areas used for grazing and cropping visible. Kings Creek, Jessie Creek and Kateys Creek are all clearly defined and follow their current alignments. The eastern portion of the disturbance footprint used for cropping. Building structures are visible at the current location of the residential property on Glen Eisle, within the project area but outside of the disturbance footprint.	N/A
	AOI 1	Spring Mountain Road is visible with buildings present to the east.	AOI is on land adjacent to access road within disturbance footprint
	AOI 7	Area used as cropping land.	AOI is within disturbance footprint
1964 – Black and White	General / whole of disturbance footprint	Generally consistent with the previous aerial. Four building structures are visible at the current location of the residential property on Glen Eisle, within the project area but outside of the disturbance footprint.	N/A
1975 – Black and White	General / whole of disturbance footprint	Generally consistent with the previous aerial. Western portion of the disturbance footprint starting to be used for crops. Eastern portion and access road cropping lands expanded.	N/A
1985 – Black and White	General / whole of disturbance footprint	Generally consistent with the previous aerial. New building on western portion of disturbance footprint (AOI 3). More structures (possible storage tanks) are present at the current location of the residential property on Glen Eisle, within the project area but outside of the disturbance footprint.	N/A
	AOI 1	Confirmation of three buildings. Dam is constructed proximal to residential structures.	AOI is on and adjacent to access road within disturbance footprint
	AOI 2	Area first used for cropping lands.	AOI is within disturbance footprint
	AOI 3	Small building appears next to western portion cropping lands with new dirt road.	AOI is within disturbance footprint
1994 – Black and White	General / whole of disturbance footprint	Generally consistent with the previous aerial. North areas of western portion of the disturbance footprint are now used for cropping.	N/A
	AOI 6	Area first used for cropping.	AOI is within disturbance footprint
	AOI 8	Area first used as cropping.	AOI is within disturbance footprint
2013 – Colour	General / whole of disturbance footprint	Generally consistent with the previous aerial. Three dams are present in cropping areas within the disturbance footprint.	N/A
	AOI 4	Dam has been constructed downslope of croplands.	AOI is within disturbance footprint
	AOI 5	Dam has been constructed downslope of croplands.	AOI is within disturbance footprint

Year/image type	Area of interest (AOI) number	Description	Location
	AOI 9	Dam has been constructed with disturbed soil surrounding. Area first used as cropping lands.	AOI is within disturbance footprint
2015 – Colour	General / whole of disturbance footprint	Generally consistent with the previous aerial.	N/A
2018 – Colour	General / whole of disturbance footprint	Generally consistent with the previous aerial.	N/A
2023 – Colour	General / whole of disturbance footprint	Generally consistent with the previous aerial.	N/A

7 Site inspection

A site inspection was undertaken by EMM environmental scientists/engineers on 29–30 April 2025. The site inspection targeted the nine AOIs identified in the aerial imagery review (Section 6.2) and areas identified in the Submissions Report (EMM 2025) proposed to accommodate key elements of the Project, including the BESS, substation, switchroom, construction and laydown areas, potential PV area and the Spring Mountain Road realignment. In addition to inspecting the targeted areas, a drive-by inspection was completed for the remainder of the disturbance footprint with observed anomalies inspected and documented as additional AOIs.

The disturbance footprint was generally observed to be used for grazing and cropping for agricultural purposes. The potential contamination sources identified during the site inspection were considered typical of the site setting and land use. Two additional AOIs (AOI 10 and 11) were identified during the inspection of the disturbance footprint.

Site walkovers were undertaken for the proposed areas of the BESS, substation, switchroom, construction and laydown areas and potential PV area. These areas were observed to be used for grazing and cropping for agricultural purposes. The Spring Mountain Road realignment area was observed to be used for access to private land and Sturmans Road. There was no visual evidence of potentially contaminating activities at these areas.

Observations from the site inspection notes are provided in Table 7.1. Figure 7.1 presents the project area layout and AOI locations. A photographic record is provided in Appendix C.

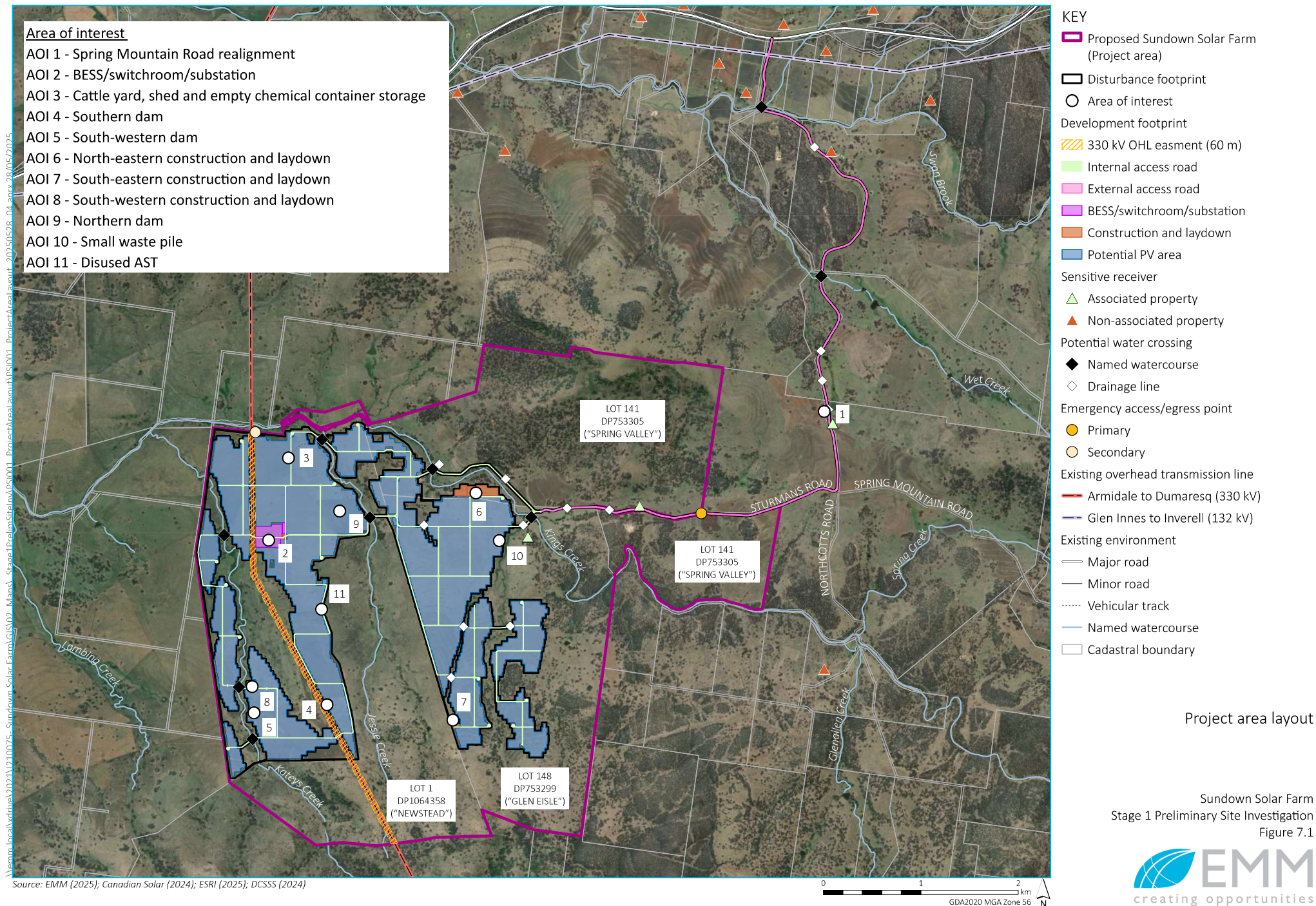
Table 7.1 Site inspection notes

AOI no.	Title	Description	Risk of contamination	Appendix C reference
1	Spring Mountain Road realignment	- A portion of the public access road has been built on private land, Recurrent Energy has proposed to realign this portion of road back onto paper route. - Cluster of trees and disused farming equipment in the general area of realignment.	Low	Plates 10–15
2	BESS/switchroom/substation	The area is cleared and used for cropping.	Low	Plates 30–32
3	Cattle yard, shed and empty chemical container storage	- Approximately 30 empty 20 litre (L) chemical containers (herbicides, fungicides, 700 surfactant and Kombo 950 LF adjuvant). These were stored on a fenced concrete slab and were not banded. It could not be confirmed that all containers were empty. - Metal cattle yard in good condition. - Open water well with slight overgrowth surrounding. Tires and fencing used to cover the well hole. - Empty corrugated iron shed including some potential shearing stations and empty chemical containers. Shed appeared to be in good condition. - Two empty drums estimated to be approximately 200 L. Former contents are not known. - Disused farming equipment stored on grass. - No surface staining observed on the ground surface.	Moderate	Plates 16–24
4	Southern dam	Dam containing minimal silty brown water, of approximately 38 m x 46 m width and length.	Low	Plates 26–27
5	South-western dam	Dam (dry) of approximately 37 m x 37 m width and length.	Low	Plate 25

AOI no.	Title	Description	Risk of contamination	Appendix C reference
6	North-eastern construction and laydown	The area is cleared for grazing with no notable infrastructure.	Low	Plates 1–2
7	South-eastern construction and laydown	- The area is cleared for grazing with no notable infrastructure. - Small gully on eastern side, a tributary from Kings Creek.	Low	Plates 8–9
8	South-western construction and laydown	The area is cleared for grazing with no notable infrastructure.	Low	Plates 28–29
9	Northern dam	Dam containing minimal water, of approximately 20 m x 36 m width and length.	Low	Plate 33
10	Small waste pile	- Small waste pile of approximately 3 m x 3 m, including chainsaws, tires, concrete, steel pipe, fencing, glass bottles and sheet metal. The waste pile has been grown over with grass. - Surrounding area is cleared for grazing.	Low	Plates 3–4
11	Disused AST	- Disused AST estimated to be approximately 1,000 L. The AST was not within a bund and was situated on grass. The AST was in poor condition with extensive surface rust. No surface staining observed on the ground surface. - The property owner confirmed that the AST was used for diesel but had not been used for at least 10 years. The diesel would have been trucked in and used for tractors in the paddock.	Moderate	Plates 5-7

Based on the findings of the site inspection, the following AOIs have been deemed minimal risk of contamination to the project and excluded from further consideration:

- AOI 1 Spring Mountain Road realignment
- AOI 2 BESS/switchroom/substation
- AOI 4 Southern dam
- AOI 5 South-western dam
- AOI 6 North-eastern construction and laydown
- AOI 7 South-eastern construction and laydown
- AOI 8 South-western construction and laydown
- AOI 9 Northern dam
- AOI 10 Small waste pile.



8 Assessment of sources, pathways and receptors

8.1 Sources and contaminants of potential concern

8.1.1 Sources and contaminants

Table 8.1 shows a summary of the potential sources of contamination and associated contaminants of potential concern (CoPC) identified as an outcome of the information review and site inspection.

Table 8.1 Summary of potential sources of historical contamination and CoPC

Source and CoPC	Evaluation
Historic agricultural land use OCPs/OPPs ¹ , arsenic, herbicides, ammonia, nitrite, nitrate, phosphorus, phenols, PAHs ²	The historical and current use of the disturbance footprint and surrounding area has involved the application of herbicides, pesticides and/or insecticides. These could have potentially accumulated in soils across the disturbance footprint. Historical treatment of farming fence, power pole and shed foundation timber with creosote may be present at the disturbance footprint. No creosote treatment was identified during the site inspection but given the size of the disturbance footprint and the extensive fencing, there is potential for treated timber to be present within the disturbance footprint.
Use of farm machinery TRH ⁴ , BTEXN ⁵ , PAHs, metals, OCPs/OPPs	Spills and leaks associated with the machinery laydown areas and shed has potential to result in localised soil contamination. Depending on the nature of chemicals historically stored and used within the shed in the disturbance footprint, hydrocarbons, heavy metals and herbicides/pesticides may be present.
Fuel/chemical storage Heavy metals, OCPs/OPPs, TRH, BTEXN	Spills and leaks related to fuel storage in ASTs and chemical storage may have occurred within the disturbance footprint, however no visual evidence of contamination was observed during the site inspection. One former diesel AST was observed at AOI 11 within the disturbance footprint. It was in disused condition and showed extensive surface rust. The AST was not banded however there was no evidence of surface staining below or near the AST. Empty chemical container storage was observed on a fenced concrete slab at AOI 3 within the disturbance footprint, however it could not be confirmed that all containers were empty. The slab was not banded. No odour or staining associated with chemical storage was noted during the site inspection.
Waste burials and tips TRH, BTEXN, PAHs, metals, ACM ³	Potential historical disposal of waste in naturally occurring or man-made depressions is often observed at agricultural properties. These burials are generally used for the disposal of both household and farm wastes. No waste burials were identified during the site inspection, but these may be present. A small waste pile was observed at AOI 10 within the disturbance footprint. This had chainsaws, tires, concrete, steel pipe, fencing, glass bottles and sheet metal, however no visual evidence of contamination was observed.

Notes:

1. OCPs/OPPs – organochlorine pesticides/organophosphate pesticides
2. PAHs – polycyclic aromatic hydrocarbons
3. ACM – asbestos containing material
4. TRH – total recoverable hydrocarbons
5. BTEXN – benzene, toluene, ethylbenzene, xylene and naphthalene

8.1.2 Pathways

The following transport mechanisms may apply at the disturbance footprint:

- surface run-off of CoPC (water and sediments)
- vertical seepage of CoPC into the underlying soils and into the local groundwater system
- migration of CoPC via groundwater transport
- atmospheric dispersion of dust, derived from contaminated soil.

Identified potential exposure pathways for the nominated CoPC include:

- i) direct contact and incidental ingestion with impacted surface water and sediment
- ii) dermal contact and incidental ingestion of impacted soil
- iii) dermal contact and incidental ingestion of impacted groundwater
- iv) inhalation of dust (including soil derived) or fibres
- v) plant uptake and/or ingestion by animals
- vi) inhalation of dust and/or vapour in outdoor air.

Based on the physical and chemical features of the CoPC identified, the exposure pathways that may be applicable to each CoPC at the disturbance footprint are presented in Table 8.2.

Table 8.2 CoPC and applicable exposure pathways

CoPC	Applicable pathways
TRH/BTEXN	i, ii, iii, iv, v, vi
PAHs	i, ii, iii, iv, v, vi
OCPs/OPPs	i, ii, iii, iv, v, vi
Asbestos	iv
Heavy metals (arsenic, cadmium, chromium, mercury, lead, nickel and zinc)	i, ii, iii, iv, v, vi

8.1.3 Potential receptors

A preliminary CSM has been developed to identify existing known sources and areas of contamination, associated potential impacts to human health and ecological receptors and to identify exposure S-P-R linkages.

Potential human receptors have been identified to be:

- current agricultural users of the disturbance footprint
- residents within dwellings
- adjoining land users/occupants
- future construction, intrusive maintenance workers and solar farm operators.

The ecological receptors are:

- surface water bodies receiving runoff from the disturbance footprint
- regional groundwater systems including GDEs
- current and future livestock, crops and native flora/fauna.

8.2 Conceptual site model

The contamination risk level is informed by the matrix outlined in Table 8.3. The CSM table is provided in Table 8.4.

Table 8.3 Preliminary qualitative risk assessment matrix

Consequence	Likelihood of soil or groundwater contamination to be present				
	Rare (1) – Very unlikely at concentrations above the relevant assessment criteria and limited in extent.	Unlikely (2) – Potentially present at concentrations above the relevant assessment criteria and limited in extent.	Possible (3) – Potentially present at concentrations above the relevant assessment criteria and widespread.	Likely (4) – Most likely present at concentrations above the relevant assessment criteria and widespread.	Almost certain (5) – Known to be present at concentrations above the relevant assessment criteria and widespread.
Insignificant (1) – No or highly unlikely exposure pathway for human or ecological receptors [^] .	Low 1	Low 2	Low 3	Low 4	Moderate 5
Minor (2) – Unlikely exposure pathway for human or ecological receptors [^] .	Low 2	Low 4	Low 6	Moderate 8	Moderate 10
Moderate (3) – Exposure pathway for human or ecological receptors may be present and complete [^] .	Low 3	Low 6	Moderate 9	Moderate 12	High 15
High (4) – Exposure pathway for human or ecological receptors likely to be present and complete [^] .	Low 4	Moderate 8	Moderate 12	High 16	High 20
Significant (5) – Exposure pathway for human or ecological receptors present and are considered complete [^] .	Moderate 5	Moderate 10	High 15	High 20	High 25

Note: [^]Without further investigation or implementation of appropriate management controls.

Table 8.4 Conceptual site model

Source	COPC	Mechanism	Pathway	Receptor	S-P-R linkage	Contamination risk
Historic agricultural land use Application of pesticides/herbicides and fertilisers to crops Historical timber post treatment	OCPs/OPPs ¹ , arsenic, herbicides, ammonia, nitrite, nitrate, phosphorus, phenols, PAHs ²	Surface run-off of CoPC (water and sediment)	Plant uptake and/or ingestion by animals	Ecological: - surface water bodies receiving runoff from the disturbance footprint (Kings Creek, Jessie Creek and Kateys Creek) - regional groundwater systems including groundwater dependent ecosystems - current and future livestock, crops and native flora/fauna	Potentially complete	Low 4
		Vertical seepage of CoPC into the underlying soils and into the local groundwater system				Low 2
		Migration of CoPC via groundwater transport				Low 2
		Excavation and re-location of soil during future activities	Dermal contact and incidental ingestion of soil	Human health: - current agricultural users of the disturbance footprint - residents within dwellings - adjoining land users/occupants - future construction and solar farm workers		Low 4
		Migration and infiltration of vapours from contaminants in soil, groundwater and/or surface water	Inhalation of soil, groundwater and/or surface water vapours			Low 2
		Atmospheric dispersion (aeolian transport) of dust, derived from contaminated soil	Inhalation of dust or fibres			Low 2
		Mobilisation of CoPC in surface water channels and dams	Dermal contact and incidental ingestion of surface water	Ecological: - current and future livestock and crops Human health: - future construction workers		Low 4
Use of farm machinery	TRH ⁴ , BTEXN ⁵ , PAHs ² , metals, OCPs/OPPs ¹	Surface run-off of CoPC (water and sediment)	Plant uptake and/or ingestion by animals	Ecological: - surface water bodies receiving runoff from the disturbance footprint (Kings Creek, Jessie Creek and Kateys Creek) - regional groundwater systems including groundwater dependent ecosystems - current and future livestock, crops and native flora/fauna	Potentially complete	Low 4
		Vertical seepage of CoPC into the underlying soils and into the local groundwater system				Low 2
		Migration of CoPC via groundwater transport				Low 2
		Excavation and re-location of soil during future activities	Dermal contact and incidental ingestion of soil	Human health: - current agricultural users of the disturbance footprint - adjoining land users/occupants - future construction and solar farm workers		Low 4
		Migration and infiltration of vapours from contaminants in soil, groundwater and/or surface water	Inhalation of soil, groundwater and/or surface water			Low 2
		Atmospheric dispersion (aeolian transport) of dust, derived from contaminated soil	Inhalation of dust or fibres			Low 2
		Mobilisation of CoPC in surface water channels and dams	Dermal contact and incidental ingestion of surface water	Ecological: - current and future livestock and crops Human health: - future construction workers		Low 2
Fuel/chemical storage	Heavy metals, OCPs/OPPs ¹ , TRH ⁴ , BTEXN ⁵	Surface run-off of CoPC (water and sediment)	Plant uptake and/or ingestion by animals	Ecological: - surface water bodies receiving runoff from the disturbance footprint (Kings Creek, Jessie Creek and Kateys Creek) - regional groundwater systems including groundwater dependent ecosystems - current and future livestock, crops and native flora/fauna	Potentially complete	Low 4
		Vertical seepage of CoPC into the underlying soils and into the local groundwater system				Low 4
		Migration of CoPC via groundwater transport				Low 4
		Excavation and re-location of soil during future activities	Dermal contact and incidental ingestion of soil	Human health: - current agricultural users of the disturbance footprint - adjoining land users/occupants - future construction and solar farm workers		Moderate 8
		Migration and infiltration of vapours from contaminants in soil, groundwater and/or surface water	Inhalation of soil, groundwater and/or surface water vapours			Low
		Atmospheric dispersion (aeolian transport) of dust, derived from contaminated soil	Inhalation of dust or fibres			Low 2

Source	COPC	Mechanism	Pathway	Receptor	S-P-R linkage	Contamination risk
Waste burials and tips	ACM ³ , heavy metals, OCPs/OPPs ¹ , TRH ⁴ , BTEXN ⁵	Mobilisation of CoPC in surface water channels and dams	Dermal contact and incidental ingestion of surface water	Ecological: - current and future livestock and crops Human health: - future construction workers	Potentially complete	Low 4
		Surface run-off of CoPC (water and sediment)	Plant uptake and/or ingestion by animals	Ecological: - surface water bodies receiving runoff from the disturbance footprint (Kings Creek, Jessie Creek and Kateys Creek) - regional groundwater systems including groundwater dependent ecosystems - current and future livestock, crops and native flora/fauna		Low 2
		Vertical seepage of CoPC into the underlying soils and into the local groundwater system				Low 2
		Migration of CoPC via groundwater transport				Low 2
		Excavation and re-location of soil during future activities	Dermal contact and incidental ingestion of soil	Human health: - current agricultural users of the disturbance footprint - adjoining land users/occupants - future construction and solar farm workers		Low 4
		Migration and infiltration of vapours from contaminants in soil, groundwater and/or surface water	Inhalation of soil, groundwater and/or surface water vapours			Low 2
		Atmospheric dispersion (aeolian transport) of dust, derived from contaminated soil	Inhalation of dust or fibres			Low 2
		Mobilisation of CoPC in surface water channels and dams	Dermal contact and incidental ingestion of surface water	Ecological: - current and future livestock and crops Human health: - future construction workers		Low 4

Notes:

1. OCPs/OPPs – organochlorine pesticides/organophosphate pesticides

2. PAHs – polycyclic aromatic hydrocarbons

3. ACM – asbestos containing material

4. TRH – total recoverable hydrocarbons

5. BTEXN – benzene, toluene, ethylbenzene, xylene and naphthalene

Following assessment of the source-pathway-receptor (S-P-R) linkages via the conceptual site model the contamination risk is considered low with the exception of the following moderate risk contamination sources:

- Impacted soil disturbance as part of the Project's construction phase and/or intrusive maintenance work during operation leading to dermal contact and incidental ingestion by future construction and solar farm workers at the disused diesel AST at AOI 11 and empty chemical container storage area at AOI 3.

9 Conclusion and recommendations

EMM has been engaged by Recurrent Energy to undertake a PSI in support of the Sundown Solar Farm Project. The Project proposes the construction and operation of a solar farm in the New England Tablelands region of northern NSW, approximately 30 km east of Inverell.

This PSI was undertaken for the disturbance footprint, as identified in the Submissions Report (EMM 2025), that will be impacted by construction and operation works of the Project.

The objectives of this PSI were to identify potential sources of contamination and determine CoPC within the disturbance footprint, evaluate the risk that any contamination may pose to human health and the environment and outline options for further investigation, appropriate measures for management or remediation (as required).

Based on the data from the desktop review and site inspection, the following conclusions are made:

- The disturbance footprint historical and current land is primarily agricultural, including cropping and grazing land (paddocks).
- The potential contamination sources identified during the site inspection were considered typical of the site setting and land use. Potential sources of contamination were identified as:
 - historic agricultural land use
 - use of farm machinery
 - fuel/chemical storage
 - waste burials and tips.

The CSM identified potentially complete contamination S-P-R linkages at the following source areas identified as presenting a moderate contamination risk:

- disused diesel AST at AOI 11
- empty chemical container storage area at AOI 3.

The following recommendations are made with regards to making the disturbance footprint suitable for proposed future development works:

- Prior to construction commencing, targeted sampling is recommended in areas where a moderate contamination pathway risk has been identified within the disturbance footprint to assess risk and inform appropriate disposal and remediation measures during the construction phase.
- A construction environmental management plan (CEMP) should be developed and implemented to address the contamination sources identified in the CSM with a low risk.
- It is possible that potential contamination not identified during this PSI will be encountered during construction works. An unexpected finds protocol for managing potential and/or identified contamination should be prepared by an appropriately qualified contamination consultant and form part of the overall CEMP.

References

EMM 2023, *Environmental Impact Statement*. Sundown Solar Farm. 20 June 2023.

EMM 2025, *Submissions Report*. Sundown Solar Farm. 21 February 2025

National Environmental Protection Council (NEPC) 1999, *National Environment Protection (Assessment of Site Contamination) Measure*. December 1999 as amended 2013.

NSW Contaminated Land Management Act 1997

NSW Environment Protection Authority (NSW EPA) 2022, *Guidelines for consultants reporting on contaminated land*

NSW Environmental Planning and Assessment Act 2000 (EP&A Act) and State Environmental Planning Policy (SEPP) no.55 – Remediation of Land

NSW EPA 2017, *Guidelines for the NSW Site Auditor Scheme* (3rd edition)

NSW Protection of the Environment Operations Act 1997

Appendix A

Land Insight report



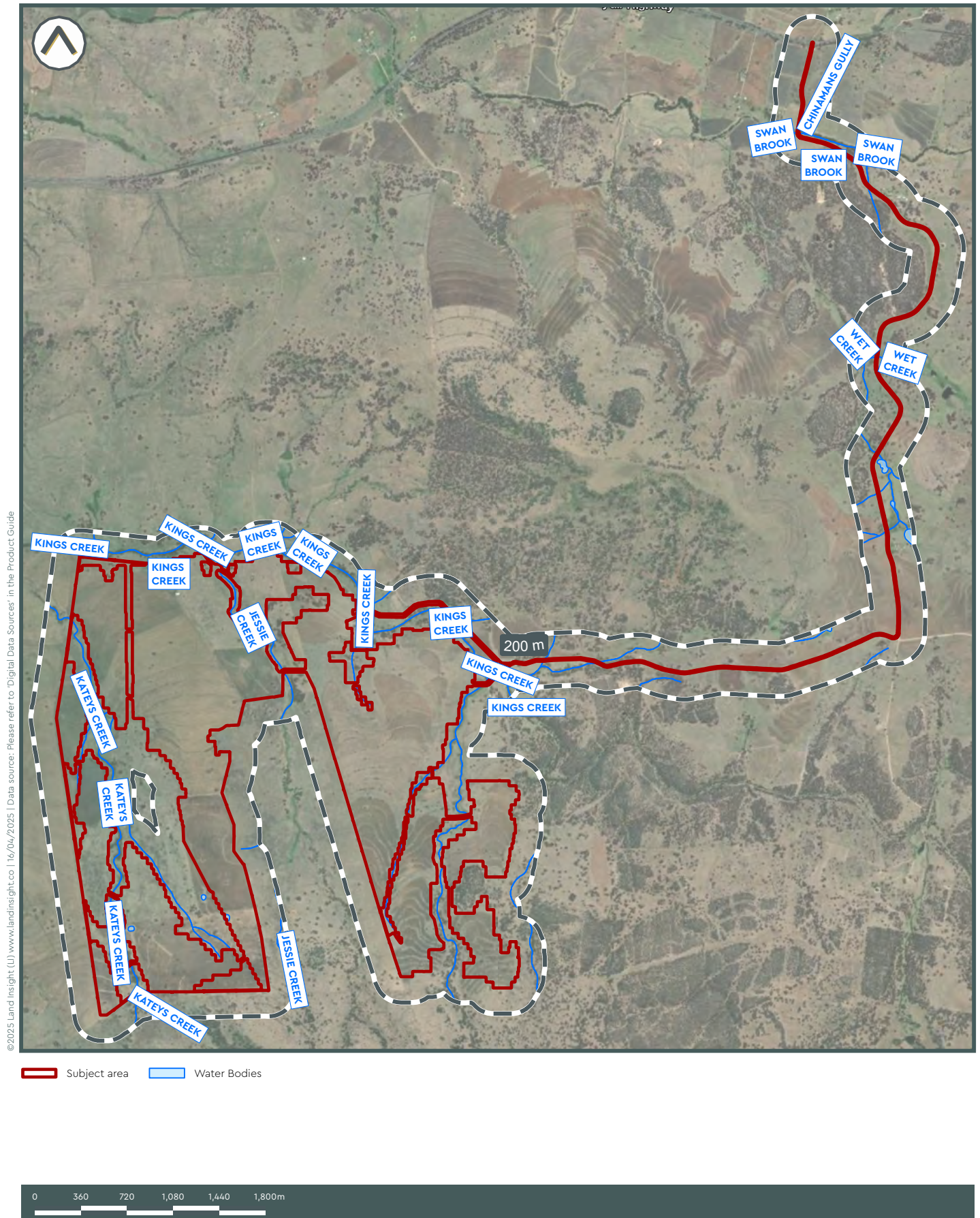
Appendix A

REPORT MAPS

Sundown Solar Farm
Spring Mountain, NSW

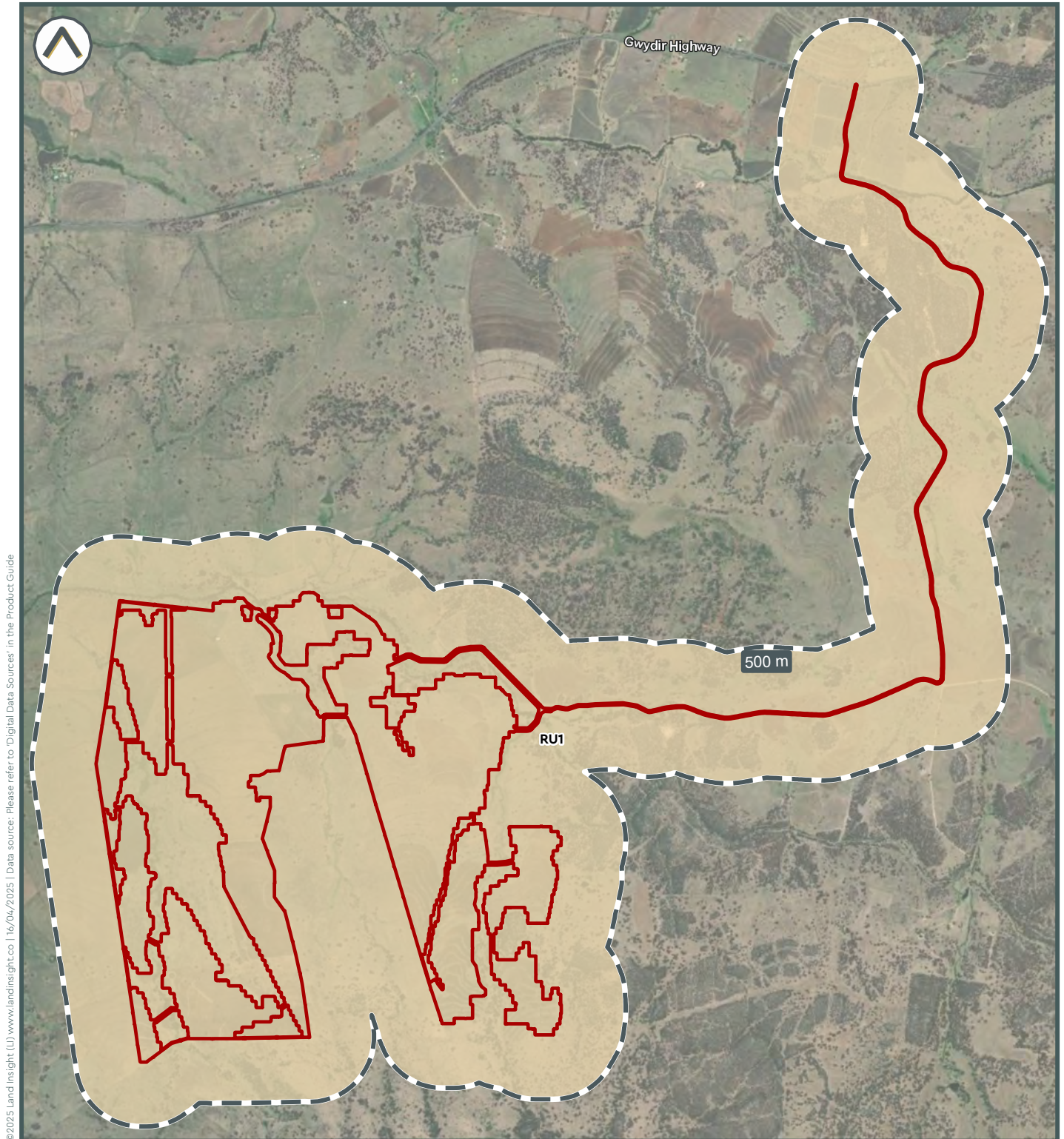


Sensitive Receptors and Features of Interest





Zoning



 Subject area

Zone

 RU1 - Primary Production

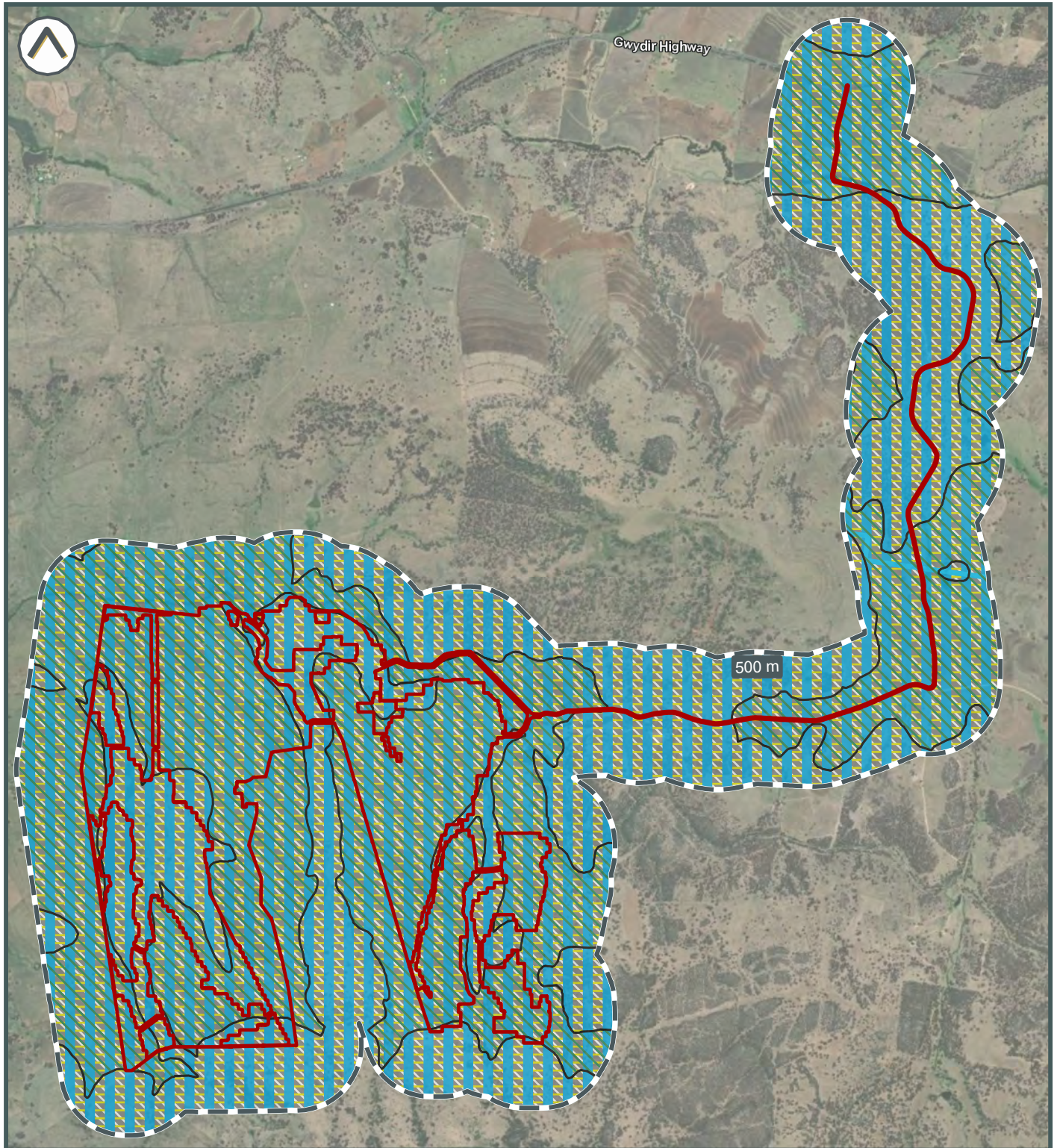
0 390 780 1,170 1,560 1,950m





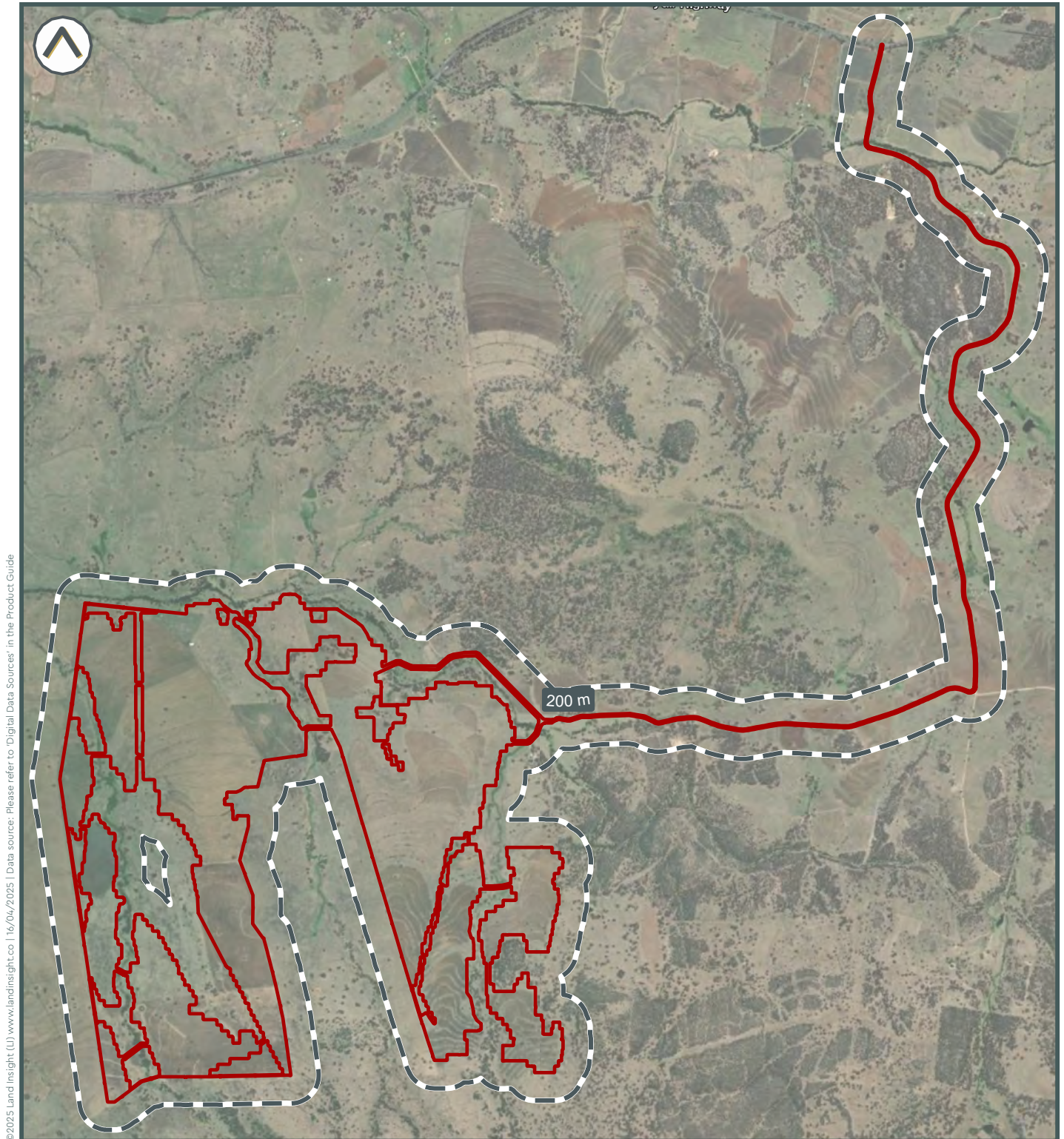
Planning Overlays

©2025 Land Insight (U) www.landinsight.co | R:\LI-4715 DDR Spring Mountain NSW\Working\GIS\Project\LI-XXXXX XXX\16/04/2025 | Data source: Please refer to 'Digital Data Sources' in the Product Guide



- | | | |
|-------------------------|--------------------------------|-----------------------|
| Subject area | Land Application | SEPP Land Application |
| Minimum Lot Size (sq m) | Strategic Agricultural Land | |
| Allowable Clearing | Minimum Water Use Standard (%) | |



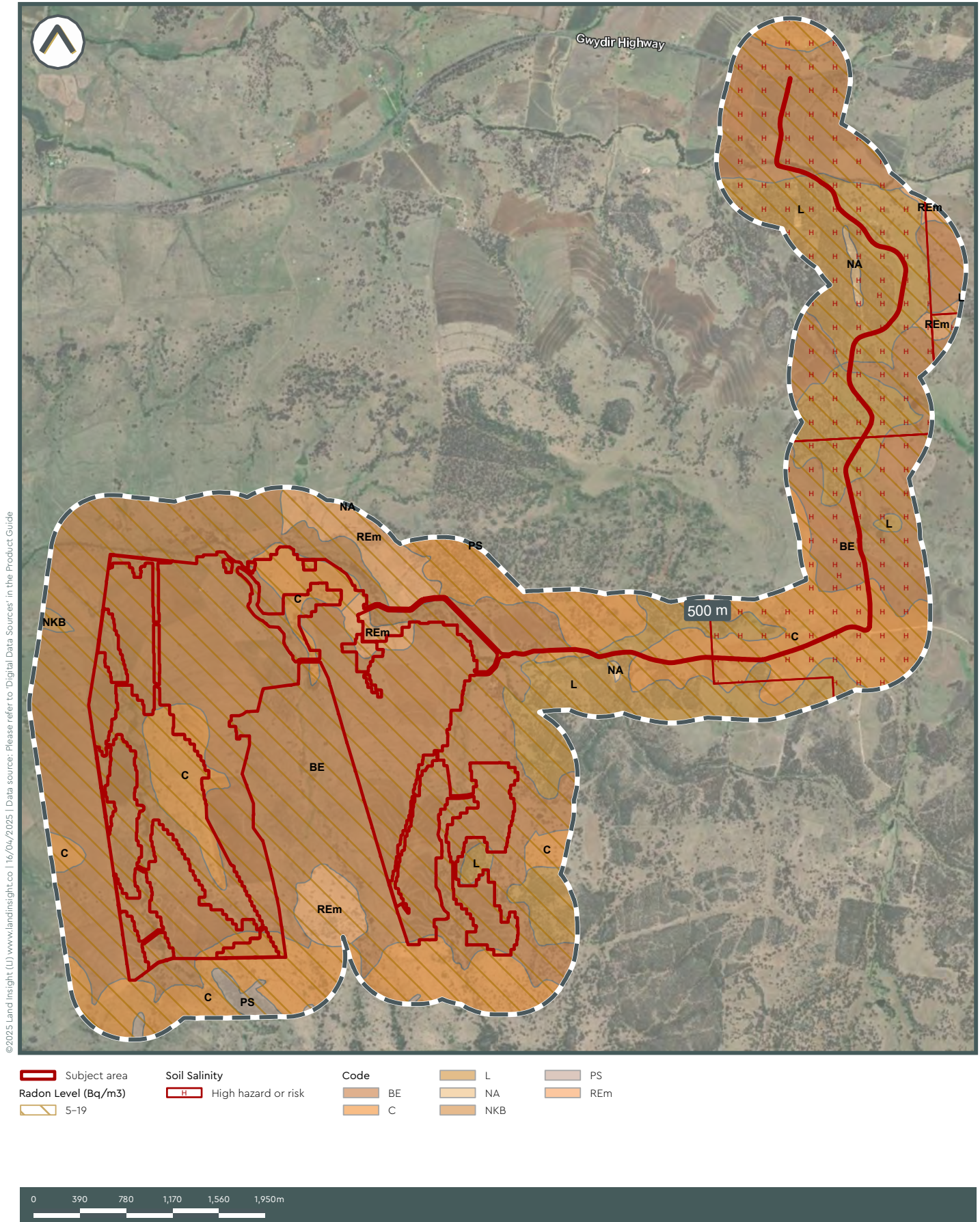


 Subject area





Soil Landscape and Salinity



Subject area
Radon Level (Bq/m3)
5-19

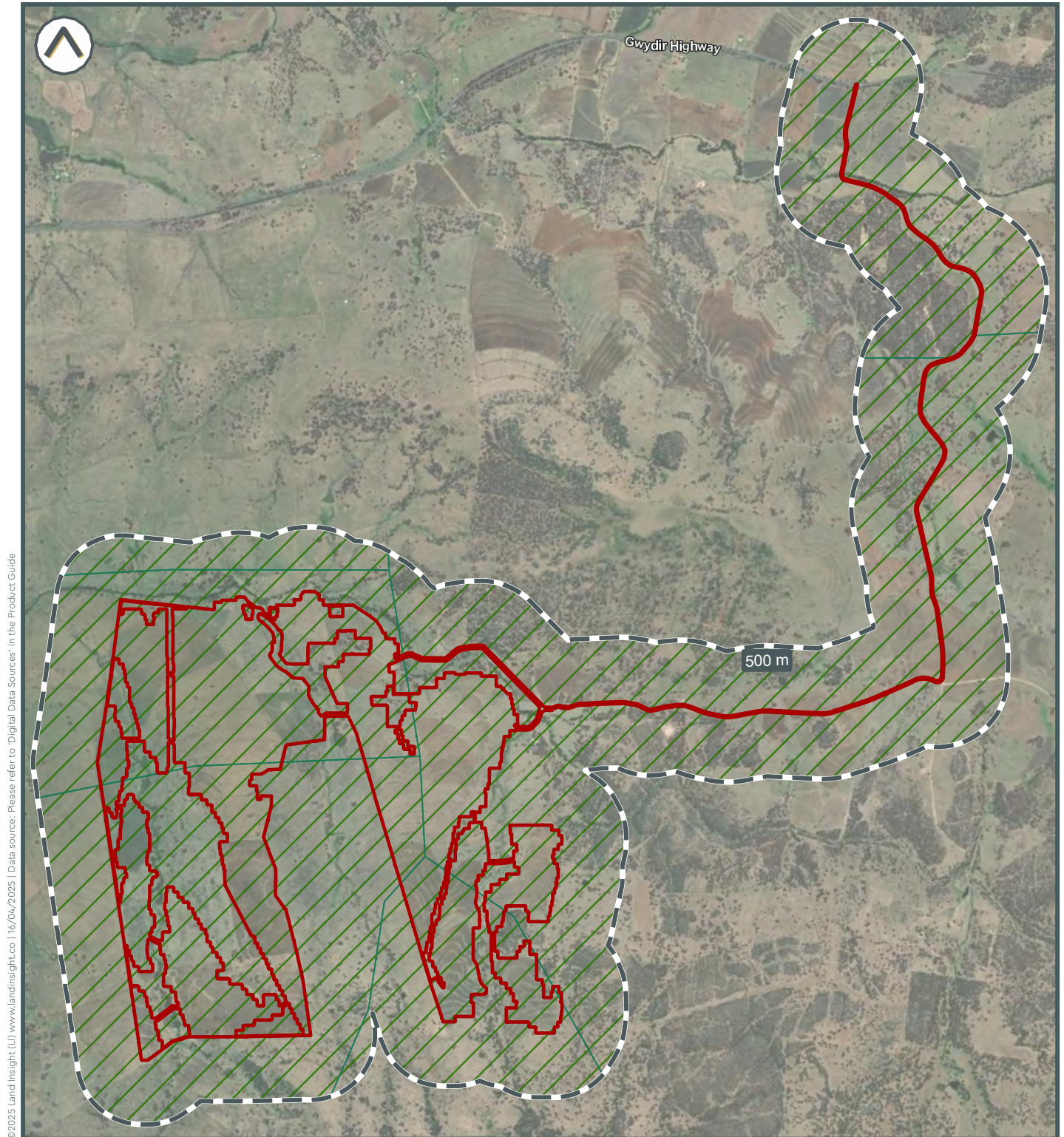
Soil Salinity
H High hazard or risk

Code
BE
C
L
NA
NKB
PS
REm





Acid Sulfate Soils

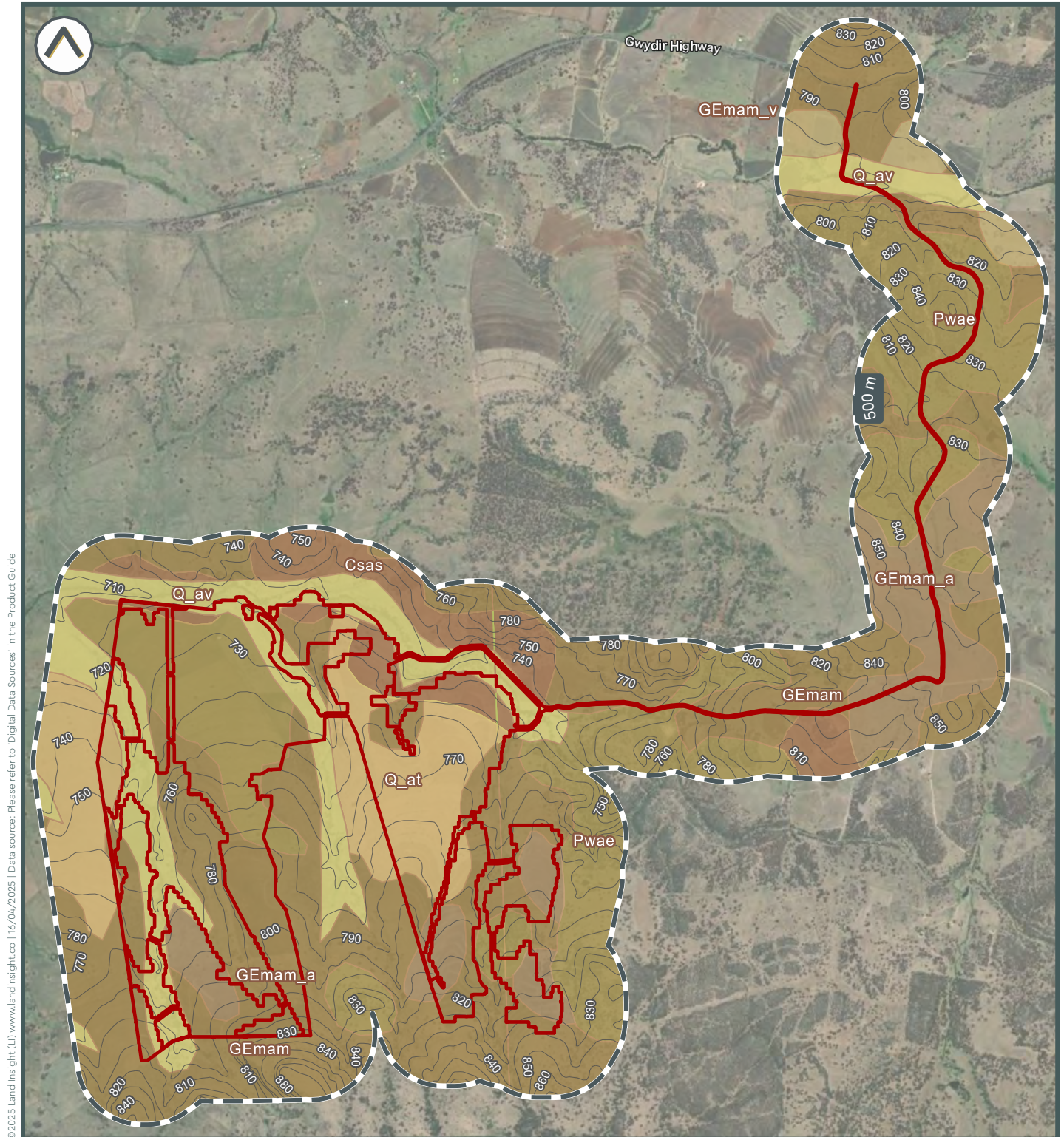


- Subject area
- Atlas of Australian Acid Sulfate Soils
- Extremely low probability of occurrence





Geology and Topography



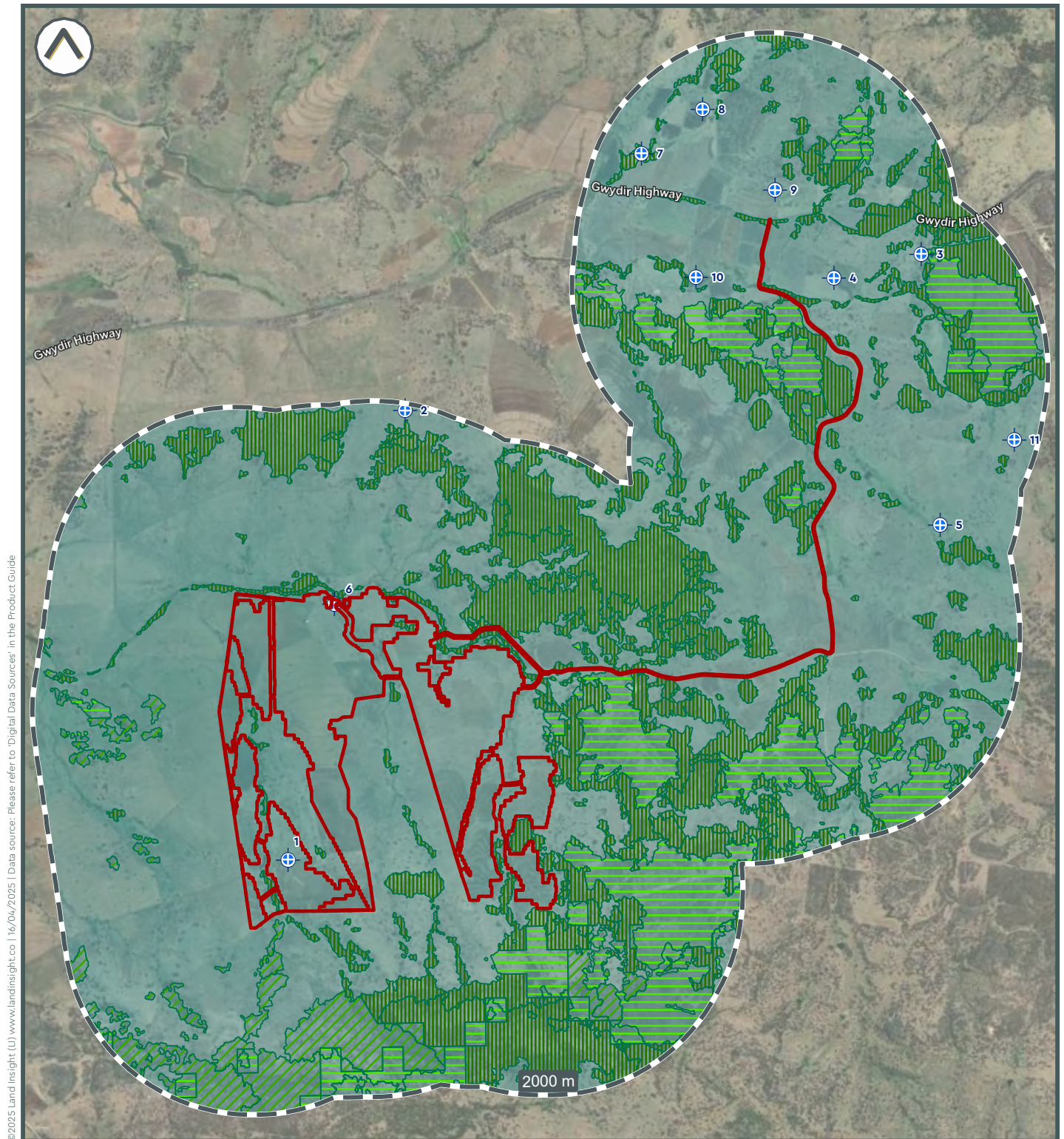
- Subject area
- Topographic Contour (m)
- Geology Code
- GEmam
- GEmam_a
- GEmam_v
- Pwae
- Q_at
- Q_av

0 390 780 1,170 1,560 1,950m





Groundwater Dependent Ecosystems & Hydrogeology Constraints



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- Subject area
- Groundwater bores

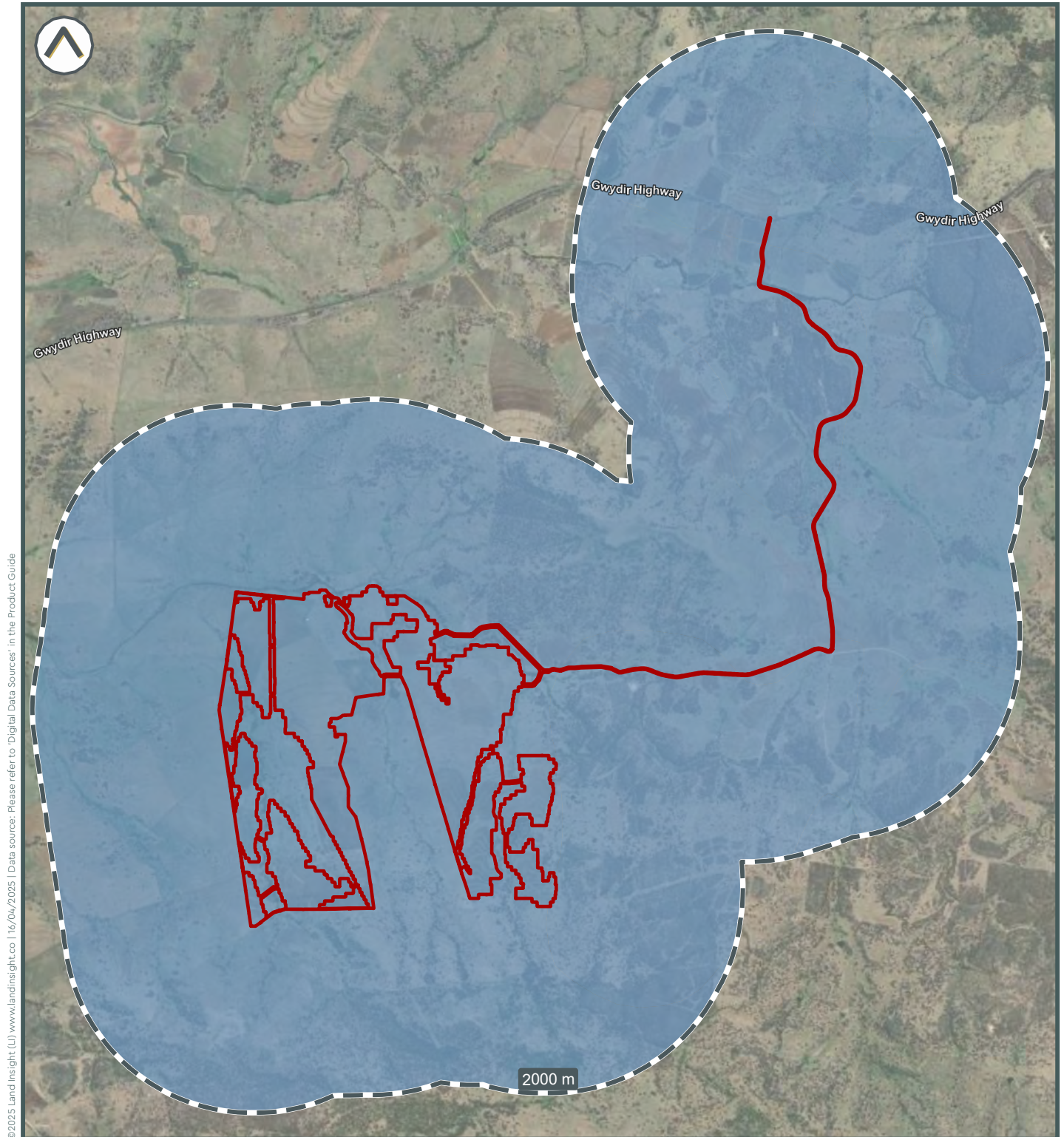
- Ecosystems that rely on Subsurface presence of Groundwater
- High potential GDE – from regional studies
 - Moderate potential GDE – from regional studies

- Aquifer type
- Low potential GDE – from regional studies
 - Fractured or fissured, extensive aquifers of low to moderate productivity





Groundwater and Other Bores



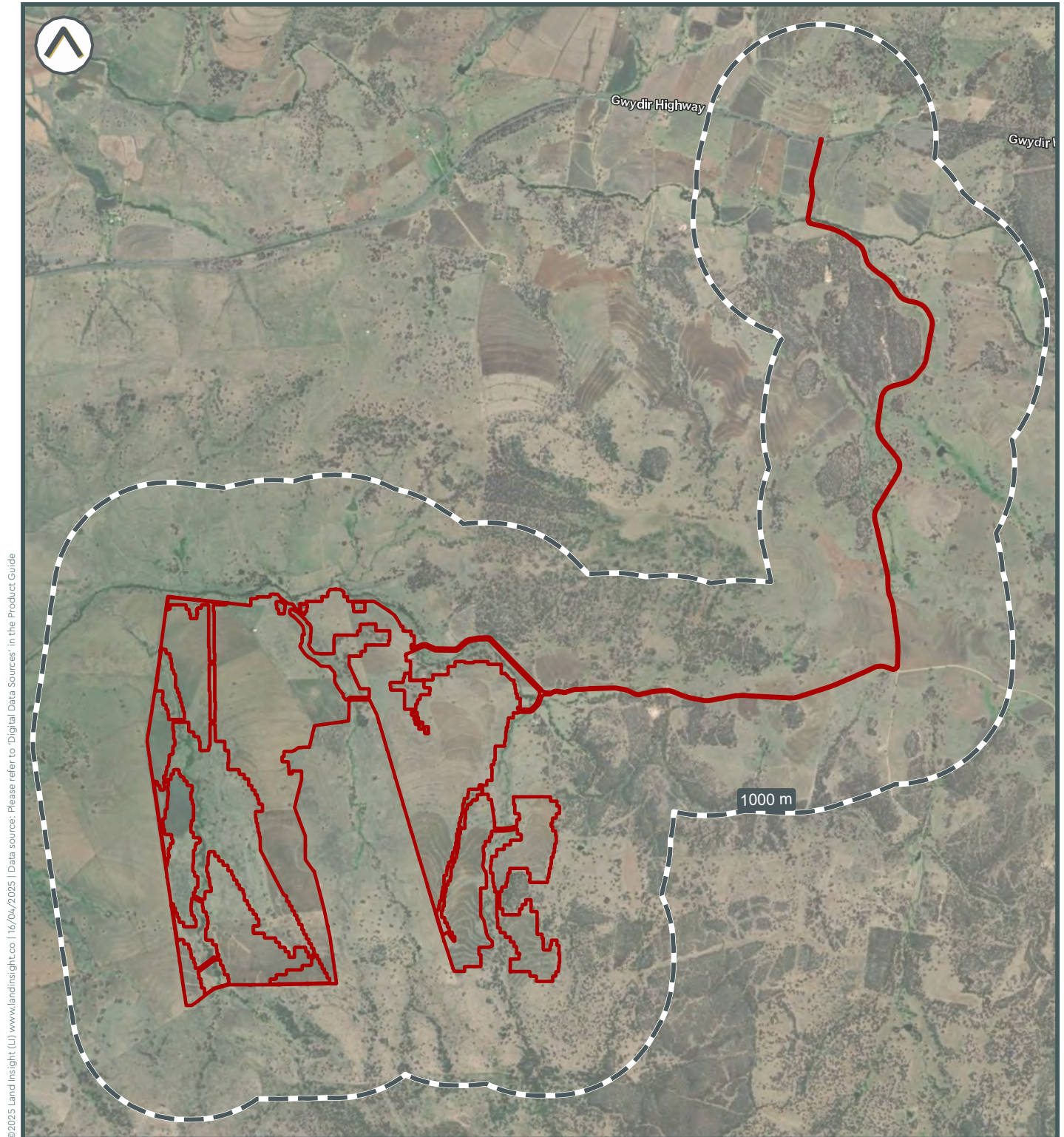
©2025 Land Insight (U) www.landinsight.co | 16/04/2025 | Data source: Please refer to 'Digital Data Sources' in the Product Guide

 Subject area Salinity Class
 Non-Saline (<3000mg/L)





Contaminated Land Public Register

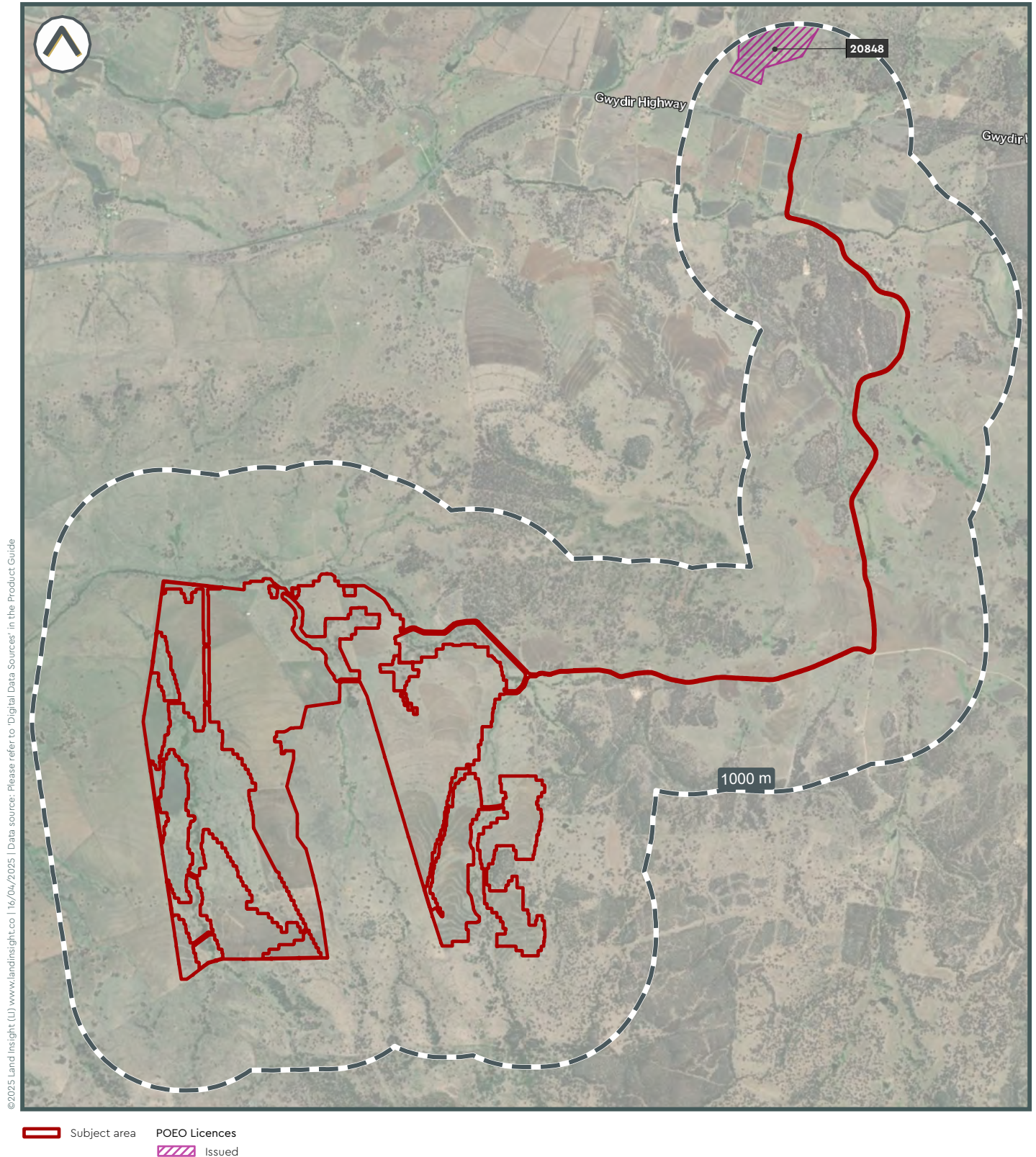


 Subject area



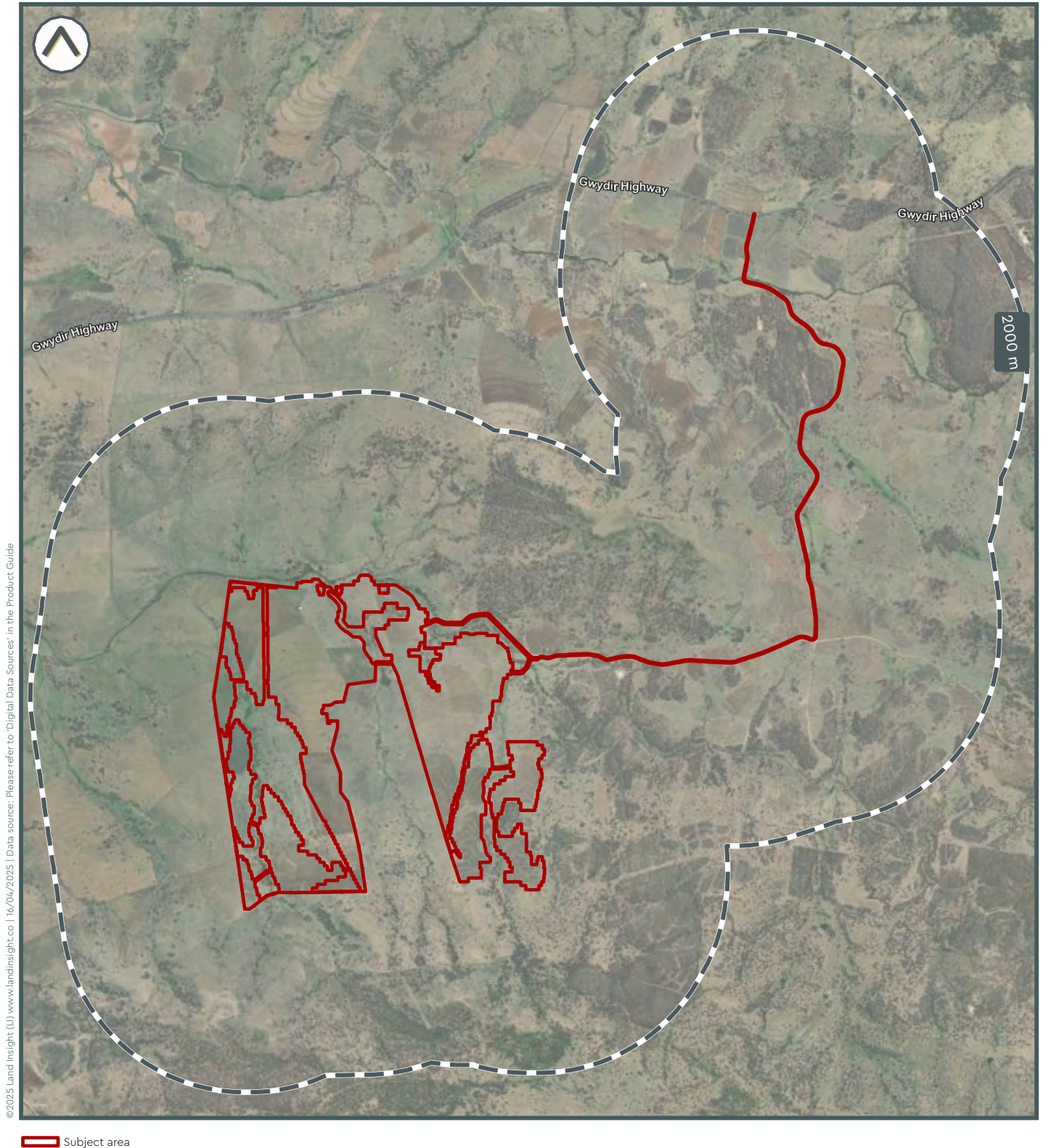


Licences, Approvals & Assessments



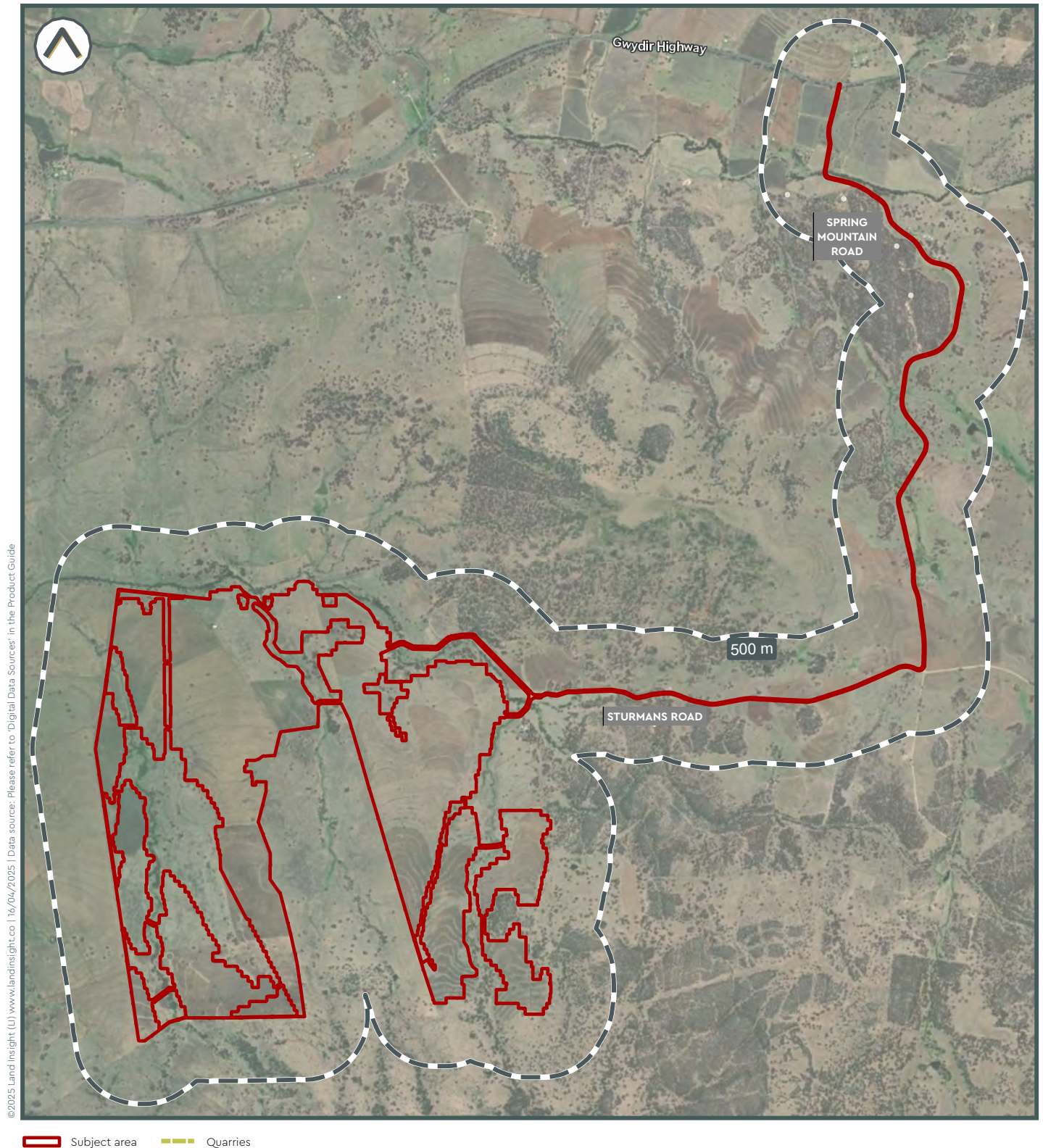


Sites Regulated by Other Jurisdictional Body





Other Potential Hazard Sources



Subject area Quarries

0 390 780 1,170 1,560 1,950m

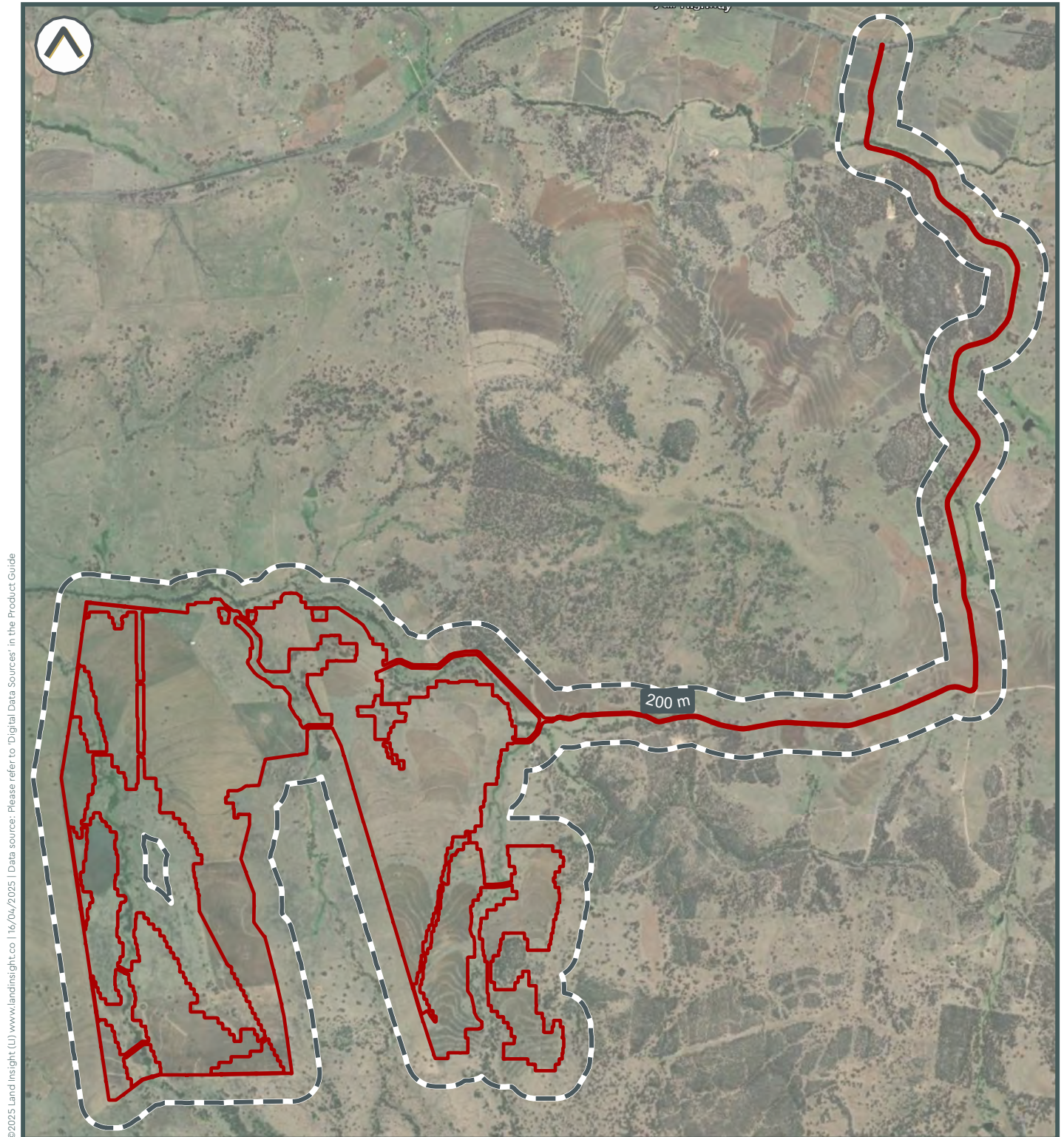




POTENTIALLY CONTAMINATED AREAS

MAP 4.1

Current Potentially Contaminating Activities (PCAs)



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 Subject area

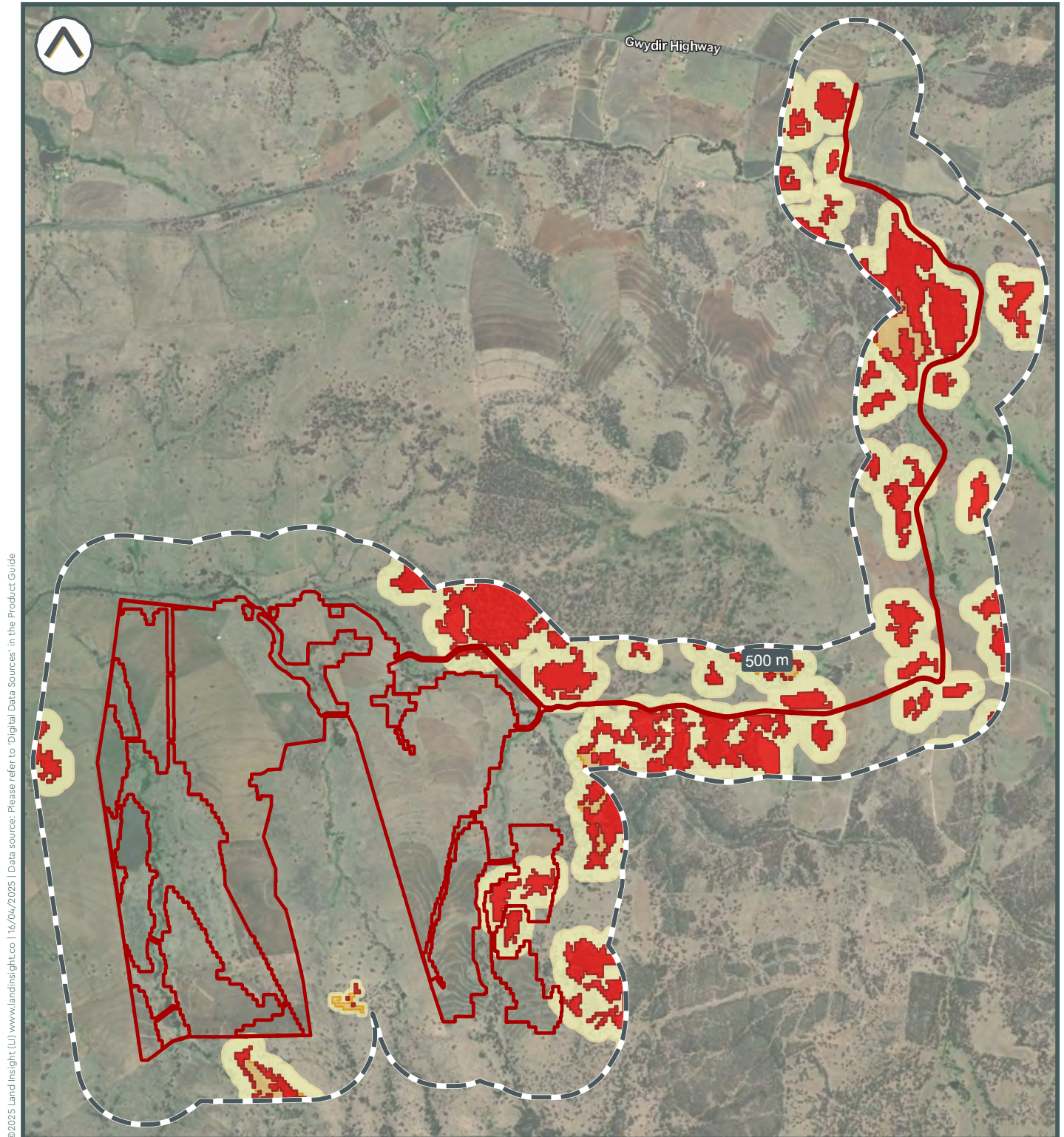
Data is current as when this report was created. However due to the turnover of business locations, some addresses may be former.



Land Insight do no warrant the accuracy or completeness of information in this publication and any person using or relying upon such information does so on the basis that this company shall bear no responsibility or liability whatsoever for any errors, faults, defects or omissions in the information.

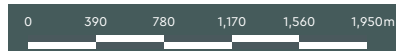


Fire Hazards



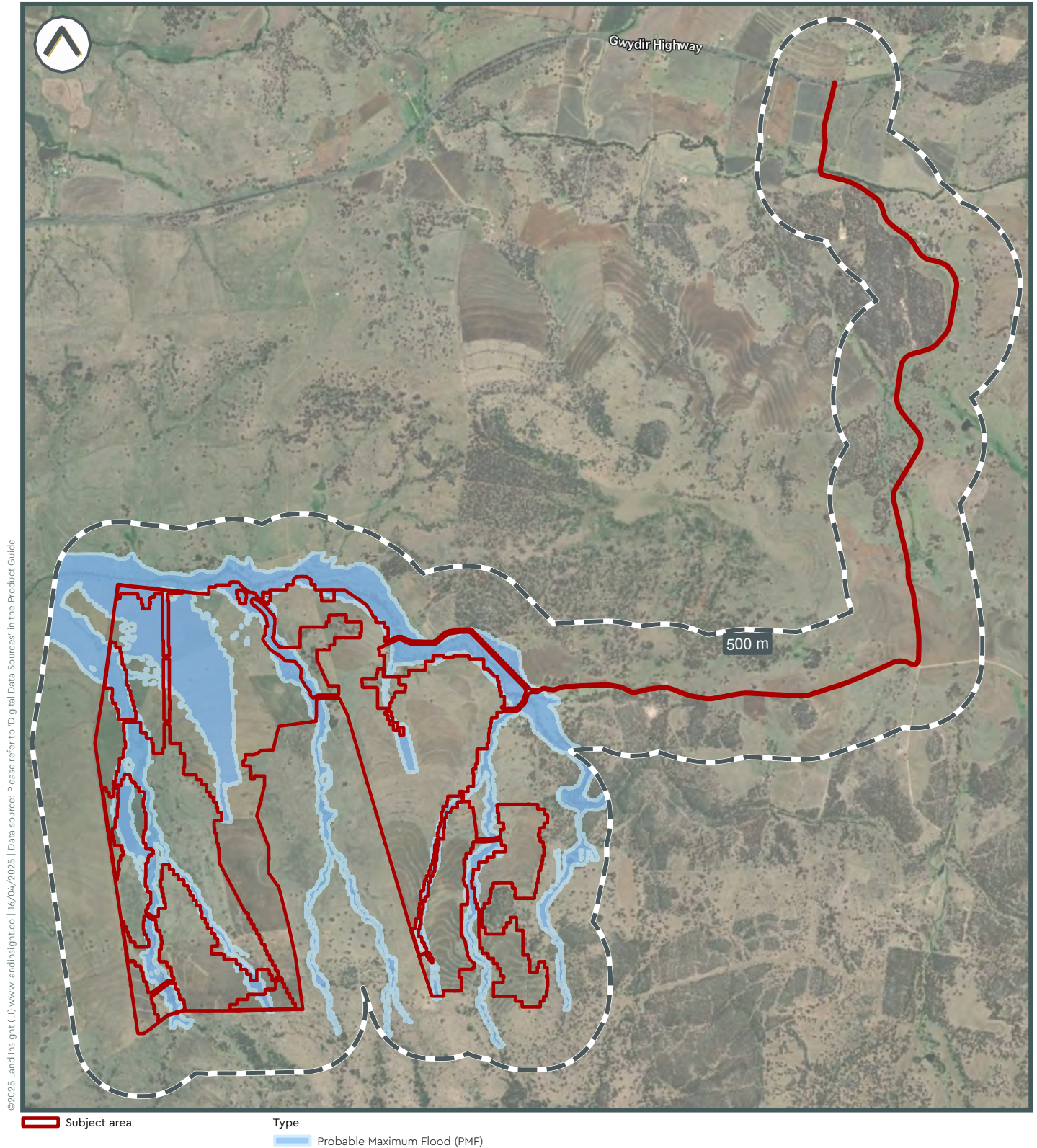
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- Subject area
- Vegetation Category 2
- Bushfire Prone Areas
- Vegetation Buffer
- Vegetation Category 1



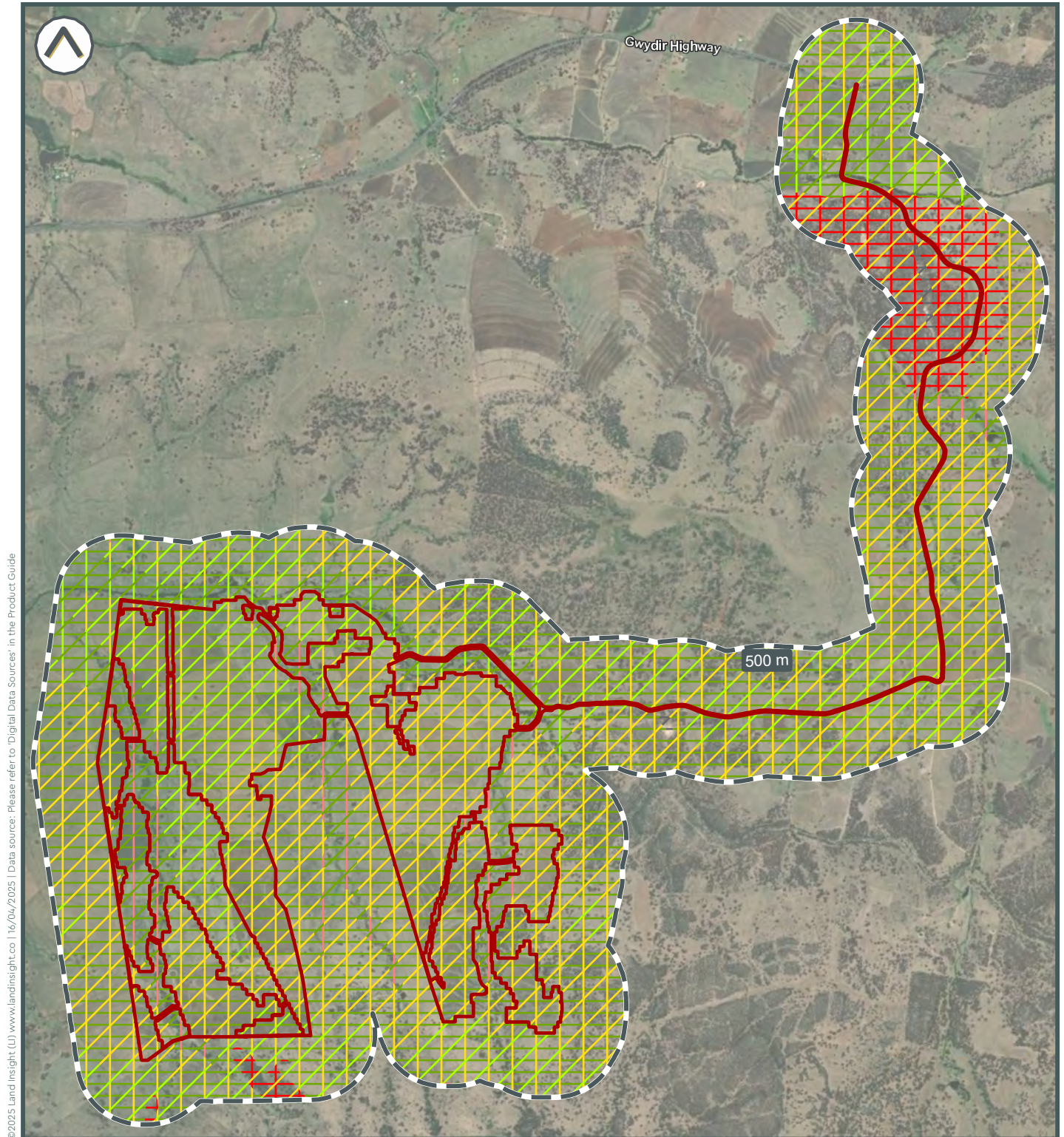


Flood Hazard





Erosion Hazard



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- | | | |
|-------------------------------|-------------------------------|-------------------------------|
| Subject area | Water Erosion Risk | Landslip Erosion Risk |
| Wind Erosion Risk | Very High | Very High |
| Moderate | High | Very Low |
| Low | Moderate | Not Applicable / Not Assessed |
| Very Low | Low | |
| Not Applicable / Not Assessed | Not Applicable / Not Assessed | |



Due Diligence Insight Report

Sundown Solar Farm
Spring Mountain, NSW

16 Apr 2025

Report n°:
LI-4715 DDR

Understanding your report

Thank you for ordering your report from Land Insight. If you have any feedback, questions or queries, please get in touch with us at orders@landinsight.co.

Your Report has been produced by Land Insight and contains information related to current and historical land use information, environmental risks and hazards.

The information presented in this report includes Land Insights' comprehensive research into current and historical land use derived from Land Insight's proprietary National Land Use Atlas (NLUA), environmental risk information and data available from public databases, third party providers, local and state authorities. The report also includes detailed property and soil setting information, hydrogeology, identification of potential pollution and contamination along with ground and natural hazards. The records identified are presented within a 200 to 2000m radius (buffer zone) from the boundaries of the Property searched, depending on the screened constraint. The report is separated and grouped into easy to navigate sections as per Summary below:

	Section 1	PROPERTY SETTING	Sensitive Receptors, Planning Controls, Zoning, Heritage, Soil and Land Information, Geology and Topography
	Section 2	HYDROGEOLOGY AND GEOTECHNICAL	Groundwater Bores and Other Borehole investigations, Groundwater Dependent Ecosystems (GDE), Aquifer and Wetland, Other Hydrogeology information.
	Section 3	ENVIRONMENTAL REGISTERS, LICENCES AND INCIDENTS	Contaminated Land Public Register, Licences, Audits and Orders, Sites Regulated by Other Jurisdictional Body (Former Gaswork sites / PFAS sites, UXO Areas), Historical Landfills, Derelict Mines and National Pollutant Inventory (NPI).
	Section 4	POTENTIALLY CONTAMINATED AREAS	Potentially Contaminating activities (Industries, businesses and activities that may cause contamination), Historical Potentially Contaminating activities and Historical Land Use.
	Section 5	NATURAL HAZARDS	Erosion hazard, Flood hazards, Bushfire prone land and Bushfire history.

This report includes data listed on page 4 (table of contents). All sources of data and definitions are provided in the Product Guide (Attached). For a full list of references, metadata, publications or additional information not provided in this report, please contact orders@landinsight.co.

This report does not include information derived from a physical inspection. It is important to note that a site inspection can present information relevant to other risks and hazards that may not be identified by this Report.

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Report Summary

Dataset name		Onsite	On Buffer	Buffer Distance
Section 1 - Property Setting				
1.1	Sensitive Receptors	✓	✓	200m
1.2a	Planning Controls (<i>Zoning</i>)	✓	✓	500m
1.2b	Planning Overlays (<i>Environmental Planning Instruments</i>)	✓	✓	500m
	Planning Overlays (<i>Other Planning Information</i>)			500m
1.3	Heritage (<i>State and Local Heritage</i>)			200m
	Heritage (<i>Australian and World Heritage Database Register</i>)			200m
1.4a	Soil and Land Use Information (<i>Soil Landscape</i>)	✓	✓	500m
	Soil and Land Use Information (<i>Soil Salinity</i>)	✓	✓	500m
	Soil and Land Use Information (<i>Radon</i>)	✓	✓	500m
1.4b	Acid Sulfate Soil (<i>State and Local Acid Sulfate Soil Registers</i>)			500m
	Acid Sulfate Soil (<i>National Acid Sulfate Soil Registers</i>)	✓	✓	500m
1.5	Geology and Topography (<i>Geology</i>)	✓	✓	500m
	Geology and Topography (<i>Naturally Occurring Asbestos Potential NOA</i>)			500m
Section 2 - Hydrogeology and Geotechnical				
2.1	GDE & Hydrogeology Constraints (<i>Aquifer Type</i>)	✓	✓	2000m
	GDE & Hydrogeology Constraints (<i>Groundwater Protection Areas</i>)			2000m
	GDE & Hydrogeology Constraints (<i>Wetlands</i>)			2000m
	GDE & Hydrogeology Constraints (<i>GDE Surface</i>)			2000m
	GDE & Hydrogeology Constraints (<i>GDE Subsurface</i>)	✓	✓	2000m
	GDE & Hydrogeology Constraints (<i>Groundwater Licences</i>)			2000m
	GDE & Hydrogeology Constraints (<i>Groundwater Bores</i>)	✓	✓	2000m
2.2	Groundwater and Other Bores (<i>Groundwater Restricted Use Zones</i>)			2000m
	Groundwater and Other Bores (<i>Groundwater Salinity</i>)	✓	✓	2000m
	Groundwater and Other Bores (<i>Other Known Boreholes Investigations</i>)			2000m
Section 3 - Environmental Registers, Licences and Incidents				
3.1	Contaminated Land Public Register (<i>Contaminated Sites</i>)			1000m
3.2	Licences, Approvals & Assessments (<i>Licences</i>)		✓	1000m
	Licences, Approvals & Assessments (<i>Audits</i>)		✓	1000m
	Licences, Approvals & Assessments (<i>Clean up Notices, Penalty Notices and Orders</i>)			1000m
3.3a	Sites Regulated by other Jurisdictional Body (<i>Contaminated Legacy Areas</i>)			2000m
	Sites Regulated by other Jurisdictional Body (<i>Defence, Military Sites and UXO Areas</i>)			2000m
	Sites Regulated by other Jurisdictional Body (<i>Former Gasworks Sites</i>)			2000m
	Sites Regulated by other Jurisdictional Body (<i>PFAS Sites</i>)			2000m
3.3b	Other Potential Hazard Sources (<i>Mines and Quarries</i>)		✓	500m
	Other Potential Hazard Sources (<i>Landfills</i>)			500m
	Other Potential Hazard Sources (<i>National Pollutant Inventory NPI</i>)			500m
Section 4 - Potentially Contaminated Areas				
4.1	Potentially Contaminating Activities (<i>Liquid Fuel Facilities</i>)			200m
4.2	Historical Business Directories			200m
Section 5 - Natural Hazards				
5.1	Fire Hazard (<i>Bushfire Prone Areas</i>)	✓	✓	500m
	Fire Hazard (<i>Bushfire History</i>)			500m
5.2	Flood Hazard (<i>Flood Planning Area</i>)			500m
	Flood Hazard (<i>Other Flood Studies</i>)	✓	✓	500m
	Flood Hazard (<i>Flood History</i>)			500m
5.3	Erosion Hazard	✓	✓	500m

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ATTACHMENTS

- Appendix A - Report Maps
- Appendix B - Historical Imagery



Section 1 Property Setting

1.1 Sensitive Receptors and Features of Interest

Map 1.1 (200m Buffer)

Sensitive receptor	Type	Distance (m)	Direction
Watercourse	Watercourse	0.0	Onsite
KINGS CREEK	Watercourse	0.0	Onsite
JESSIE CREEK	Watercourse	0.0	Onsite
KATEYS CREEK	Watercourse	0.0	Onsite
Farm Dam Area	Farm Dam Area	0.0	Onsite
SWAN BROOK	Watercourse	0.0	Onsite
WET CREEK	Watercourse	0.0	Onsite
CHINAMANS GULLY	Watercourse	28.3	North

Source: [Sensitive Receptors](#)

1.2a Planning Controls

Map 1.2a (500m Buffer)

Zoning

Zoning	Type	Details	Distance (m)	Direction
RU1	Primary Production	Inverell Local Environmental Plan 2012	0.0	Onsite

Source: [Zoning, Planning Overlays and Other Planning Information](#)

1.2b Planning Overlays

Environmental Planning Instruments

Map 1.2b (500m Buffer)

Name	Type	Details	Distance (m)	Direction
Biophysical Strategic Agricultural Land	Strategic Agricultural Land	State Environmental Planning Policy (Resources and Energy) 2021	0.0	Onsite
200-399.9	Minimum Lot Size (sq m)	Inverell Local Environmental Plan 2012	0.0	Onsite
Land Application	SEPP Land Application	State Environmental Planning Policy (Biodiversity and Conservation) 2021	0.0	Onsite
Land Application	SEPP Land Application	State Environmental Planning Policy (Sustainable Buildings) 2022	0.0	Onsite
Allowable Clearing Area	Allowable Clearing	State Environmental Planning Policy (Biodiversity and Conservation) 2021	0.0	Onsite
Land Application	SEPP Land Application	State Environmental Planning Policy (Housing) 2021	0.0	Onsite
Land Application	SEPP Land Application	State Environmental Planning Policy (Transport and Infrastructure) 2021	0.0	Onsite
Land Application	SEPP Land Application	State Environmental Planning Policy (Planning Systems) 2021	0.0	Onsite
Land Application	SEPP Land Application	State Environmental Planning Policy (Primary Production) 2021	0.0	Onsite
Land Application	SEPP Land Application	State Environmental Planning Policy (Industry and Employment) 2021	0.0	Onsite
Land Application	SEPP Land Application	State Environmental Planning Policy (Exempt and Complying Development Codes) 2008	0.0	Onsite
Land Application	SEPP Land Application	State Environmental Planning Policy (Resources and Energy) 2021	0.0	Onsite
Land Application	SEPP Land Application	State Environmental Planning Policy No 65—Design Quality of Residential Apartment Development	0.0	Onsite
Land Application	SEPP Land Application	State Environmental Planning Policy (Resilience and Hazards) 2021	0.0	Onsite
30%	Minimum Water Use Standard (%)	State Environmental Planning Policy (Sustainable Buildings) 2022	0.0	Onsite
Included	Land Application	Inverell Local Environmental Plan 2012	0.0	Onsite
40%	Minimum Water Use Standard (%)	State Environmental Planning Policy (Sustainable Buildings) 2022	0.0	Onsite

Other Planning Information

Name	Type	Details	Distance (m)	Direction
Not identified	-	-	-	-

Including Mining Subsidence Areas.

Source: [Zoning, Planning Overlays and Other Planning Information](#)

1.3 Heritage

Map 1.3 (200m Buffer)

State and Local Heritage Registers

Site ID	Site Name	Type	Details	Distance (m)	Direction
Not identified	-	-	-	-	-

Source: [State and Local Heritage Registers](#)

Australian Heritage Database Register

Site ID	Site Name	Type	Details	Distance (m)	Direction
Not identified	-	-	-	-	-

Source: [Commonwealth Heritage List, National Heritage List and World Heritage Area](#)

1.4a Soil and Land Use Information

Map 1.4a (500m Buffer)

Soil Landscape

Code	Name	Soil Group	Description	Distance (m)	Direction
BE	Vertosols	Black Earths	GSG classification - Black, heavy clay, alkaline to neutral soil with wide, deep cracks when dry.	0.0	Onsite
REm	Dermosols	Red Earths - more fertile (volcanics and granodiorites)	GSG classification - Uniform yellowish, reddish or brown, moderately acid to neutral light loams to clay with a crumb or fine sub-angular blocky structure, showing little profile differentiation.	0.0	Onsite
L	Rudosols and Tenosols	Lithosols	GSG classification - A predominantly sandy soil with an earthy fabric and little texture differentiation from topsoil to subsoil.	0.0	Onsite
C	Ferrosols	Chocolate Soils	GSG classification - Brownish, acid, friable, moderately pedal to fine blocky structured, clay loam soils with weak to moderate horizon differentiation. clay- Soil particles less than 0.002 mm in diameter.	0.0	Onsite
PS	Dermosols	Prairie Soils	GSG classification - Uniform yellowish, reddish or brown, moderately acid to neutral light loams to clay with a crumb or fine sub-angular blocky structure, showing little profile differentiation.	81.6	South
NKB	Chromosols	Non Calcic Brown Soils	GSG classification - Very similar to Red-brown Earths but without an A2 horizon. They have a carbonate-free solum and a neutral to slightly alkaline (with lower base saturation) B horizon; and are also generally thinner soils, varying from about 40-80 cm deep.	216.1	West

Source: [Soil Landscape](#)

Salinity

Salinity Hazard	Type	Details	Distance (m)	Direction
High hazard or risk	Australian Dryland Salinity Assessment (1:2,500,000) 2001	High hazard or risk in 2050	0.0	Onsite
High hazard or risk	Australian Dryland Salinity Assessment (1:2,500,000) 2001	High hazard or risk in 2020, and 2050	0.0	Onsite

Source: [Soil Salinity](#)

Radon

Radon Level (Bq/m ³)	Distance (m)	Direction
9	0.0	Onsite

Typical radon levels in Australia are low and the values shown are the average values for each census district. For specific location, factors such as the local geology and house type could lead to different values. (ARPANSA).

1.4b Acid Sulfate Soil

State and Local Acid Sulfate Soil Registers

Map 1.4b (500m Buffer)

Name	Classification	Description	Distance (m)	Direction
Not identified	-	-	-	-

To ensure that development does not disturb, expose, or drain acid sulfate soils and cause environmental damage, development consent may be required for conducting works within areas and land shown on the Acid Sulfate Soils Map.

Source: [National, State and Local Acid Sulfate Soils Registers](#)

National Acid Sulfate Soil Register

Name	Classification	Description	Distance (m)	Direction
Atlas of Australian Acid Sulfate Soils	Extremely low probability of occurrence	Acid sulfate soil generally within upper 1m in wet / riparian areas.	0.0	Onsite

Acid Sulfate Soils (ASS) are all those soils in which sulfuric acid may be produced, is being produced, or has been produced in amounts that have a lasting effect on main soil characteristics.

Source: [National, State and Local Acid Sulfate Soils Registers](#)

1.5 Geology and Topography

Map 1.5 (500m Buffer)

Geology

Map Sheet	Code	Formation	Age	Group	Dominant Lithology	Description	Distance (m)	Direction
Stewart, J.R. (Ed) 1998	Csas	Sandon beds	Late Devonian (base) to Carboniferous (Mississippian) (top)	Sandon Association	Siliciclastic sedimentary rock	Low-grade, regionally metamorphosed, multiply deformed lithic wacke, paraconglomerate, siltstone, mudstone, minor chert, jasper, spilite.	0.0	Onsite
Nandewar Western Regional Assessment (unclipped dataset)	Q_at	Alluvial terrace deposits	Quaternary (base) to Now (top)	Alluvium	Clastic sediment	Silt, clay, (fluvially-deposited) fine- to medium-grained quartz-lithic sand, polymictic gravel.	0.0	Onsite
CHESNUT, W. and CAMERON,, R. 1971	Pwae	Emmaville Volcanics	Roadian (base) to Lopingian (top)	Wandsworth Volcanic Group	Igneous rock	Felsic volcanic and volcanoclastic rock; ignimbritic rhyolite and rhyodacite (emplaced as a lava); minor dacite, andesite; porphyritic dacite, dacite & rhyolite (emplaced as ash flows); minor interbedded epiclastics (basal conglomerate, sandstone, shale).	0.0	Onsite
CHESNUT, W. and CAMERON,, R. 1971	Q_at	Alluvial terrace deposits	Quaternary (base) to Now (top)	Alluvium	Clastic sediment	Silt, clay, (fluvially-deposited) fine- to medium-grained quartz-lithic sand, polymictic gravel.	0.0	Onsite
Stewart, J.R. (Ed) 1998	Pwae	Emmaville Volcanics	Roadian (base) to Lopingian (top)	Wandsworth Volcanic Group	Igneous rock	Felsic volcanic and volcanoclastic rock; ignimbritic rhyolite and rhyodacite	0.0	Onsite

Map Sheet	Code	Formation	Age	Group	Dominant Lithology	Description	Distance (m)	Direction
						(emplaced as a lava); minor dacite, andesite; porphyritic dacite, dacite & rhyolite (emplaced as ash flows); minor interbedded epiclastics (basal conglomerate, sandstone, shale).		
CONNOR, A G 1972	Pwae	Emmaville Volcanics	Roadian (base) to Lopingian (top)	Wandsworth Volcanic Group	Igneous rock	Felsic volcanic and volcanoclastic rock; ignimbritic rhyolite and rhyodacite (emplaced as a lava); minor dacite, andesite; porphyritic dacite, dacite & rhyolite (emplaced as ash flows); minor interbedded epiclastics (basal conglomerate, sandstone, shale).	0.0	Onsite
Stewart, J.R. (Ed) 1998	Q_at	Alluvial terrace deposits	Quaternary (base) to Now (top)	Alluvium	Clastic sediment	Silt, clay, (fluvially-deposited) fine- to medium-grained quartz-lithic sand, polymictic gravel.	0.0	Onsite
CONNOR, A G 1972	Q_at	Alluvial terrace deposits	Quaternary (base) to Now (top)	Alluvium	Clastic sediment	Silt, clay, (fluvially-deposited) fine- to medium-grained quartz-lithic sand, polymictic gravel.	0.0	Onsite
Nandewar Western Regional Assessment (unclipped dataset)	GEmam	Maybole Volcanics	Lutetian (base) to Priabonian (top)	Maybole Volcanic Suite	Basalt	Undersaturated to transitional alkali olivine basalts with minor lithic sapphire and corundum bearing volcanoclastic and epiclastic units. Rare plugs, dykes and sills. Some interbedded non-volcanogenic sediments.	0.0	Onsite
Nandewar Western Regional Assessment (unclipped dataset)	Csas	Sandon beds	Late Devonian (base) to Carboniferous (Mississippian) (top)	Sandon Association	Siliciclastic sedimentary rock	Low-grade, regionally metamorphosed, multiply deformed lithic wacke, paraconglomerate, siltstone, mudstone, minor chert, jasper, spilite.	0.0	Onsite
CHESNUT, W. and CAMERON,, R. 1971	Csas	Sandon beds	Late Devonian (base) to Carboniferous (Mississippian) (top)	Sandon Association	Siliciclastic sedimentary rock	Low-grade, regionally metamorphosed, multiply deformed lithic wacke, paraconglomerate, siltstone, mudstone, minor chert, jasper, spilite.	0.0	Onsite

Map Sheet	Code	Formation	Age	Group	Dominant Lithology	Description	Distance (m)	Direction
CHESNUT, W. and CAMERON,, R. 1971	GEmam	Maybole Volcanics	Lutetian (base) to Priabonian (top)	Maybole Volcanic Suite	Basalt	Undersaturated to transitional alkali olivine basalts with minor lithic sapphire and corundum bearing volcanoclastic and epiclastic units. Rare plugs, dykes and sills. Some interbedded non-volcanogenic sediments.	0.0	Onsite
Nandewar Western Regional Assessment (unclipped dataset)	Pwae	Emmaville Volcanics	Roadian (base) to Lopingian (top)	Wandsworth Volcanic Group	Igneous rock	Felsic volcanic and volcanoclastic rock; ignimbritic rhyolite and rhyodacite (emplaced as a lava); minor dacite, andesite; porphyritic dacite, dacite & rhyolite (emplaced as ash flows); minor interbedded epiclastics (basal conglomerate, sandstone, shale).	0.0	Onsite
CONNOR, A G 1972	Csas	Sandon beds	Late Devonian (base) to Carboniferous (Mississippian) (top)	Sandon Association	Siliciclastic sedimentary rock	Low-grade, regionally metamorphosed, multiply deformed lithic wacke, paraconglomerate, siltstone, mudstone, minor chert, jasper, spilite.	0.0	Onsite
CONNOR, A G 1972	GEmam	Maybole Volcanics	Lutetian (base) to Priabonian (top)	Maybole Volcanic Suite	Basalt	Undersaturated to transitional alkali olivine basalts with minor lithic sapphire and corundum bearing volcanoclastic and epiclastic units. Rare plugs, dykes and sills. Some interbedded non-volcanogenic sediments.	0.0	Onsite
Stewart, J.R. (Ed) 1998	GEmam	Maybole Volcanics	Lutetian (base) to Priabonian (top)	Maybole Volcanic Suite	Basalt	Undersaturated to transitional alkali olivine basalts with minor lithic sapphire and corundum bearing volcanoclastic and epiclastic units. Rare plugs, dykes and sills. Some interbedded non-volcanogenic sediments.	0.0	Onsite
Nandewar Western Regional Assessment	GEmam_a	Maybole Volcanics	Lutetian (base) to Priabonian (top)	Maybole Volcanic Suite	Basalt	Alkali olivine and transit basalt flows and plugs.	0.0	Onsite

Map Sheet	Code	Formation	Age	Group	Dominant Lithology	Description	Distance (m)	Direction
(unclipped dataset)								
CHESNUT, W. and CAMERON,, R. 1971	GEmam_a	Maybole Volcanics	Lutetian (base) to Priabonian (top)	Maybole Volcanic Suite	Basalt	Alkali olivine and transit basalt flows and plugs.	0.0	Onsite
Nandewar Western Regional Assessment (unclipped dataset)	Q_av	Alluvial valley deposits	Quaternary (base) to Now (top)	Alluvium	Clastic sediment	Silt, clay, (fluvially deposited) lithic to quartz-lithic sand, gravel.	0.0	Onsite
Stewart, J.R. (Ed) 1998	GEmam_a	Maybole Volcanics	Lutetian (base) to Priabonian (top)	Maybole Volcanic Suite	Basalt	Alkali olivine and transit basalt flows and plugs.	0.0	Onsite
CHESNUT, W. and CAMERON,, R. 1971	Q_av	Alluvial valley deposits	Quaternary (base) to Now (top)	Alluvium	Clastic sediment	Silt, clay, (fluvially deposited) lithic to quartz-lithic sand, gravel.	0.0	Onsite
CONNOR, A G 1972	GEmam_a	Maybole Volcanics	Lutetian (base) to Priabonian (top)	Maybole Volcanic Suite	Basalt	Alkali olivine and transit basalt flows and plugs.	0.0	Onsite
Stewart, J.R. (Ed) 1998	Q_av	Alluvial valley deposits	Quaternary (base) to Now (top)	Alluvium	Clastic sediment	Silt, clay, (fluvially deposited) lithic to quartz-lithic sand, gravel.	0.0	Onsite
CONNOR, A G 1972	Q_av	Alluvial valley deposits	Quaternary (base) to Now (top)	Alluvium	Clastic sediment	Silt, clay, (fluvially deposited) lithic to quartz-lithic sand, gravel.	0.0	Onsite
CHESNUT, W. and CAMERON,, R. 1971	GEmam_v	Maybole Volcanics	Lutetian (base) to Priabonian (top)	Maybole Volcanic Suite	Basalt	Red and white sapphire-bearing tuffs, and minor corundum-bearing volcaniclastic rocks.	11.9	West
Nandewar Western Regional Assessment (unclipped dataset)	GEmam_v	Maybole Volcanics	Lutetian (base) to Priabonian (top)	Maybole Volcanic Suite	Basalt	Red and white sapphire-bearing tuffs, and minor corundum-bearing volcaniclastic rocks.	11.9	West
Stewart, J.R. (Ed) 1998	GEmam_v	Maybole Volcanics	Lutetian (base) to Priabonian (top)	Maybole Volcanic Suite	Basalt	Red and white sapphire-bearing tuffs, and minor corundum-bearing volcaniclastic rocks.	11.9	West

Source: [Geology](#)

Naturally Occurring Asbestos Potential (NOA)

Category	On the Property?	Within Buffer?
Not identified	-	-

Source: [Naturally Occurring Asbestos NOA](#)

Topography

Topography (Onsite)	720 - 850 mAHd
---------------------	----------------

Source: [National, State and Local Acid Sulfate Soils Registers](#)



Section 2 Hydrogeology and Geotechnical



2.1 GDE & Hydrogeology Constraints

Map 1.5 (500m Buffer)

Aquifer Type

Type	Distance (m)	Direction
Fractured or fissured, extensive aquifers of low to moderate productivity	0.0	Onsite

Source: [Groundwater Aquifers](#)

Groundwater Protection Areas

Name	Water Plan Area	Distance (m)	Direction
Not identified	-	-	-

Source: [Groundwater Protection Areas and Groundwater Restricted Use Zones](#)

Wetlands

Name	Description	Distance (m)	Direction
Not identified	-	-	-

Source: [Wetlands](#)

Groundwater Dependent Ecosystems (GDE) - Aquatic (Surface)

Potential	Distance (m)	Direction
Not identified	-	-

Aquatic - Ecosystems that rely on the Surface expression of groundwater.

Source: [Groundwater Dependent Ecosystems](#)

Groundwater Dependent Ecosystems (GDE) - Terrestrial (Subsurface)

Potential	Distance (m)	Direction
High potential GDE - from regional studies	0.0	Onsite
Low potential GDE - from regional studies	0.0	Onsite
Moderate potential GDE - from regional studies	58.4	South-east

Terrestrial - Ecosystems that rely on the Subsurface expression of groundwater.

Source: [Groundwater Dependent Ecosystems](#)

Groundwater Licences (Western Australia)

Map ID	WRI number	Allocation (KL)	Address	All Parties	Distance (m)	Direction
Not identified	-	-	-	-	-	-

Source: [Groundwater Protection Areas and Groundwater Restricted Use Zones](#)

Groundwater Bores

Map ID	Groundwater Bore ID	Authorised Purpose	Completion Date	Drilled Depth (m)	Final Depth (m)	SWL (m)	Salinity/TDS (mg/l)	Yield (L/s)	Distance (m)	Direction
1	GW971316	Stock	19/02/2015	36.0	36.0	19.0	Null	1.5	0.0	Onsite
6	416059	Unknown	Null	Null	Null	Null	Null	Null	0.0	Onsite
9	GW029785	Household	01/01/1952	Null	18.3	Null	Null	Null	317.1	North
4	GW968142	Household	22/02/2007	54.0	54.0	5.0	Null	4.5	456.2	North-east
10	GW057771	Irrigated agriculture	01/10/1982	Null	4.0	1.3	Null	Null	675.1	West
5	GW968429	Household	16/05/2008	30.0	30.0	1.5	Null	1.5	1196.2	East
3	GW902606	Household	29/09/1995	19.8	19.8	12.8	Potable	1.5	1305.7	North-east
8	GW970035	Water supply for livestock	21/10/2010	48.0	48.0	15.0	Null	3.0	1379.4	North-west
7	GW969350	Water supply for livestock	02/12/2009	29.0	29.0	8.0	Null	1.9	1542.3	North-west
11	GW971446	Null	Null	0.0	29.0	6.0	Null	2.5	1747.2	East
2	GW067996	Household	05/10/1989	137.2	137.2	67.7	Null	0.4	1924.1	North

Note: The use of the symbol "-" or "Null" indicates that no records were found.

SWL: Standing Water Level (the latest record is displayed). RWL: Rest Water Level (the latest record is displayed). TSS: Total Soluble Salts.

Source: [Groundwater Bores & Lithology](#)

Groundwater Bores Driller Lithology Details

Groundwater Bore ID	From Depth - To Depth (m)	Lithology	Distance (m)	Direction
GW971316	Null		0.0	Onsite
416059	Null		0.0	Onsite
GW029785	Null		317.1	North
GW968142	0m-0.3m Topsoil 0.3m-1m Clay 1m-15m Basalt 15m-18m Clay 18m-30m Basalt 30m-36m Clay 36m-54m Basalt		456.2	North-east

Groundwater Bore ID	From Depth – To Depth (m)	Lithology	Distance (m)	Direction
GW057771	Null		675.1	West
GW968429	0m-1m Topsoil 1m-2m Clay 2m-6m Basalt 6m-9m Clay 9m-24m Basalt 24m-30m Clay		1196.2	East
GW902606	0m-1.52m Brown topsoil 1.52m-6.09m Soft decomposed basalt 6.09m-9.15m Good drilling brown basalt 9.15m-10.67m Brown basalt / clay 10.67m-15.24m Decomposed basalt - some clay 15.24m-19.82m Porous basalt - water		1305.7	North-east
GW970035	0m-0.5m Topsoil 0.5m-7m Basalt, fractured 7m-10m Basalt, solid 10m-15m Clay, mixed with fractured basalt 15m-18m Basalt, hard 18m-18.5m Basalt, fractured, moisture 18.5m-26m Basalt, hard 26m-30m Basalt, soft 30m-34m Clay, grey 34m-41m Basalt, fractured, water bearing 41m-48m Clay, grey, mixed with fractured basalt		1379.4	North-west
GW969350	0m-6m Topsoil, brown 6m-10m Clay, tight, brown 10m-14m Basalt, weathered 14m-17m Rock, large, loose, water bearing 17m-23m Basalt, porous 23m-26m Basalt, hard 26m-29m Basalt, porous, black		1542.3	North-west
GW971446	Null		1747.2	East
GW067996	0m-1.82m Black soil & stones 1.82m-15.24m Rotten rock 15.24m-24.39m Red softish rock & clay 24.39m-83.84m Basalt with soap stone 83.84m-103.96m Grey rock & white chips 103.96m-118.59m Dark basalt with water bearing soap stone 118.59m-133.53m White & red clay 133.53m-137.19m Sandstone		1924.1	North

Note: The use of the symbol "-" or "Null" indicates that no records were found.

Source: [Groundwater Bores & Lithology](#)

2.2 Groundwater and other Bores

Map 2.2 (2000m Buffer)

Groundwater Restricted Use Zones

Name / Number	Address	Site History	Description	Distance (m)	Direction
Not identified	-	-	-	-	-

Source: [Groundwater Protection Areas and Groundwater Restricted Use Zones](#)

Groundwater Salinity

Class	Salinity Value	Source	Distance (m)	Direction
Non-Saline (<3000mg/L)	500 - 1000	Murray-Darling Basin Authority	0.0	Onsite
Non-Saline (<3000mg/L)	< 500	Murray-Darling Basin Authority	0.0	Onsite

Source: [Groundwater Salinity](#)

Other Known Borehole Investigations (Coal Seam Gas (CSG), Petroleum Wells and Other Boreholes)

Borehole ID	Purpose	Project	Client/ License	Date Drilled	Depth (m)	Distance (m)	Direction
Not identified	-	-	-	-	-	-	-

Note: The use of the symbol "-" or "Null" indicates that no records were found.

Source: [Other Known Borehole Investigations \(Coal Seam Gas \(CSG\), Petroleum Wells and Other Boreholes\)](#)



Section 3 Environmental Registers, Licences and Incidents



3.1 Contaminated Land Public Register

Map 3.1 (1000m Buffer)

Contaminated Sites

Register Type	Site Name	Address	Description	Details	Distance (m)	Direction
Not identified	-	-	-	-	-	-

If the record does not contain a complete street address and/or cannot be located, the records' geographic location will be approximated and reported as being within the surrounding area.

Source: [Contaminated Land Public Register](#)

Table 3.1.1 Contaminated Land Public Register		
State	Regulatory Body	Information included in this search (by state)
ACT	EPA (Environment Protection Authority)	Contaminated Land Search Register of Contaminated Sites* (on request)
NSW	EPA (Environment Protection Authority)	Sites Notified as Contaminated Records of Notices
NT	EPA (Environment Protection Authority)	Contaminated Land Audit Pollution Abatement Notice
QLD	DES (Department of Environment and Science)	Contaminated Land Search (Environmental Management and Contaminated Land Registers)* (per lot)
SA	EPA (Environment Protection Authority)	Site Contamination Index Assessment Areas
TAS	EPA (Environment Protection Authority)	Regulated Sites and Premises Lutana and Parts of Hobarts Eastern Shore
VIC	EPA (Environment Protection Authority)	Priority Sites Register Pollution Abatement Notice
WA	DWER (Department of Water and Environmental Regulation)	Contaminated Sites Database

This search contains information retrieved from the relevant state authority, agency/department, or government authority that notifies and identifies contaminated land. The list only contains contaminated sites that the regulatory body is aware of or that have been notified by owners or occupiers as contaminated land. The sites are recorded on the register at various stages of the assessment and/or remediation process. If a site is not on the list, it does not necessarily mean the site is not contaminated.

3.2 Licences, Approvals & Assessments

Map 3.2 (1000m Buffer)

Licences

Licence N°	Type	Licence holder	Location Name	Premise Address	Activity	Dist. (m)*	Direct
20848	Issued	SWF1 OPERATIONS PTY LTD	SWF1 OPERATIONS PTY LTD	CNR WESTERN FEEDER AND WATERLOO ROAD, INVERELL, NSW 2360	Electricity works (wind farms), Electricity works (wind farms)	572.3	North-west
12981	No longer in force	FORESTRY CORPORATION OF NEW SOUTH WALES	FORESTRY CORPORATION OF NEW SOUTH WALES	Brigalow and Nandewar Community Conservation Area, DUBBO, NSW 2830	Logging operations	Not mapped	Not mapped

If the record does not contain a complete street address and/or cannot be located, the records' geographic location will be approximated and reported as being within the surrounding area.

*Results that appear as "not mapped" refer to licences that are applied to larger areas and/or without specific definition, such as waterways, forests etc. These are still identified in the search results but will not be shown within the map.

Source: [Licences, Approvals & Assessments](#)

Audits, PRSA

N°	Type	Licence holder	Location Name	Premise Address	Activity	Dist. (m)*	Direction
1529150	Compliance Audit	FORESTRY CORPORATION OF NEW SOUTH WALES	FORESTRY CORPORATION OF NEW SOUTH WALES	Brigalow and Nandewar Community Conservation Area, DUBBO, NSW 2830	Logging operations	Not mapped	Not mapped
1529151	Compliance Audit	FORESTRY CORPORATION OF NEW SOUTH WALES	FORESTRY CORPORATION OF NEW SOUTH WALES	Brigalow and Nandewar Community Conservation Area, DUBBO, NSW 2830	Logging operations	Not mapped	Not mapped
1529152	Compliance Audit	FORESTRY CORPORATION OF NEW SOUTH WALES	FORESTRY CORPORATION OF NEW SOUTH WALES	Brigalow and Nandewar Community Conservation Area, DUBBO, NSW 2830	Logging operations	Not mapped	Not mapped
1548774	Compliance Audit	FORESTRY CORPORATION OF NEW SOUTH WALES	FORESTRY CORPORATION OF NEW SOUTH WALES	Brigalow and Nandewar Community Conservation Area, DUBBO, NSW 2830	Logging operations	Not mapped	Not mapped
1548776	Compliance Audit	FORESTRY CORPORATION OF NEW SOUTH WALES	FORESTRY CORPORATION OF NEW SOUTH WALES	Brigalow and Nandewar Community Conservation Area, DUBBO, NSW 2830	Logging operations	Not mapped	Not mapped

*If the record does not contain a complete street address and/or cannot be located, the records' geographic location will be approximated and reported as being within the surrounding area.

Source: [Licences, Approvals & Assessments](#)

Clean Up, Penalty Notices and Orders

Nº	Type	Licence holder	Location Name	Premise Address	Details	Dist. (m)*	Direction
Not identified	-	-	-	-	-	-	-

*If the record does not contain a complete street address and/or cannot be located, the records' geographic location will be approximated and reported as being within the surrounding area.

Source: [Licences, Approvals & Assessments](#)

Table 3.2.1 Licences, Approvals & Assessments		
State	Regulatory Body	Information included in this search (by state)
ACT	EPA (Environment Protection Authority)	Environment Protection Authorisation Search Environment Protection Agreement Search
NSW	EPA (Environment Protection Authority)	POEO Public Register (Environment Protection licences, Applications, Notices, Audits or Pollution studies and Reduction Programs)
NT	EPA (Environment Protection Authority)	Environment Protection Licences and Approvals
QLD	DES (Department of Environment and Science)	Environmental Authorities
SA	EPA (Environment Protection Authority)	Licences or Authorisations (Licences, Exemptions and Works Approvals) Environment Protection Orders (EPO) and Clean Up Orders (CUO)
TAS	EPA (Environment Protection Authority)	Regulated Sites and Premises
VIC	EPA (Environment Protection Authority)	Permissions Register (Operating Licence, Permit and Registration) Audit Reports
WA	DWER (Department of Water and Environmental Regulation)	Licences and Works Approvals

3.3a Sites Regulated by other Jurisdictional Body

Contaminated Legacy Areas

Site Name	Description	Distance (m)	Direction
Not identified	-	-	-

Includes known contaminated areas such as James Hardies Asbestos waste legacy areas, Pasminco Smelter and Uranium processing site.

Source: [Contaminated Legacy Areas](#)

Defence, Military Sites and UXO Areas

Site name	Type*	Details	Distance (m)	Direction
Not identified	-	-	-	-

*RCIP (Regional Contamination Investigation Program). UXO (Unexploded Ordnance Areas).

Source: [Defence, Military Sites, and UXO Areas](#)

Former Gasworks Sites

Site name	Description	Distance (m)	Direction
Not identified	-	-	-

Source: [Former Gasworks Sites](#)

PFAS Sites

Site name	Type	Details	Distance (m)	Direction
Not identified	-	-	-	-

Source: [PFAS Sites](#)

3.3b Other Potential Hazard Sources

Map 3.3b (500m Buffer)

Mines and Quarries (current and historical)

Site name	Description	Status	Distance (m)	Direction
Sturmans Road	Construction Materials. Major commodities: unprocessed construction. Approximate location. (Monash; The Geological Survey of New South Wales, Department of Primary Industries (Mineral Resources))	Unknown	97.5	South
Spring Mountain Road	Construction Materials. Major commodities: unprocessed construction. Approximate location. (Monash; The Geological Survey of New South Wales, Department of Primary Industries (Mineral Resources))	Unknown	100.3	South-west

Source: [Mines and Quarries](#)

Landfills (current and historical)

Site name	Description	Status	Distance (m)	Direction
Not identified	-	-	-	-

National Pollutant Inventory (NPI)

Facility name	Address	Primary ANZSIC Class	Latest report	Distance (m)	Direction
Not identified	-	-	-	-	-

Source: [Contaminated Legacy Areas](#)



Section 4 Potentially Contaminated Areas



4.1 Potentially Contaminating Activities

Map 4.1 (200m Buffer)

Industries, businesses and activities that may cause contamination

Map ID	Site name	Category	Description	Address	Status*	Dist. (m)	Direction
Not identified	-	-	-	-	-	-	-

*Status: Information is current as when this report was created.

The operational status of the business is determined using the available data sources and does not indicate real-time conditions at the site.

Current: business is operating on the day this report was issued.

Former: business that have been closed or discontinued within 2 years from the date of this report.

Source: [Potentially Contaminated Areas, Activities \(PCA\)](#)

Categories included in this search. (Notifiable activities)

Abattoirs	Explosives and Dangerous Goods	Paint Industries
Abrasive Blasting	Extractive Industries	Petrol Stations
Agriculture / Horticulture	Fire and Rescue	Pharmaceuticals
Airports	Food Manufacturing	Port and Marina Operations
Asbestos	Foundry, Smelting or Refining	Power Plants
Asphalt or Bitumen	Fuel Terminals & Depots	Printing and Photography
Batteries	Glass, Ceramics and Plastic	Rail Industry and Associated Activities
Breweries / Distilleries	Gun, Pistol or Rifle Ranges	Rubber and Tyre
Cement, Concrete or Lime	Hospitals and Research Facilities	Storage Tanks
Cemeteries	Landfill Sites	Substations and Switching Stations
Chemicals	Livestock Dips	Textiles and Tannery
Coal Yards	Mechanical and Automotive	Timber, Pulp and Paper Works
Depots and Storage Yards	Metal Fabrication and Treatments	Waste and Recycling Facilities
Dry Cleaners	Oil and Gas	Wastewater Treatment Facilities
Electrical or Electrical Components	Other Infrastructure Facilities	-

Industries, businesses, and activities identified as having an increased likelihood of causing contamination.

The industries and business activities listed above have been identified as having an increased likelihood of causing contamination and have been identified through published state and national guidelines and regulations. These industries are noted due to their potential to store or use substances that could cause contamination to the surrounding environment if not managed appropriately. The identification of these activities does not imply the presence of contamination at the site.

The records identified are based on the reported business activity and have not been assessed based on any current or previous site inspection. Please note that records not identified within this section (due to error or unforeseen omission) does not necessarily mean that the screened area is not potentially contaminated or free of any risks.

4.2 Historical Business Directories

(not mapped)

YEAR	Activity	Name	Address	Positional accuracy	Distance (m)	Direction
Not identified	-	-	-	-	-	-

Land Insight uses a number of address geocoding techniques and has characterised them based on completeness (match rates) and positional accuracy. When a historical street address is incomplete or a match is not found, a record identified as being in the surrounding area will be included for reference and the accuracy of the data is approximate only. An explanation of the positional accuracy records is defined in the table below.

Source: [Historical Business Directories](#)

Historical data positional accuracy and georeferencing results explanation		
Positional accuracy	Georeferenced	Description
Address	Located to the address level	<i>When street address and names fully match.</i>
Street	Located to the street centroid	<i>When street names match but no exact address was found. Location is approximate.</i>
Place	Located to the structure, building or complex	<i>When building, residential complex or structure name match but no exact address was found. Location is approximate.</i>
Suburb	Located to the suburb area	<i>When suburb name match but no exact address was found. Location is approximate.</i>

The data used in this section was extracted from range of historical commercial trade directories and business listings. The business addresses were geocoded using historical information and the accuracy of the data may vary due to changes to the physical address at a given locality over time or the quality of the original records. From 2005, the historical business records in this section are considered more accurate as information was extracted from digital directories with geographic coordinate location information available. On this basis, reliance on the historic listing data should be considered when assessing the risk of contamination from an activity at the site. The presence of a business listing does not definitively confirm the actual activity that has occurred at the site. For more information on how these records were geocoded and the methodology used by Land Insight, contact us at info@landinsight.co.

Historical business directory listings have been filtered to match activities and industries identified as PCAs in Section 4.1. Please note that any record not identified within this section (due to error or unforeseen omission) does not necessarily mean that the screened area is not potentially contaminated or free of any risks.



Section 5 Natural Hazards



5.1 Fire Hazard

Map 5.1 (500m Buffer)

Bushfire Prone Areas

Category	Type	Details	Distance (m)	Direction
Bushfire Prone Area	Vegetation Buffer	Bushfire prone vegetation buffers are created based on vegetation categories, with buffering distance being 100 metres for vegetation category 1 and 30 metres for vegetation category 2 and 3.	0.0	Onsite
Bushfire Prone Area	Vegetation Category 1	This vegetation category indicates the highest risk for bush fire. It consists of areas of forest, woodlands, heaths (tall and short), forested wetlands and timber plantations.	0.0	Onsite
Bushfire Prone Area	Vegetation Category 2	This vegetation category indicate lower bushfire risk than Category 1 and Category 3 but higher than the excluded areas. Vegetation category consists of rainforests and lower risk vegetation parcels.	80.8	North-west

Source: [Fire Hazards](#)

Bushfire History

Type	Season	Details	Distance (m)	Direction
Not identified	-	-	-	-

Source: [Fire Hazards](#)

5.2 Flood Hazard

Flood Planning Area

Map 5.2 (500m Buffer)

Type	Name	Details	Distance (m)	Direction
Not identified	-	-	-	-

Source: [Flood Hazard](#)

Other Flood Studies

Type	Name	Details	Distance (m)	Direction
Probable Maximum Flood (PMF)	EIS Sundown Solar Farm - Appendix J Water Assessment (Figure 8) - October 2021	The largest flood that could conceivably be expected to occur at a particular location, usually estimated from probable maximum precipitation. The PMF defines the maximum extent of flood prone land, that is, the floodplain.	0.0	Onsite

Source: [Flood Hazard](#)

Flood History

Type	Season	Details	Distance (m)	Direction
Not identified	-	-	-	-

The list provided is not comprehensive and does not consider all flood history. It only includes the information that is currently available.

Source: [Flood Hazard](#)

5.3 Erosion Hazard

Map 5.3 (500m Buffer)

Erosion Hazard

Category	Type	Details	Distance (m)	Direction
Landslip Erosion Risk	Very slight to negligible limitations	Very Low	0.0	Onsite
	Very severe limitations	Very High	0.0	Onsite
	Not assessed	Not Assessed	49.4	South
	Extremely severe limitations	Very High	81.6	South
Water Erosion Risk	Moderate limitations	Moderate	0.0	Onsite
	Slight but significant limitations	Low	0.0	Onsite
	Moderate to severe limitations	Moderate	0.0	Onsite
	Severe limitations	High	0.0	Onsite
	Very severe limitations	Very High	0.0	Onsite
	Not assessed	Not Assessed	49.4	South

Category	Type	Details	Distance (m)	Direction
	Extremely severe limitations	Very High	81.6	South
Wind Erosion Risk	Very slight to negligible limitations	Very Low	0.0	Onsite
	Moderate limitations	Moderate	0.0	Onsite
	Slight but significant limitations	Low	0.0	Onsite
	Not assessed	Not Assessed	49.4	South

Source: [Erosion Hazard](#)



The Commons
388 George Street
Sydney NSW 2000 Australia
info@landinsight.co
www.landinsight.co

An aerial photograph of a coastal landscape. The top half of the image shows clear, turquoise water with some small, dark rocks. The bottom half features a rugged coastline with large, yellow-green, porous rocks. In the bottom right corner, there is a dense patch of reddish-brown vegetation.

Product Guide

Due Diligence Insight Report

16 Apr 2025

Data Sources

NLUA - The Land Insight National Land Use Atlas (NLUA)

Land Insights' NLUA is a unique, proprietary database, meticulously curated from over a decade's worth of research and hundreds of thousands of diverse information sources. NLUA provides a comprehensive overview of land usage and potential hazards, drawing from a wide array of reliable sources. These include verified Council Records, Historic Zoning Maps, Topographic and Parish Maps, and technically published reports.

NLUA integrates thoroughly researched information extracted from published reports, publications, and technical studies. It also incorporates Land Insight's proprietary machine learning process, which identifies land anomalies, patterns, and changes through aerial imagery interpretations.

Leveraging advanced technologies, NLUA verifies the provenance, authenticity, and precision of its data. This database undergoes rigorous validation procedures carried out by scientists, quality assurance teams, and technical experts. This ensures its accuracy and reliability before publication. For more information on methodologies and further inquiries, please contact the Land Insight teams at support@landinsight.co.

Section 1 - Property Setting

Sensitive Receptors

National – Google. Nearmap. @ Land Insight National Land Use Atlas (NLUA). Points of Interest - @ OpenStreetMap. Australian Business Datalist, Australian Schools Database - @ Australian Business Datalist ABDL (with permission). Cadastre. National - The digital cadastral boundaries and their legal identifiers have been derived from the relevant bodies from each Australian State and Territory jurisdiction combined by Land Insight & Resources.

Topographic data and Contours. National - The digital contours data and elevation information have been derived from the relevant bodies from each Australian State and Territory jurisdiction combined by Land Insight & Resources. National - Catchments, Streams, Aquifers, Storages, Wetlands and Man-made Structures that make up the hydrological system - @ Geoscience Australia. Parks and National and State Forest Data @ Department of Agriculture, Fisheries and Forestry.

Planning Controls and Overlays

Zoning, Planning Overlays and Other Planning Information

The digital planning information have been derived from the relevant bodies from each Australian State and Territory jurisdiction combined by Land Insight & Resources.

Mine subsidence districts - @ DFSI Subsidence Advisory NSW. ACT - ACT Territory Plan and Land Use Zones and overlays @ ACT Government Environment, Planning and Sustainable Development Directorate – Environment. NSW – NSW Environmental Planning Instruments, Land Use Zoning, Local Environmental Plan - @ State Government of NSW and NSW Department of Planning, Housing, and Infrastructure. NT - NT Planning Scheme, Land Use Zones @ NT Government Department of Infrastructure, Planning and Logistics. QLD - Land use mapping series, Land Use in QLD @ QLD Environment, Science, and Innovation. QLD zoning information, various LGA Councils. SA - Land Development Zones, Planning and Design Code Zones and Overlays – @ SA Government Department for Trade and Investment. TAS - Tasmania Planning Scheme, Zoning and Overlays, theLIST @State of Tasmania. @ Department of Natural Resources and Environment Tasmania. VIC - Tasmania Planning Scheme, Zoning and Overlays, theLIST @State of Tasmania. @ Department of Natural Resources and Environment Tasmania. WA - Local Planning Scheme and Region Scheme, Zones, and Reserves, @ WA Government Department of Planning, Lands and Heritage.

Heritage

Commonwealth Heritage List, National Heritage List and World Heritage Area

AUS - World, Commonwealth, and National Heritage Areas – World Heritage List, UNESCO. Australia's World Heritage List, @ Australian Government Department of Sustainability, Environment, Water, Population and Communities. @ Department of Climate Change, Energy, the Environment and Water.

State and Local Heritage Registers

ACT - ACT Heritage Sites @ ACT Government Environment, Planning and Sustainable Development Directorate – Environment. NSW - NSW EPI Heritage, NSW Heritage State Curtilage @ NSW Department of Premier and Cabinet, Heritage Council of NSW. NT - Heritage Register in NT, NT Town Planning Zones Heritage - @ NT Government of Australia through Department of Tourism, Sport, and Culture. QLD - Queensland Heritage register boundaries, Queensland Local Heritage. @ QLD Government Department of Environment and Science. Data from various local councils compiled by Land Insight Research Team (LIRT). SA - SA Heritage Places, SA Conservation State Heritage Areas, SA Conservation State Heritage Areas, Aboriginal Heritage in SA @Government of South Australia @ SA Government Department for Trade and Investment, Department for Environment and Water. TAS - Heritage Tasmania Features theLIST @State of Tasmania. VIC - VIC Heritage Inventory, VIC Sensitivity Public, VIC Heritage Register @ VIC Government Department of Energy, Environment and Climate Action; Department of Premier and Cabinet. WA - WA Heritage Areas, WA Heritage Council Local Heritage Survey, WA Heritage Council State Heritage Survey, WA Aboriginal Heritage Places @ WA Government Department of Planning, Lands and Heritage.

Soil and Land Use Information

Soil landscape

Soil Mapping, Information & Landscape - Digital Atlas of Australian Soils, Bureau of Rural Sciences (BRS); Commonwealth Scientific and Industrial Research Organisation (CSIRO) Australian Soil Resource Information System (ASRIS). CSIRO (2024): Australian Soil Resource Information System Website. v1. CSIRO. Data Collection. <https://doi.org/10.25919/pdct-9a97>

Australian Soil Resource Information System - Australian Soil Classification @ Geoscience Australia, ASRIS Australian Soil Classification @ CSIRO Soil and Landscape Information of Australia @ CSIRO. Australian national map layers, Atlas of Australian Soils - @ ABARES Australian Bureau of Agricultural and Resource Economics and Sciences.

ACT Soil Landscapes, Soil Landscapes of the Canberra 1:100,000 © Australian Capital Territory Government, @ State Government of NSW and NSW Department of Climate Change, Energy, the Environment and Water. NSW Great Soil Group (GSG) Soil Type, Australian Soil Classification (ASC) soil type, Strategic Regional Land Use and Soil Profiles, 1:100 000 Soil Landscape Series, 1:250 000 Soil Landscape Series © State Government of NSW and NSW Department of Climate Change, Energy, the Environment and Water. NT Northern Territory Land Systems compilation 1:1 000 000, 1:250 000 @ Environment, Parks, and Water Security. QLD Land systems series, Soil Series and Soil and land resource information © The State of Queensland. SA Land Systems & Soil Types, Soils of South Australia @ Department for Environment and Water. TAS Soil Maps of Tasmania 1:100 000 various regions. Dominant Soil Order TAS @ Department of Natural Resources and Environment Tasmania. VIC Victorian Soil type mapping, VIC Land units (various regions), Victorian Land Use Information System, Land Systems of Victoria at 1:100 000 and 1:250 000 @ Department of Energy, Environment and Climate Action. WA Soil Landscape Mapping - Best Available, Soil Landscape Mapping - Systems, WA Soil Group @ Department of Primary Industries and Regional Development.

Soil salinity

ACT - Hydrogeological Landscapes, Soil Landscapes of the Australian Capital Territory @ actmap ACT gov. NSW - Hydrogeological landscapes mapping, Sydney Metropolitan Western Study Area Hydrogeological Landscapes; New South Wales - Dryland Salinity Assessment 2000 - Assessment of Dryland salinity extent 2020 - © State Government of NSW and NSW Department of Climate Change, Energy, the Environment and Water; Australian Bureau of Agricultural and Resource Economics and Sciences. NT - Land Suitability Guidelines @ Department of Infrastructure, Planning and Logistics NT. QLD - Salinity in Queensland @ Environment, land, and water QLD. SA - Land salinity, Dryland salinity, Watertable and non-watertable @ Department for Environment and water SA. TAS - Vulnerable Soils: Salinity Hazard @ thelist Land Tasmania. VIC - Victorian Dryland Salinity Assessment 2000 - Australian Bureau of Agricultural and Resource Economics and Sciences. WA - Dryland salinity in Western Australia - © Department of Primary Industries and Regional Development's Agriculture and Food.

Acid Sulfate Soils

National, State and Local Acid Sulfate Soils Registers

AUS - Acid sulfate Soils - Atlas of Australian Acid Sulphate Soils @ CSIRO (2024): Australian Soil Resource Information System Website. v1. CSIRO. ACT - Environmental Planning Instrument (Acid Sulfate Soils) - © State Government of NSW and NSW Department of Planning, Housing, and Infrastructure. NSW - Environmental Planning Instrument (Acid Sulfate Soils); Land and Soil Capability Mapping for NSW - © State Government of NSW and NSW Department of Planning, Housing, and Infrastructure; © State Government of NSW and NSW Department of Climate Change, Energy, the Environment and Water. NT - Acid Sulfate Soils of the Darwin Region; Northern Territory Land Systems (compilation of north_250 and south_1M) - © Northern Territory Government of Australia Environment, Parks, and Water Security. QLD - Acid sulfate soils series - © The State of Queensland Environment and Science. SA - Acid Sulfate Soil Potential - @ Government of South Australia Department for Environment and Water. TAS - Marine Acid Sulfate Soils; Inland Acid Sulfate Soils; Coastal Acid Sulfate Soils; Acid Sulfate Soils - Resource Management and Conservation. VIC - Coastal Acid Sulphate Soils - Department of Jobs, Skills, Industry and Regions. WA - Acid Sulfate Soil Risk Map 100K; Soil landscape land quality - Subsurface Acidification Risk - @ Department of Water and Environmental Regulation; Department of Primary Industries and Regional Development.

Geology and Topography

Naturally Occurring Asbestos NOA

Naturally Occurring Asbestos in NSW © State of New South Wales and Department of Planning and Environment; WA Management of Asbestos In Mining Operations Department of Industry and Resources; SA Carbonate-hosted asbestos occurrences in South Australia: review of geology and implications for mesothelioma [Hendrickx, M.]; Mapping of naturally occurring asbestos in NSW [NSW Trade & Investment, Division of Resources & Energy]

Geology

ACT - New South Wales Seamless Geology dataset (latest version 2.3), various geology data sources 1:25K to 1:100K - © Department of Regional NSW. NSW - New South Wales Seamless Geology dataset (latest version 2.3) - © Department of Regional NSW. NT - Geological digital data 1:100 000 sheet - © Commonwealth of Australia (Geoscience Australia). QLD - Queensland geology detailed surface geology 1:100K and Queensland geology state surface geology 1:2M - © State of Queensland (Department of Resources). SA - 1:100K Geology (surface geology) - © SA Government Department of Energy and Mining, Customer Services. TAS - 1:25K and 1:250K Geology Data and Maps - © TAS Government Department of Infrastructure, Energy, and Resources (Mineral Resources Tasmania). VIC - Geological units represented as two dimensional polygons (1:50,000), and Geological units represented as two dimensional polygons (1:250,000) - © VIC Government Department of Jobs, Skills, Industry and Regions. WA - 1:50K Geological series map, 1:100K Geological series map, and 1:500K State interpreted bedrock geology - © WA Government Department of Mines, Industry Regulation and Safety.

GDE & Hydrogeology Constraints

Groundwater Aquifers

Groundwater Aquifers - The National Hydrogeological Inventory, Commonwealth of Australia (Geoscience Australia). Australian Hydrological Geospatial Fabric @ Department of Climate Change, Energy, the Environment and Water, National Aquifer Network © Commonwealth of Australia (Bureau of Meteorology)

Groundwater Protection Areas and Groundwater Restricted Use Zones

Groundwater Protection Areas – © State of New South Wales and Department of Planning and Environment, NT Environment, Parks and Water Security, QLD Department of Resources, SA Environment Protection Authority (EPA), TAS TasWater, VIC Department of Environment, Land, Water & Planning; WA Department of Water and Environmental Regulation. Groundwater Licences - The Perth Groundwater Atlas and Department of Water (DoW) database © State of Western Australia. NSW - Groundwater Restricted Use Zones: EPI Groundwater Vulnerability, Botany Groundwater Management Zone, Williamstown Management Area, UPSS Environmentally Sensitive Zone, EPI Drinking Water Catchments – EPA NSW; NSW Department of Planning, Industry and Environment. NSW Temporary Water Restrictions Order Botany Sands groundwater - @ The NSW Department of Industry—Lands & Water. NT - Groundwater Restricted Use Zones: NT Water Protection Areas - Department of Environment, Parks, and Water Security. QLD - Groundwater Restricted Use Zones: Water Licences, Groundwater Management Areas, Surface Water Management Areas, Water Plan Catchments - Department of Resources. SA - Groundwater Restricted Use Zones: EPA Groundwater Prohibition Area – EPA SA. TAS - Groundwater Restricted Use Zones: Drinking Catchments, Water Management Plan Areas, Water Districts. VIC - Groundwater Restricted Use Zones: GMA, Groundwater Resources, Water Supply Protection Areas, Water Asset Database, Groundwater Catchments – © EPA Victoria. WA -Groundwater Restricted Use Zones: Ghangara Groundwater Protection, Jandakot Groundwater Protection, Groundwater Areas, PDWSA, Water Licences – Department of Water and Environmental Regulation.

Wetlands

Ramsar Wetlands of Australia - Directory of Important Wetlands in Australia (DIWA) – DCCEE Department of Climate Change, Energy, the Environment and Water. ACT - Wetland Mapping - © State of New South Wales and Department of Planning and Environment. Important Wetlands - © Australian Capital Territory. NSW - Wetlands, Ramsar Sites, and various sources – © State of New South Wales and Department of Planning and Environment. NSW Environmental Planning Instruments (Wetlands, Coastal Wetlands), © State Government of NSW and NSW Department of Planning, Housing, and Infrastructure. NT - Wetlands and Ramsar Sites - @ Department of Environment, Parks, and Water Security. QLD - Local Significant Wetlands and Ramsar Sites - @ Department of Environment and Science. SA - Ramsar Wetlands - @ Department for Environment and Water. TAS - Ramsar Wetlands - @ Land Tasmania. VIC - Victoria Wetlands and Ramsar Sites, @ Department of Energy, Environment and Climate Action. WA - Geomorphic Wetlands (various), Consanguineous Wetlands Suites, Ramsar Sites, @ Department of Biodiversity, Conservation and Attractions.

Groundwater Dependent Ecosystems

Groundwater Dependent Ecosystems (GDE) – Terrestrial (subsurface) and Aquatic (surface) - © Commonwealth of Australia (Bureau of Meteorology).

Groundwater Bores & Lithology details

Groundwater bores and lithology - National Groundwater Information System (NGIS) Dataset. - © Australian Government Bureau of Meteorology. © Water NSW. Groundwater Bores – © Australian Capital Territory. VIC Groundwater Sites, Domestic and stock groundwater bores @ DELWP. WA GW Bores, @ Department of Agriculture Resource Management. SA WaterConnect @ State of South Australia.

Groundwater Salinity

AUS - Groundwater Salinity © Commonwealth of Australia, Bureau of Meteorology. Groundwater Salinity - ACT - Canberra Hydrogeological Landscape, Hydrogeological Landscape Reports, Salinity, ACTmapi @ ACT gov. NSW – Salinity locations and mapping, Hydrogeological landscapes, @ NSW Environment and Heritage. NT - Dryland Salinity Hazard of the Northern Territory, @ Environment, Parks, and Water Security NT. QLD - Salinity in Queensland, @ QLD gov. SA - Annual ground water salinity sampling, @ Landscape South Australia. TAS - Groundwater Salinity - © Department of Natural Resources and Environment Tasmania. VIC - Groundwater Salinity - © State Government of Victoria. Groundwater Salinity - Department of Water and Environmental Regulation. WA – Salinity & Dryland salinity in Western Australia, @ Department of Agriculture and Food WA.

Other Known Borehole Investigations (Coal Seam Gas (CSG), Petroleum Wells and Other Boreholes)

Other Known Borehole Investigations (Coal Seam Gas (CSG), Petroleum Wells and Other Boreholes) – NSW Planning & Environment (Resources & Energy); Department of Energy, Environment and Climate Action. Other Known Borehole Investigations (Coal Seam Gas (CSG), Petroleum Wells and Other Boreholes) – © The State of Queensland, © Commonwealth of Australia (Geoscience Australia), Other Known Borehole Investigations (Coal Seam Gas (CSG), Petroleum Wells and Other Boreholes, Drillholes within South Australia, Mineral Drillholes) - @ SA Government Department for Environment and Water; Department for Energy and Mining. Other Known Borehole Investigations (Coal Seam Gas (CSG), Petroleum Wells and Other Boreholes) - Department of Water and Environmental Regulation, © Government of Western Australia Department of Mines, Industry Regulation and Safety. Other Known Borehole Investigations (Coal Seam Gas (CSG), Petroleum Wells and Other Boreholes), various sources @ Land Insight National Land Use Atlas (NLUA).

Section 3 - Environmental Registers, Licences and Incidents

Contaminated Land Public Register

ACT - Register of Contaminated Sites, Contaminated Land Search (per request) - © Australian Capital Territory, Environment Protection Authority. NSW - Sites Notified as Contaminated, Records of Notices - © State of NSW and the NSW Environment Protection Authority. NT - Contaminated Land Audit, Pollution Abatement Notice - Northern Territory Environment Protection Authority. QLD - Contaminated Land Search (Environmental Management and Contaminated Land Registers – per lot) - © The State of Queensland (Department of Environment, Science, and Innovation). SA - Site Contamination Index, Assessment Areas - © Government of South Australia Environment Protection Authority. TAS - Regulated Sites and Premises, Lutana, and Parts of Hobarts Eastern Shore - © The Crown of Tasmania, Environment Protection Authority. VIC - Priority Sites Register, Pollution Abatement Notice - © EPA Victoria. WA - Contaminated Sites Database - © Government of Western Australia, Department of Water and Environmental Regulation.

Licences, Approvals, & Assessments

ACT - Environment Protection Authorisation Search, Environment Protection Agreement Search - © Australian Capital Territory, Environment Protection Authority. NSW - POEO Public Register - © 2023 State of NSW and the NSW Environment Protection Authority. NT - Environment Protection Licences - © Northern Territory Environment Protection Authority. QLD - Environmental Authorities - © The State of Queensland (Department of Environment, Science, and Innovation). SA - Licences or Authorisations, Environment Protection Orders (EPO), Clean-Up Orders (CUO), Assessment Areas - © Government of South Australia Environment Protection Authority. TAS - Regulated Premises - © The Crown of Tasmania, Environment Protection Authority. VIC - Permissions Register, Audit Reports - © EPA Victoria. WA - Licences and Works Approvals - © Government of Western Australia, Department of Water and Environmental Regulation.

Sites Regulated by Other Jurisdictional Body

Contaminated Legacy Areas

Contaminated Legacy Areas mapped by Land Insight Research team @ Land Insight National Land Use Atlas (NLUA). James Hardie Asbestos Waste Contamination Legacy @ The Australian Asbestos Network, Loose-fill Asbestos register @NSW Department of Climate Change & Water. Loose Fill Asbestos @ ACT Government. Asbestos Register @NT Government. Asbestos Register @ QLD Government. Asbestos Safework @ Government of South Australia. Asbestos Safety WorkSafe @Tasmania Government. Asbestos in Victoria @State Government of Victoria. Asbestos – contaminated sites @ Government of Western Australia Department of Health. National Pollutant Inventory - © Commonwealth of Australia, Department of Agriculture, Water, and the Environment. Parramatta River Catchment Land Use Areas - Compiled by Land Insight derived from Parramatta River Estuary Processes Study (2010); and @ Land Insight National Land Use Atlas (NLUA).

Mines and Quarries (current locations, derelict and abandoned mines and quarries, mine shaft)

Current and Historical location of mines and quarries, derelict mine locations mapped by Land Insight Research team @ Land Insight National Land Use Atlas (NLUA). Australia's abandoned mines: rehabilitated @Australian Geographic. List of mines, List of open-pit mines @ Wikipedia. Goldfields places & Maps- National Library of Australia and State Libraries. A Geospatial Database for Effective Mine Rehabilitation in Australia – Monash University, various authors. Inventory of abandoned mines in Australia @ Australian Government AusIndustry. National Heritage Places - Coal Mines Historic Site @Department of Climate Change, Energy, the Environment and Water. Legacy Mines Program @ State of New South Wales through Regional NSW. Map of NSW Mines @NSW Minerals Council. Legacy Mines @ Northern Territory Government. Abandoned mine remediation projects - @ The State of Queensland Government. Map of abandoned mines in Queensland. Queensland's quarry operations @ QLD Government Department of Resources. South Australian Mining History @ Mining Heritage, Former Mines, SARIG @ Government of South Australia @ EPA SA. Mineral Resources Tasmania @ Department of State Growth Mineral Resources Tasmania, Abandoned Mines Rehabilitation in Tasmania @ Department of Infrastructure, Energy and Resources. Tasmania Goldfields dataset. Mineral Occurrences Data @ Tasmania Government. Rehabilitating Mines @ Copyright Victorian Auditor-General's Office, @ Mining Legacies. Historical Mining Activities @ VIC Department of Jobs, Skills, Industry and Regions. Heritage Victoria. Mineral Assessment @ VIC Department of Natural Resources and Environment. Abandoned Mines, Inactive And Abandoned Mine Land Reports - @ WA Department of Mines, Industry Regulation and Safety. Abandoned Mines Program @ WA Department of Energy, Mines, Industry Regulation and Safety. Mines and Mineral Deposits (MINEDEX) - @ WA Department of Energy, Mines, Industry Regulation and Safety

Defence, Military Sites, and UXO Areas

Current and Historical Defence and Military sites mapped by Land Insight Research team @ Land Insight National Land Use Atlas (NLUA). Department of Defence 3 Year Regional Contamination Investigation Program (RCIP) © Commonwealth of Australia, Department of Defence. Defence Sites © Australian Government - Various sources and Department of Defence © Commonwealth of Australia. @ Land Insight National Land Use Atlas (NLUA). National Unexploded Ordnance Program (UXO) @ Australian Government Defence.

Former Gasworks Sites

AUS – Gasworks sites (Various), @ National Trust of Australia, @ National Library of Australia, @ Pocket Oz Sydney Guide, @ wikipedia. Former gasworks site locations mapped by Land Insight Research team @ Land Insight National Land Use Atlas (NLUA). Archaeological database and records @ New England Archaeology. Images, Wikipedia, @Flickr images. The historical marker database. ACT – Gaswork sites @ ACT gov. NSW – Former gasworks sites @ EPA NSW, @ NSW Department of Environment and Conservation, Heritage NSW. NT - Gaswork sites @ EPA NT. QLD - Gaswork sites @ DES QLD. SA - Gaswork sites @ EPA SA, @ SA Heritage Places Database Search (maps SA). TAS - Gaswork sites @ EPA TAS, @ Lighscape Tasmania. VIC – Gasworks sites,

@EPA VIC, @ Development Victoria. WA - Gasworks sites, @EPA WA, @ Department of Water and Environmental Regulation WA.

PFAS sites

AUS – National PFAS Investigation Program – State-wide PFAS Investigation Program @Australian Government, Department of Infrastructure, Transport, Regional Development, Communications and The Arts. PFAS research @ Land Insight National Land Use Atlas (NLUA).

PFAS Investigation and Management Program - PFAS contamination at Department of Defence sites, @ Defence Government. @ Australian Government Defence. Metropolitan Fire Brigade stations. Potential historical use of PFAS @ Australian Government.

PFAS Taskforce. Airservices Australia National & PFAS Management Program, Airservices Australia.

ACT - Potential PFAS contaminated sites in the ACT - @ ACT Environment Protection Authority. NSW - The NSW Government PFAS Investigation Program, @ State of NSW and the NSW Environment Protection Authority. NT – PFAS National Environmental Management Plan (NEMP) @ NT EPA. QLD - PFAS site investigations, PFAS in QLD, @ QLD government. SA - Per- and poly-fluoroalkyl substances (PFAS), @SA EPA. TAS - PFAS Contamination, @ TAS EPA. VIC - PFAS management sites, PFAS contamination at Department of Defence sites @ VIC EPA. WA - PFAS Investigations in Western Australia, @ WA government, @ WA DWER.

Section 4 - Potentially Contaminated Areas

Potentially Contaminated Areas, Activities (PCA) – Notifiable Activities Locations and Description

The research database includes Potentially Contaminating Activities or businesses, industries, and activities that have been identified as having an increased likelihood of causing contamination. Many of these are considered notifiable activities, or activities that require regulation to operate. This database is meticulously curated from a variety of information sources and undergoes rigorous validation procedures carried out by our team of scientists, quality assurance professionals, and technical experts, ensuring its accuracy and reliability. The PCA database systematically identifies and classifies site locations into fifty differing categories, including:

Abattoirs, Abrasive Blasting, Agriculture/Horticulture, Airports, Asbestos, Asphalt or Bitumen, Batteries, Breweries/Distilleries, Cement, Concrete or Lime, Cemeteries, Chemicals, Coal Yards, Depots and Storage Yards, Dry Cleaners, Electrical or Electrical Components, Explosives and Dangerous Goods, Extractive Industries, Fire and Rescue, Food Manufacturing, Foundry, Smelting or Refining, Fuel Terminals & Depots, Glass, Ceramics and Plastic, Gun, Pistol or Rifle Ranges, Hospitals and Research Facilities, Landfill Sites, Livestock Dips, Mechanical and Automotive, Metal Fabrication and Treatments, Oil and Gas, Other Infrastructure Facilities, Paint Industries, Petrol Stations, Pharmaceuticals, Port and Marina Operations, Power Plants, Printing and Photography, Rail Industry and Associated Activities, Rubber and Tyre, Storage Tanks, Substations and Switching Stations, Textiles and Tannery, Timber, Pulp and Paper Works, Waste and Recycling Facilities, Wastewater Treatment Facilities.

Potentially Contaminating Activities and Locations (PCA) - © Google; Nearmap data; @ Datajet Australia Pty Ltd – with permission and @ Land Insight National Land Use Atlas (NLUA).

The Potentially Contaminating Activities (PCA) is a unique database proprietary to Land Insights. Please note that not all sources are included; only the most significant or larger databases are referenced for brevity. Individual research on each of these sources has not been included due to the comprehensive nature of the list.

Airports – Designated international airports in Australia @ Department of Infrastructure, Transport, Regional Development, Communities, and the Arts Australian Gov. List of airports Australia @ Wikipedia. Australia Airports Map @ Sydney-australia biz

Cattle Dips: Cattle Dip Site Locator Northern Rivers Region - © State of New South Wales through NSW Department of Industry; and @ Land Insight National Land Use Atlas (NLUA).

Dry cleaners: Dry cleaners @ Drycleaning Institute of Australia; Lawrence Dry Cleaners Locations @ Lawrence Dry Cleaners, and @ Land Insight National Land Use Atlas (NLUA).

Landfill Sites: NSW – Landfill sites @ EPA NSW. QLD - Location of waste sites | Environment, land and water, Closed landfill sites @ QLD gov. SA - Landfill map, EPA SA. TAS – Landfills @ EPA TAS. VIC – Victorian Landfill Register - © EPA Victoria. Waste and Recycling Facilities: National Waste Management Facilities - © Commonwealth of Australia (Geoscience Australia), Australia's waste and resource recovery infrastructure @ DCCEEW @ Land Insight National Land Use Atlas (NLUA).

Petrol Stations: National Liquid Fuel Refineries and Facilities, Liquid Fuel & Aviation Fuel Depots/Terminals, National Liquid Fuel Refineries - © Commonwealth of Australia (Geoscience Australia), Petrol Stations @ Digital Atlas of Australia. Fuelcheck @ Fair Trading NSW gov. @ Land Insight National Land Use Atlas (NLUA).

Power Plants: AUS @ Powerplants Australia. QLD Power Plants map of Queensland @Department of Energy and Climate. Various sources. @ Land Insight National Land Use Atlas (NLUA).

Waste and Recycling Facilities: National Waste Management Facilities - © Commonwealth of Australia (Geoscience Australia), Australia's waste and resource recovery infrastructure @ DCCEEW. @ Land Insight National Land Use Atlas (NLUA). NSW – Waste facilities @ NSW EPA. NT - Waste & Recycling NT, City of Darwin. QLD - Public waste and recycling facilities in Queensland @ Queensland Government Open Data Portal. SA - Waste disposal, Waste depots @ EPA SA. TAS – Waste Centres, Waste Disposal Facilities @ EPA TAS. VIC - Victoria's waste and resource recovery infrastructure, Waste Facility Locations Victoria's Waste and Recycling Infrastructure Map @ Recycling Victoria. WA @ VIC Gov. WA – Waste locations and recycling centres @ DEW WA. @ Land Insight National Land Use Atlas (NLUA).

Historical Business Directories

AUS - AUS Historical Commercial & Trade Directory Data – various sources, see below. UBD business & street directory, Sands & McDougall directories, @ Australian Business Datalist ABDL (with permission)
ACT - 1971, 1981 & 1991 Telecom Australia Yellow Pages Country NSW Directories – Permission for use Sensis 2017.
2005 - 2022 - @ Australian Business Datalist ABDL – with permission
NSW – Sydney Metropolitan Area: 1932-1933 John Sands Sydney Trades Directory
1940 & 1950 Commonwealth of Australia Telephone Directory Sydney
1960-1961 Telecom Australia Pink Pages Sydney – Permission for use Sensis
1970-1971 United Business Directories Sydney – Licenced under Hardie Grant
1974-1975 NSW Post Office Yellow Pages Sydney Buying Guide and Commercial/Industrial Directories – Permission for use Sensis
1980-1981 & 1990-1991 Telecom Australia Yellow Pages Sydney – Permission for use Sensis. 2005 – 2022 @ Australian Business Datalist ABDL
NT - 2005 - 2022 @ Australian Business Datalist ABDL – with permission
QLD - 1865, 1890, 1900, 1906, 1916, 1919, 1924, 1925, 1970 – Pugh's Almanac (copyright expired)
1970-1971 - Brisbane Telephone Directory (copyright expired)
2005 - 2022 - @ Australian Business Datalist ABDL – with permission
SA - 1930, 1935, 1944-45, 1950, 1955, 1960, 1965, 1970, 1973 - Sands & McDougall Melbourne Trade Directory (copyright expired)
2005 - 2022 @ Australian Business Datalist ABDL – with permission
TAS - 1896-1897, 1900, 1905, 1910, 1915, 1920, 1925, 1930, 1935, 1940-41, 1945-46, 1948 - Wises Post Office Directory (copyright expired)
2005 - 2022 @ Australian Business Datalist ABDL – with permission
VIC - 1900, 1905, 1915, 1925, 1935, 1945, 1955, 1965, 1975 - Sands & McDougall Melbourne Trade Directory (copyright expired)
1960-1961, 1970-1971 - Post Office Pink Pages Melbourne – Permission for use Sensis 2017
1981-1982, 1990-1991 - Telstra Yellow Pages Melbourne - Permission for use Sensis 2017
Telstra Yellow Pages Melbourne - Permission for use Sensis 2017
2005 - 2022 @ Australian Business Datalist ABDL – with permission
WA - 2005 - 2022 @ Australian Business Datalist ABDL – with permission

Section 5 – Natural Hazards

Fire Hazards

AUS - Bushfire Prone Areas – © Australian Government Department of Climate Change, Energy, the Environment and Water. Bushfire History - © Commonwealth of Australia (Geoscience Australia). ACT - Bushfire Prone Areas – © ACT Government Environment, Planning and Sustainable Development Directorate. Bushfire History - NPWS Fire History - Wildfires and Prescribed Burns © State Government of NSW and Department of Planning, Industry and Environment. NSW - Bushfire Prone Areas – © State of New South Wales (NSW Rural Fire Service). Bushfire History - © State Government of NSW and NSW Department of Climate Change, Energy, the Environment and Water, Wildfires and Prescribed Burns - © State of New South Wales, National Parks, and Wildlife Management Unit. NT - Bushfire Prone Areas – © NT Government of Australia through Department of Environment and Natural Resources. Bushfire History - © The Commonwealth of Australia through the Department of the Environment and Energy. QLD - Bushfire Prone Areas – © Commonwealth Scientific and Industrial Research Organisation (CSIRO) in conjunction with the State of Queensland (Queensland Fire and Emergency Services). Bushfire History - © State of Queensland (Department of Environment and Science). SA - Bushfire Prone Areas – © SA Government Country Fire Service (CFS), Department of Planning, Transport, and Infrastructure. Bushfire History - © SA Government Department for Environment and Water. TAS - Bushfire Prone Areas – © Tasmania Fire Service. Bushfire History - © Department of Environment, Parks, and Water Security. VIC - Bushfire Prone Areas – © VIC Government Department of Environment, Land, Water and Planning; Department of Transport, Planning and Local Infrastructure. Bushfire History - © VIC Government Department of Transport, Planning and Local Infrastructure. WA - Bushfire Prone Areas – © WA Government Department of Fire and Emergency Services. Bushfire History - © WA Government Department of Fire and Emergency Services.

Flood Hazard

AUS - Flood Planning Area, Other Flood Studies, and Flood History - @ Commonwealth of Australia, @ Bureau of Meteorology. This dataset is digitised and/or aggregated from various verified Council Records, Aerial Photography Interpretation, Flood Imagery Maps, Topographic Maps, Historic Parish Maps, publicly available technical reports, and information digitised by the Land Insight Research team. @Land Insight Research. ACT - Flood Risk and Flood map information © ACT Government Environment, Planning and Sustainable Development Directorate – Environment. NSW - NSW Flood Data Portal @NSW State Emergency Service, © State Government of NSW, NSW Department of Climate Change, Energy, the Environment and Water; and NSW Department of Planning, Housing, and Infrastructure; @ NSW Government Spatial Services. NT - Floodplain maps, Flood monitoring © NT Government of Australia through Department of Environment and Natural Resources, Department of Lands, Planning, and the Environment. QLD - QLD Flood mapping, Historical flood mapping © The State of Queensland, Department of Resources, Queensland Reconstruction Authority. Flood data series and Flood data overlays (various) Queensland Open Data portal. SA - Flood Awareness map, Flood Risk © Crown in right of the State of South Australia, @ Government of South Australia, Department for Environment and Water. Flood mapping (various) SA Data Directory portal. TAS - Tasmania Flood Mapping Projects Reports @ Tasmania State Emergency Services. Floodplain Mapping in Tasmania, Flood Inundation Extent models. © Department of Natural Resources and Environment Tasmania. TAS TheList dataset portal. VIC - Victoria Flood mapping and overlays. © Copyright State Government of Victoria various datasets, Victoria State Emergency Service; Department of Energy, Environment and Climate Action, Department of Environment, Land, Water & Planning. Flood data (various) VIC data portal (data.vic). WA - Floodplain mapping tool, Landgate Flood Map. © Government of Western Australia, @ Department of Water and Environmental Regulation. Flood data (various) WA data portal.

Erosion Hazard

AUS - Soil Erosion Hazards, © Commonwealth of Australia (Geoscience Australia), @ Agriculture DAFF @Australian Government. ACT - Soil and Land Resources of the Australian Capital Territory, © State of New South Wales and Department of Planning and Environment. NSW - Land Soil Capability, Vulnerable lands, © State of New South Wales and Department of Planning and Environment NT - Land System, Soil Conservation, © Department of Environment, Parks, and Water Security. QLD - QLD Erosion prone areas, Coastal and Inland erosion areas, © The State of Queensland. SA - Landscape salad, Mass movement and soil Attributes, Water and Wind Erosion, © Department for Environment and Water. TAS - Coastal Erosion Hazard, Landslide Planning Map, Water and Wind Erosion Statewide map, © Department of Natural Resources and Environment Tasmania. VIC - Geomorphology of Victoria, © VIC Government Department of Jobs, Skills, Industry and Regions. WA - Soil Landscape Land Quality, Land capability assessment, Land instability Risk, Water Erosion Riks, Wind Erosion Risk, © WA Government Department of Primary Industries and Regional Development.

For more information visit www.landinsight.co or contact orders@landinsight.co.

Terms and Conditions

Terms and Conditions

1. Land Insight & Resources (Land Insight) will perform the Services in accordance with these terms and conditions
2. By submitting the Application Form, the User acknowledges that it has read and understood these terms and conditions and agrees to be bound by them.
3. Land Insight reserves the right to change these terms and conditions. Any change shall be effective upon notice, which may be given by Land Insight posting such change on the Website, or by direct communication with the User.

Services

4. Land Insight agrees to undertake the Services using due skill, care, and diligence.
5. The User assumes the sole risk of making use of, and/or relying on, the report and the Services. Land Insight makes no representations about the suitability, completeness, timeliness, reliability, legality, or accuracy of the Services.
6. Unless Land Insight agrees expressly otherwise:
 - (A) The Services are solely for the use and benefit of the User; and
 - (B) Land Insight does not accept any liability, whether directly or indirectly, for any liability or loss suffered or incurred by any third party placing any reliance on the performance of the Services or any Documents or material arising from or in connection with the Services.
7. The User warrants to Land Insight that it will not use the Services for any purpose that is unlawful or is otherwise inconsistent with these terms and conditions.
8. The User will not alter in any way or provide a copy of the report, or any Document prepared by Land Insight to any other person without Land Insight's prior written consent.

Payment Terms

9. The Fee will be payable at the time of submitting the Application Form unless invoicing payment terms have been negotiated prior to purchase with Land Insight.
10. The User and Land Insight may agree in writing to vary the Services. The fee for each variation shall be agreed between Land Insight and the User.
11. The User agrees to pay Land Insight the Fee, including the fee for any variation requested in accordance with clause 12.
12. If the User's rights are terminated and the User has made an advance payment, Land Insight will refund the User a reasonable proportion of the balance as determined by Land Insight in relation to the value of Services already provided.
13. GST at the prevailing rate is payable in addition to the Fee. The User agrees to pay any other applicable taxes, duties or government-imposed fees related to the User's use of the Services.

Intellectual Property

14. Land Insight owns all intellectual property in the Report and arising from or in connection with the Services.
15. Land Insight grants the User a royalty free licence to use Land Insight's intellectual property for that User's personal assessment of its Property(s) only.

Privacy Policy

16. Upon submitting the Application Form the User consents to Land Insight's use of the personal data provided by the User for the purposes of providing the Services.
17. The Reliance on the report, the use of the Services and the use of Land Insight's Website is at the User's own risk. The User accepts that Land Insight does not guarantee the confidentiality of any communication or information transmitted through the use of the Website.
18. Land Insight will not provide to any third party any personal data provided by a User without the User's permission.
19. The User acknowledges that any feedback provided to Land Insight over the Website is not confidential and that Land Insight has the right to publish, reproduce, disseminate, transmit, distribute and copy (in whole or in part) any such feedback without the approval of the User.
20. Land Insight assumes no responsibility or liability for any content, communications or feedback submitted by a User over the Website. If a User has submitted objectionable content, communications or Feedback, Land Insight may, in its sole discretion, terminate that User's account, take legal action, or notify the appropriate authorities or parties, without prior notice.

Third Party Services

21. The User accepts that, although the Website may contain or provide information regarding applications, products and/or services provided or offered by third parties, Land Insight does not recommend or endorse any such third party applications, products, and/or services.
22. The report contains content provided to Land Insight by other parties (Third Party Content). Land Insight is not responsible for, does not endorse and makes no representations either expressly or impliedly concerning the accuracy or completeness of any Third Party Content. You rely on the Third Party Content completely at your own risk.

Limit and Extent of Liability

23. Land Insight's liability is limited to the amount of the Fee. Liability arising in the provision of the Services is reduced to the extent that it arises out of or in connection with any negligent act or omission by the User.
24. Neither party is liable to the other for loss of actual or anticipated revenue or profits, increased capital, or financing costs, increased operational or borrowing costs, pure economic loss, exemplary or punitive damages or indirect or consequential damages or loss.
25. In no event shall Land Insight or any directors, officers, employees or agents be liable for any indirect, punitive, incidental, special, or consequential damages arising out of or in any way connected with the use of the Website, any delay or inability to use the Website, any information available on the Website, or otherwise arising out of the utilisation of the Website, whether based in contract, tort, strict liability, or otherwise, even if Land Insight has been advised of the possibility of such damages. The negation of damages set forth herein is a fundamental element of the basis of the bargain between Land Insight and the User. The Services would not be provided without such limitations.

Property Verification

26. The User accepts that the Services provided do not take into account any information relating to the actual state or condition of the Property.

27. The User acknowledges that the Services are not to be interpreted as commenting on the physical characteristics or condition of the Property, any particular purpose or use of that Property or the saleability or value of the Property.

Termination and Modification

28. Land Insight reserves the right in its sole discretion to terminate, block or restrict the User's use of the Services or any portion thereof, for any reason, and without notice. In addition, Land Insight reserves the right in its sole discretion to terminate or modify any part of the Website without notice, for any reason.

Anti-Hacking

29. The User agrees not to directly or indirectly, attempt to or disrupt, impair, interfere with, alter, or modify the Website or any of its content.

30. The User agrees not to allow, aid or abet third parties to directly or indirectly, attempt to or disrupt, impair, interfere with, alter or modify the Website or any of its content, or obtain access to any information regarding any User or any other report issued to a User.

Complaints

31. Any complaints in relation to the Services should, in the first instance, be in writing and addressed to Land Insight Customer Service at: info@landinsight.co. Land Insight will respond to any such complaints in writing as soon as practicably possible.

General Matters

32. These terms and conditions are governed by and will be construed and enforced in accordance with the laws of the State of New South Wales, Australia. If any dispute, controversy, or claim arises out of or relating to these terms and conditions, whether sounding in contract, tort or otherwise, it shall be resolved by use of an alternative dispute resolution procedure acceptable to both parties with the assistance of a mediator. If the dispute has not been resolved to the satisfaction of either party within 60 days of initiation of the procedure or if either party fails or refuses to participate in or withdraws from participating in the procedure, then either party may refer the dispute to the court.

33. These terms and conditions apply to all Services provided by Land Insight.

34. If there is any inconsistency between these terms and conditions and any other document or agreement between the parties, these terms and conditions will prevail.

35. These terms and conditions represent the entire agreement between the parties.

36. The User authorises Land Insight to destroy Documents which Land Insight has prepared or holds in connection with the Services 7 years after the last date on which the Services were provided.

37. If any of the terms of the Application Form or the terms and conditions are invalid, unenforceable, or void, the relevant term must be read down to the maximum extent possible or severed from the rest of the Application Form or these terms and conditions.

38. These terms and conditions can only be amended or varied by a written document signed by both parties.

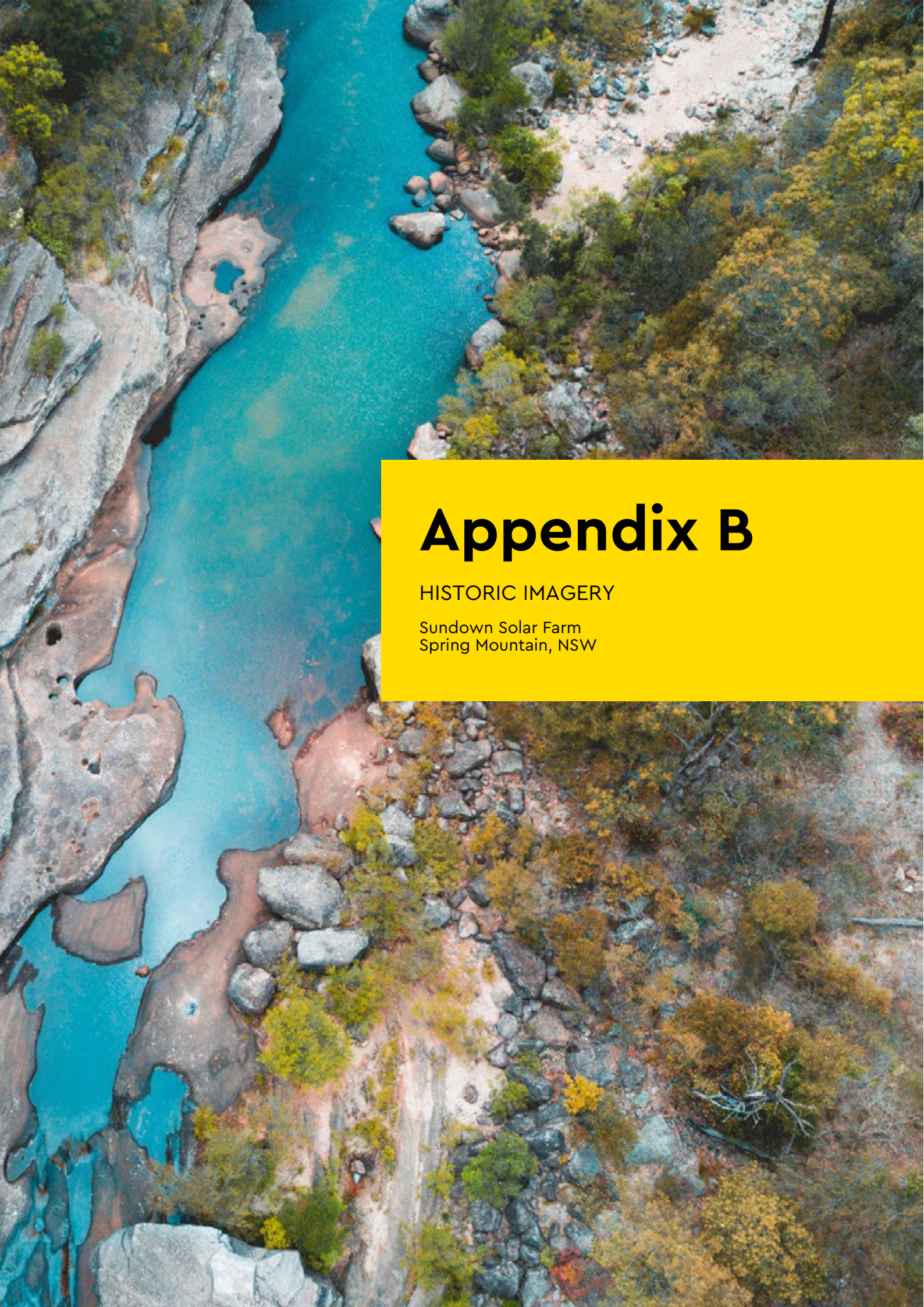
39. Neither party may assign or transfer any rights or obligations arising in the provision of the Services or these terms and conditions without the other party's written consent.

Defined Terms

Application Form	Means the form and accompanying information provided on the Website, completed, and submitted by the User to request the Services.
Document	Includes a report, and any other written or electronic document.
Fee	Means the amount set out in the Application Form or confirmed via an invoice.
Property	Means the property to which the Services and the report relate.
Report	Means the Document prepared by Land Insight and provided to the User which contains the environmental and development data which is relevant to the Property.
Services	Means the review of data and information on which the report is based, and the preparation and provision to the User of the report.
Website	Means Land Insight's online site, which is: www.landinsight.co
User	Means the person(s) set out in the Application Form including that person's permitted successors.

Appendix B

Historical maps

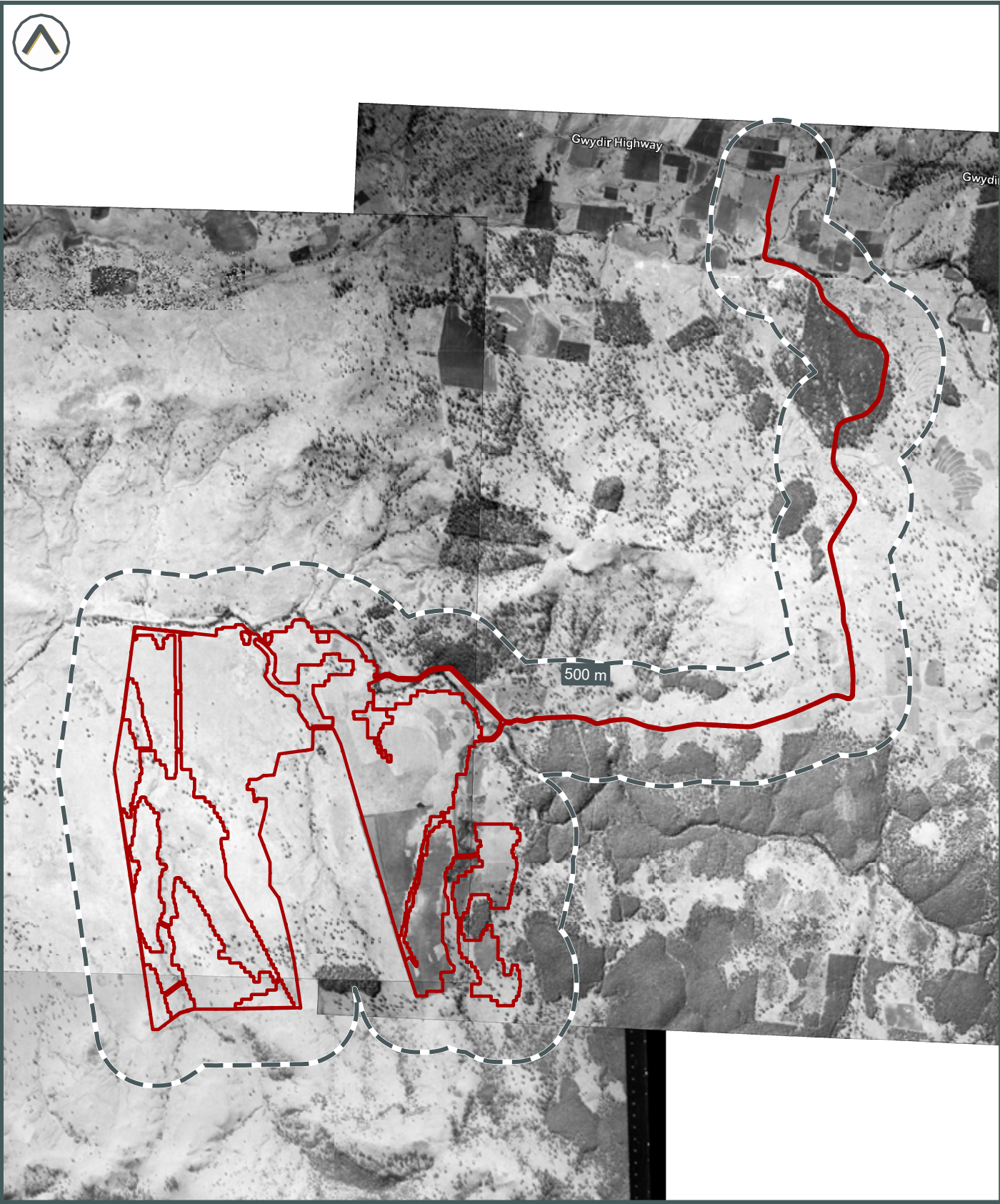
An aerial photograph of a vibrant turquoise river winding through a rugged, rocky landscape. The river is flanked by steep, rocky banks and dense, green and yellowish vegetation. The water's color is a striking contrast to the surrounding terrain. A yellow rectangular box is overlaid on the right side of the image, containing the title and location information.

Appendix B

HISTORIC IMAGERY

Sundown Solar Farm
Spring Mountain, NSW

Historic Aerial Photograph - 1962



Subject area



Historic Aerial Photograph - 1964



Subject area



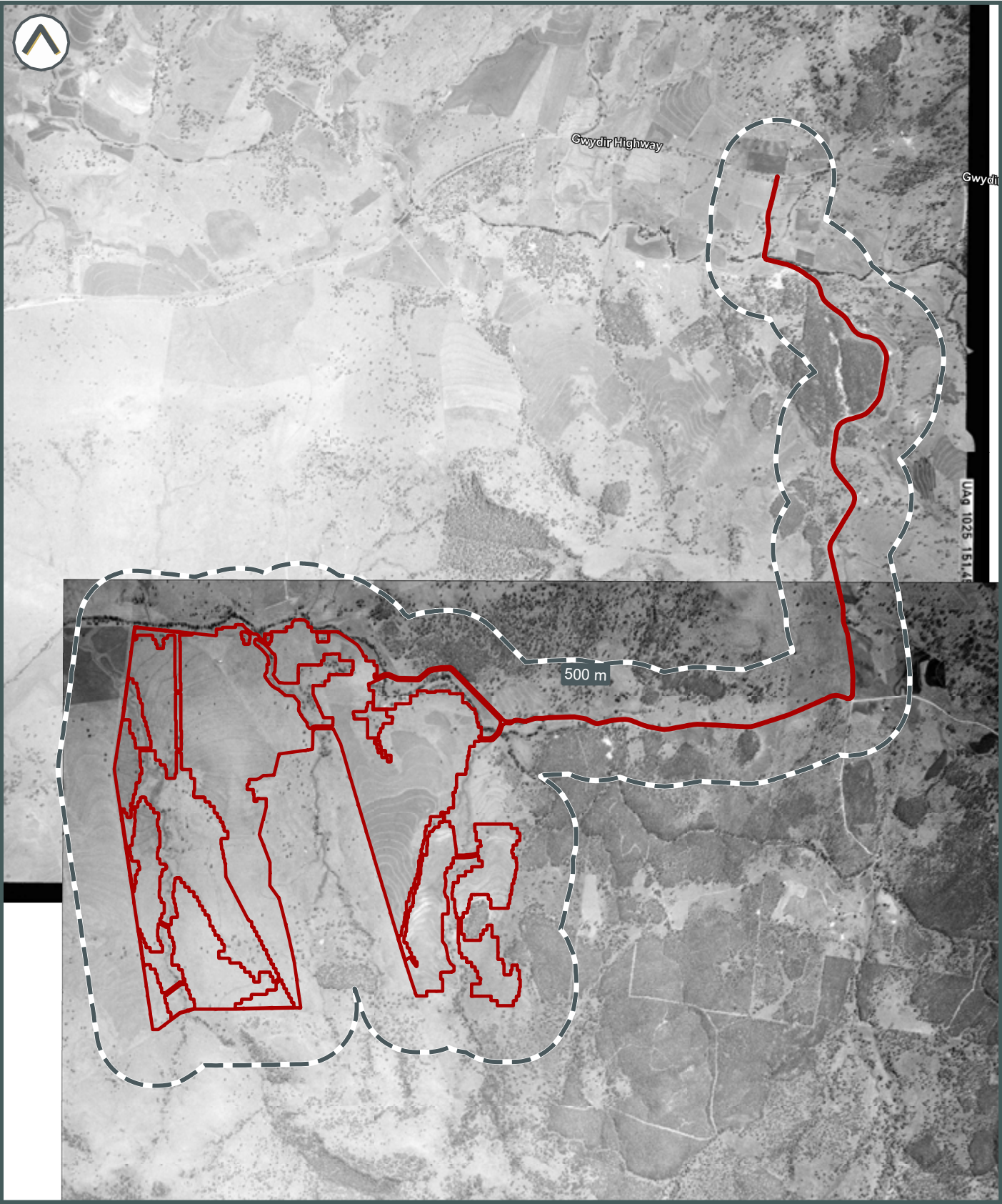
Historic Aerial Photograph - 1975



Subject area

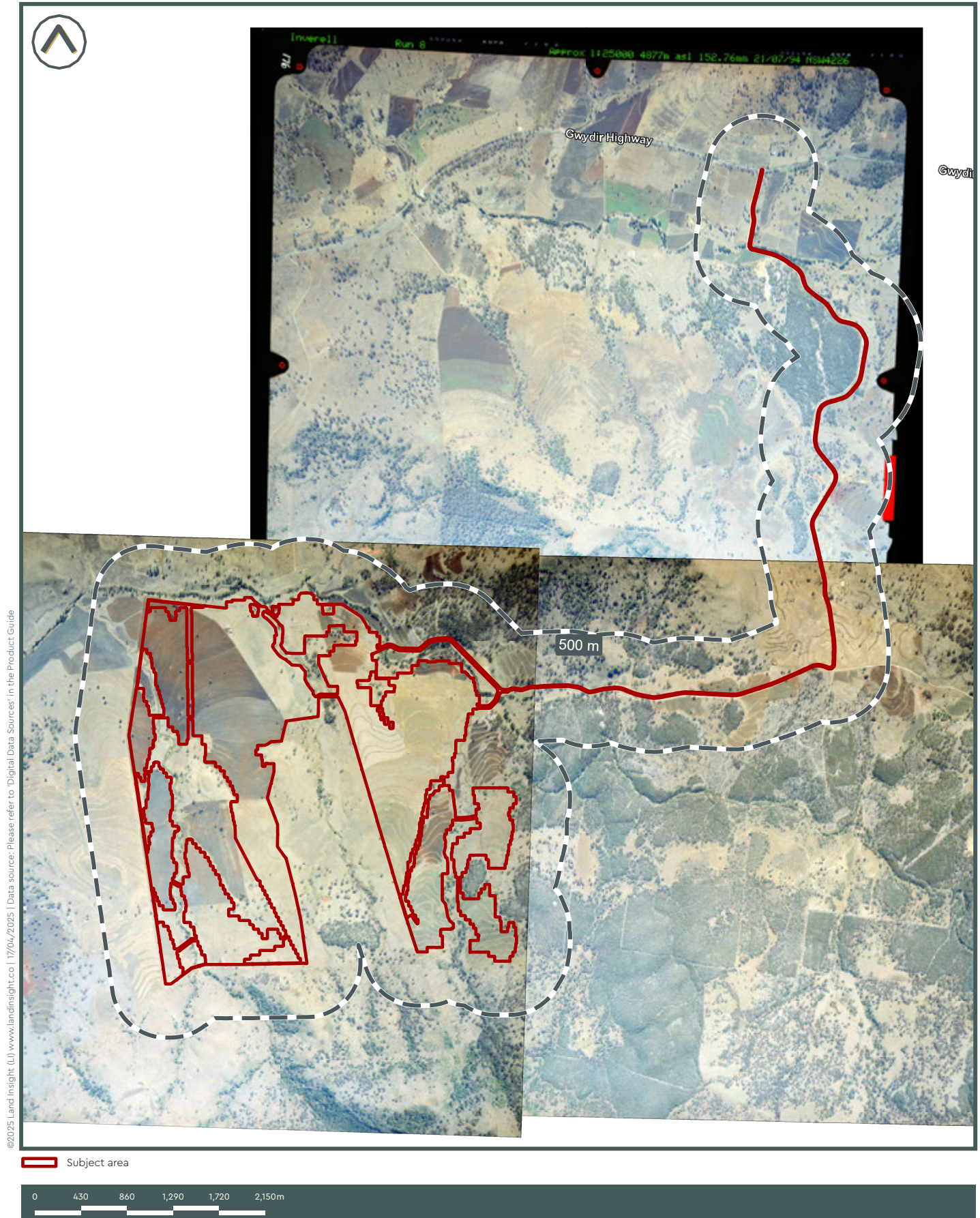


Historic Aerial Photograph - 1985



Subject area

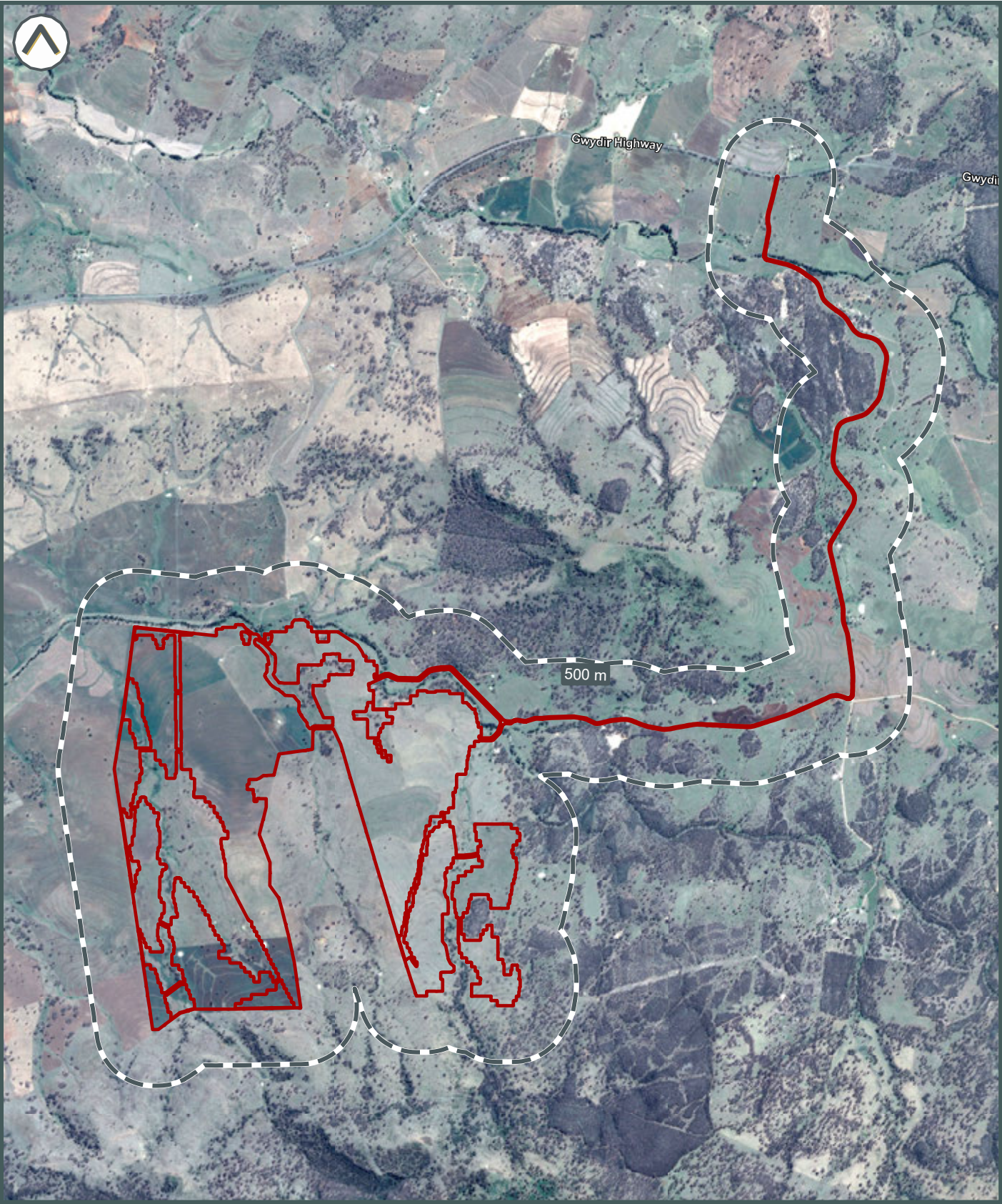


Historic Aerial Photograph - 1994

Historic Aerial Photograph - 2013



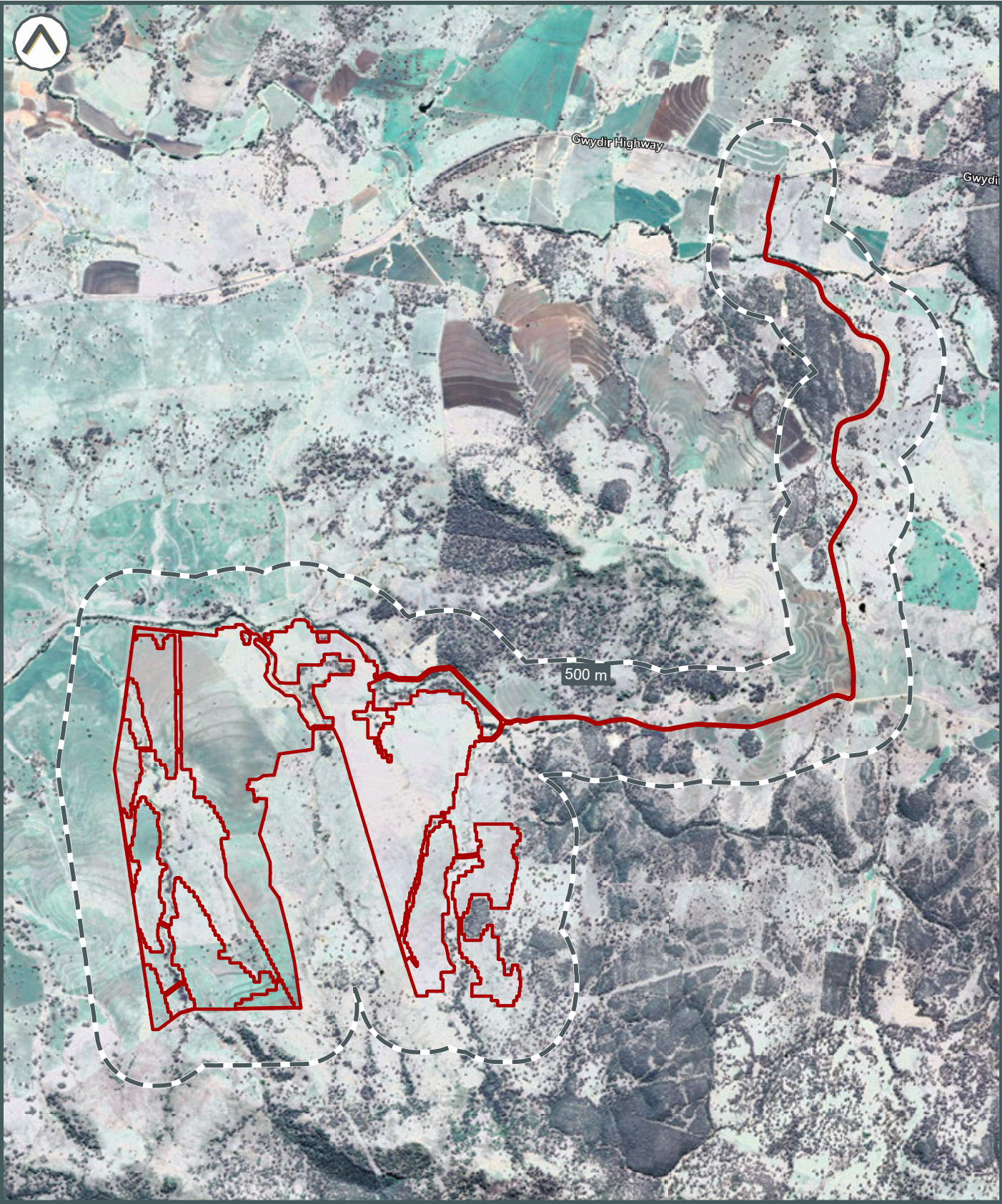
Historic Aerial Photograph - 2015



Subject area



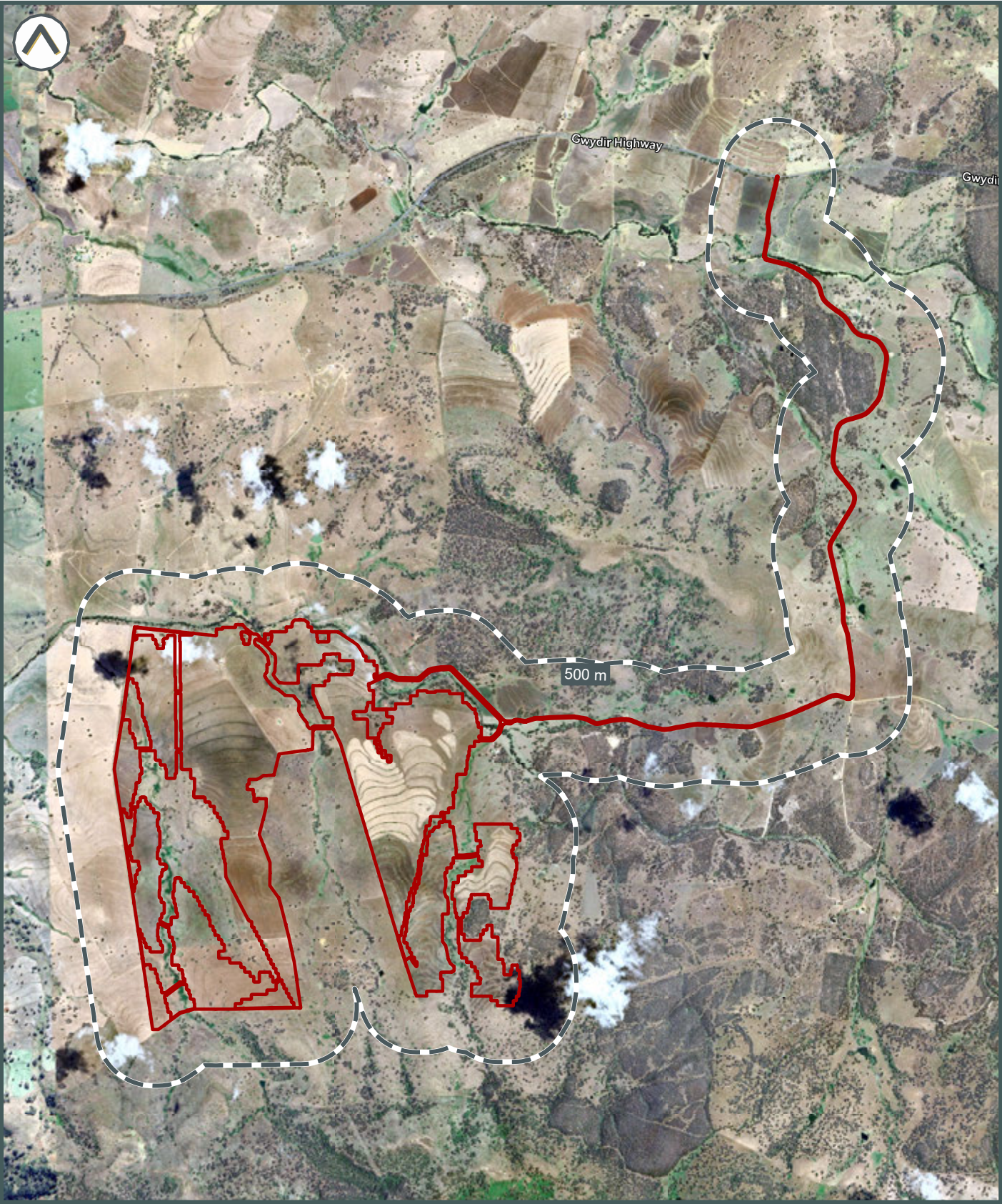
Historic Aerial Photograph - 2018



Subject area



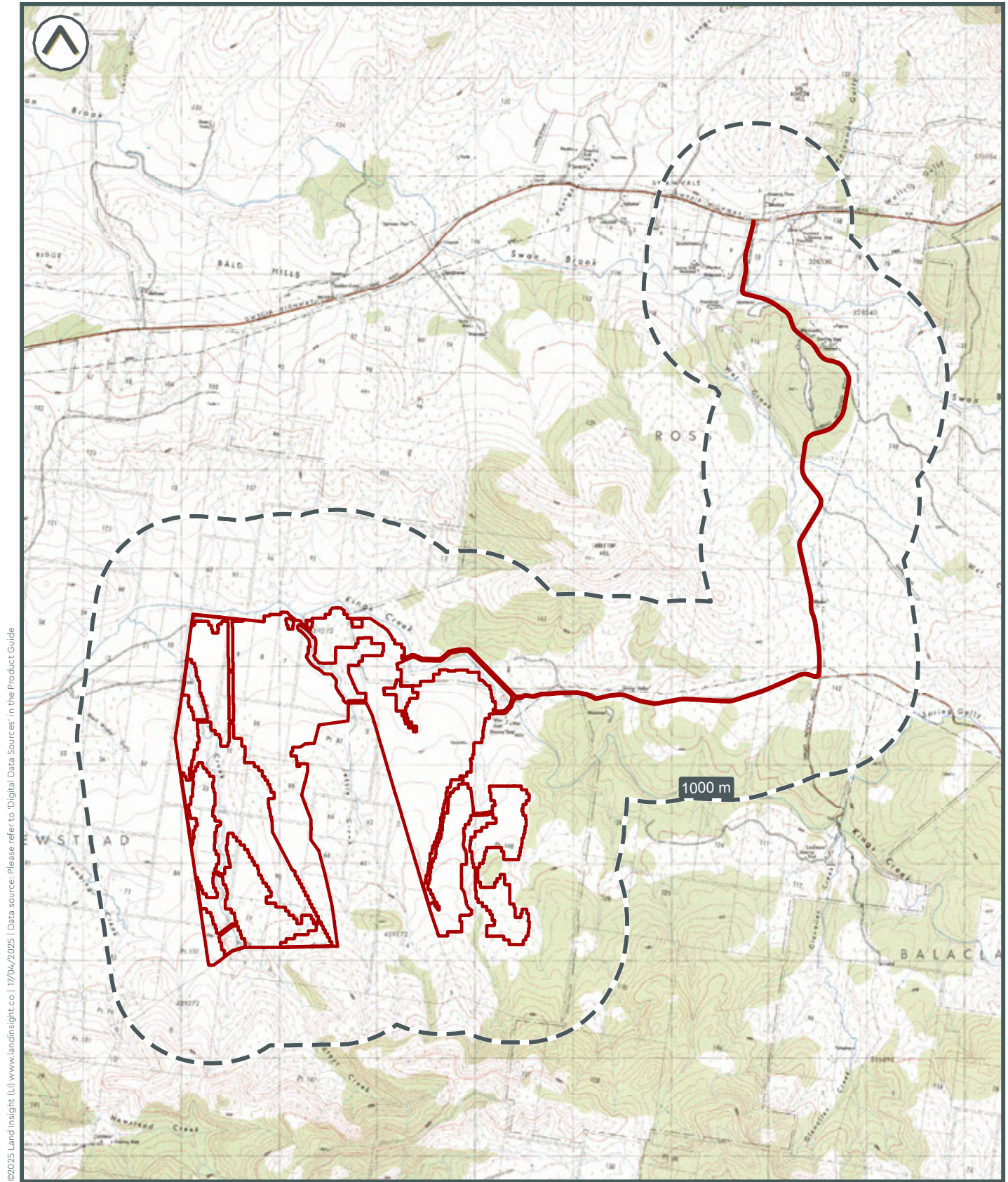
Historic Aerial Photograph - 2023



Subject area



1969-1991 1:25,000 Topographic Map (Elsmore 9138-2N)



Subject area

0 490 980 1,470 1,960 2,450m

Appendix C

Photographic log

Plates

Project	Sundown Solar Farm Preliminary Site Investigation		
Client	Recurrent Energy	Job number	E231160
EMM Field Personnel	J. Lewis and A. Meirau	Date	29-30 April 2025



Plate 1

AOI 6 – North-eastern construction and laydown, north end of the disturbance footprint (Glen Eisle property)



Plate 2

AOI 6 – North-eastern construction and laydown, north end of the disturbance footprint (Glen Eisle property)



Plate 3

AOI 10 – Small waste pile (chainsaws, tires, concrete, steel pipe, fencing, glass bottles and sheet metal)



Plate 4

AOI 10 – Small waste pile (chainsaws, tires, concrete, steel pipe, fencing, glass bottles and sheet metal)



Plate 5

AOI 11 – Disused AST (likely diesel)



Plate 6

AOI 11 – Disused AST (likely diesel)



Plate 7

AOI 11 – Disused AST (likely diesel)



Plate 8

AOI 7 – South-eastern construction and laydown, south end of the disturbance footprint (Newstead property)



Plate 9

AOI 7 – South-eastern construction and laydown, south end of the disturbance footprint (Newstead property)

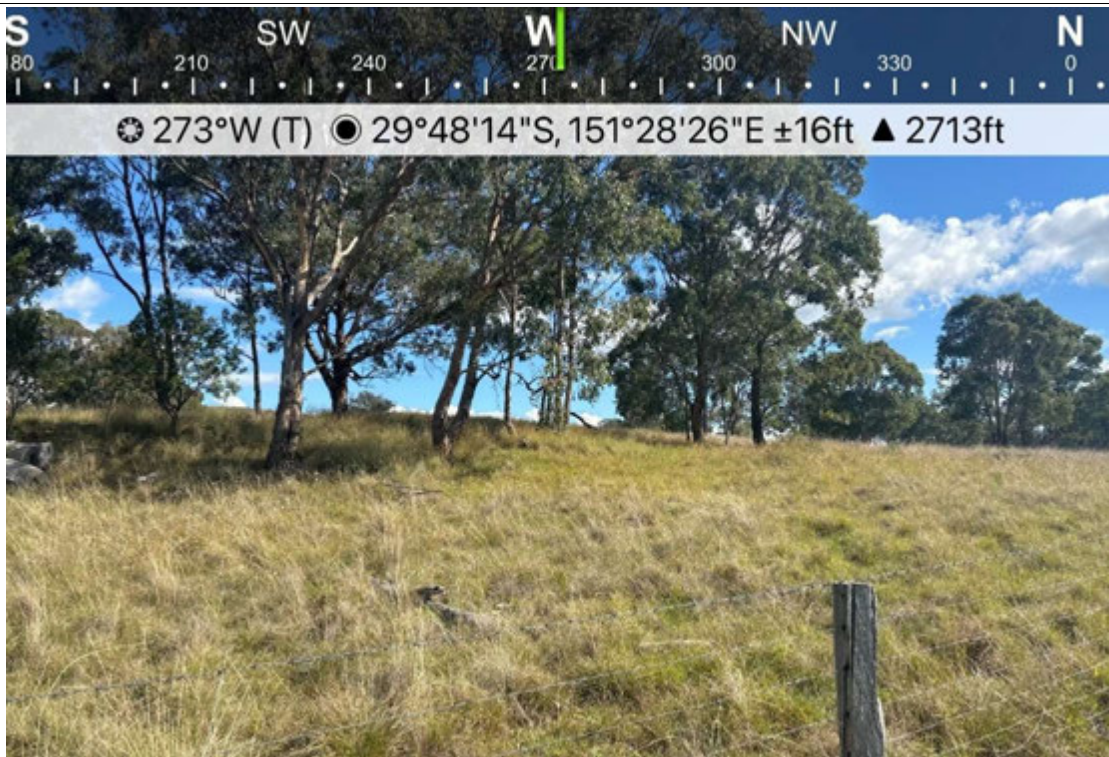


Plate 10

AOI 1 – Spring Mountain Road realignment



Plate 11

AOI 1 – Spring Mountain Road realignment



Plate 12

AOI 1 – Spring Mountain Road realignment, disused equipment



Plate 13

AOI 1 – Spring Mountain Road realignment, disused farming equipment



Plate 14

AOI 1 – Spring Mountain Road realignment, entrance



Plate 15

AOI 1 – Spring Mountain Road realignment, in direction of realignment from entrance



Plate 16

AOI 3 – Cattle yard, shed and empty chemical container storage



Plate 17

AOI 3 – Empty drum within cattle yard



Plate 18

AOI 3 – Cattle yard, shed and empty chemical container storage



Plate 19

AOI 3 – Close up of surfactant container



Plate 20

AOI 3 – Close up of herbicide container



Plate 21

AOI 3 – Water well



Plate 22

AOI 3 – Empty drum adjacent to cattle yard



Plate 23

AOI 3 – Shed interior



Plate 24

AOI 3 – Disused farming equipment



Plate 25

AOI 5 – South-western dam in the disturbance footprint (Newstead property)



Plate 26

AOI 4 – Southern dam in the disturbance footprint (Newstead property)



Plate 27

AOI 4 – Southern dam in the disturbance footprint (Newstead property)



Plate 28

AOI 8 – South-western construction and laydown, south-west area of the disturbance footprint (Newstead property)



Plate 29

AOI 8 – South-western construction and laydown, south-west area of the disturbance footprint (Newstead property)

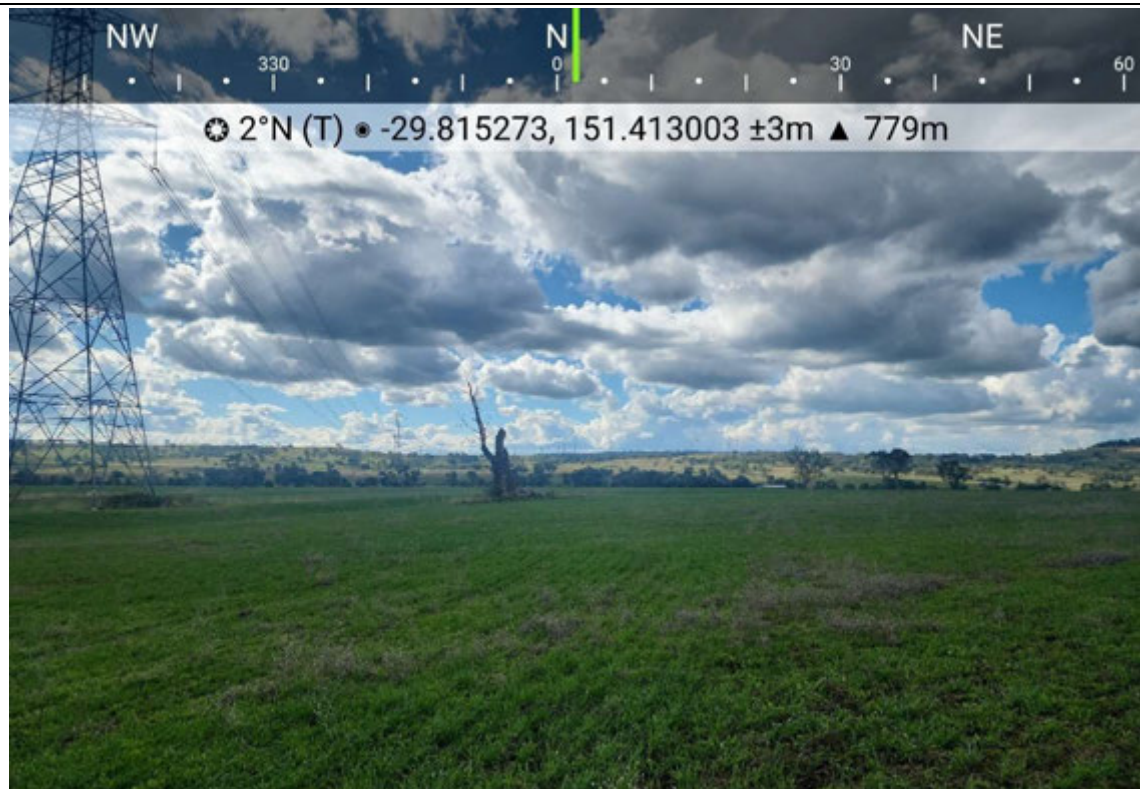


Plate 30

AOI 2 – BESS/switchroom/substation (Newstead property)



Plate 31

AOI 2 – BESS/switchroom/substation (Newstead property)



Plate 32

AOI 2 – BESS/switchroom/substation (Newstead property)



Plate 33

AOI 9 – Northern dam in the disturbance footprint (Newstead property)



Plate 34

General site photo – North-west corner of the disturbance footprint (Glen Eisle property)

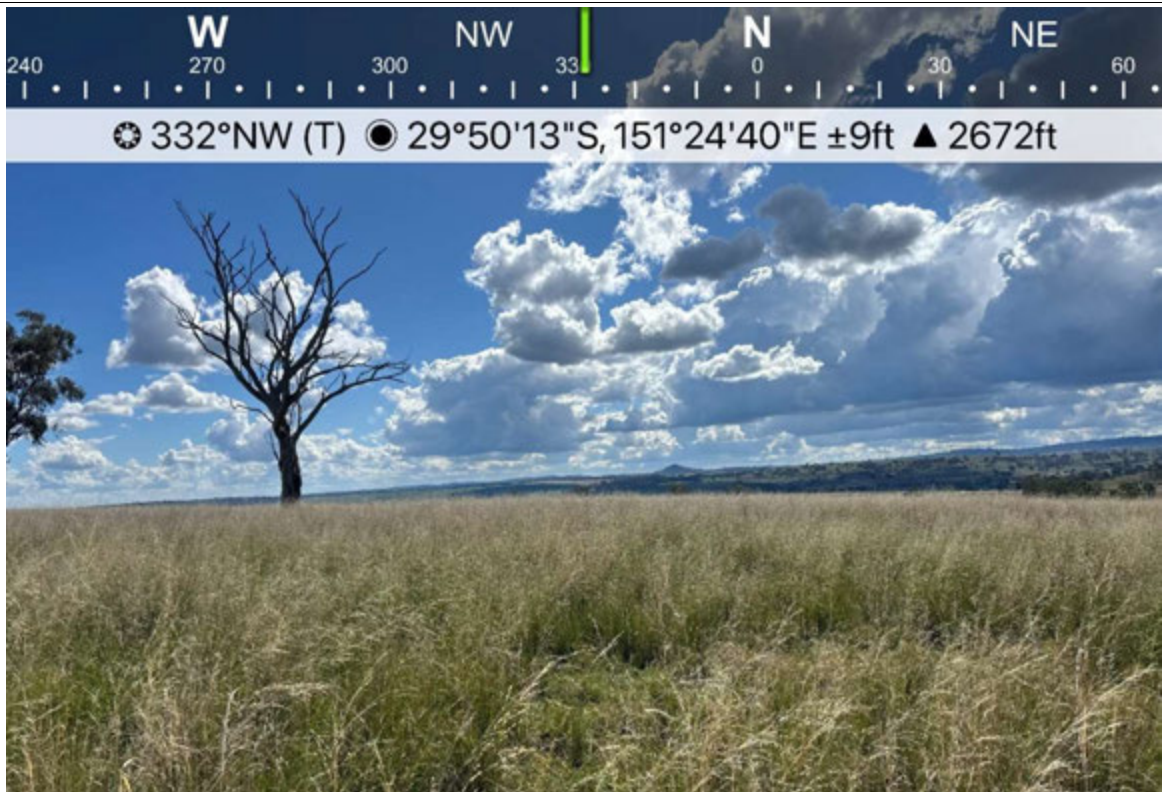


Plate 35

General site photo – South-west corner looking into disturbance footprint (Newstead property)



Plate 36

General site photo - South-west corner of the disturbance footprint (Newstead property)

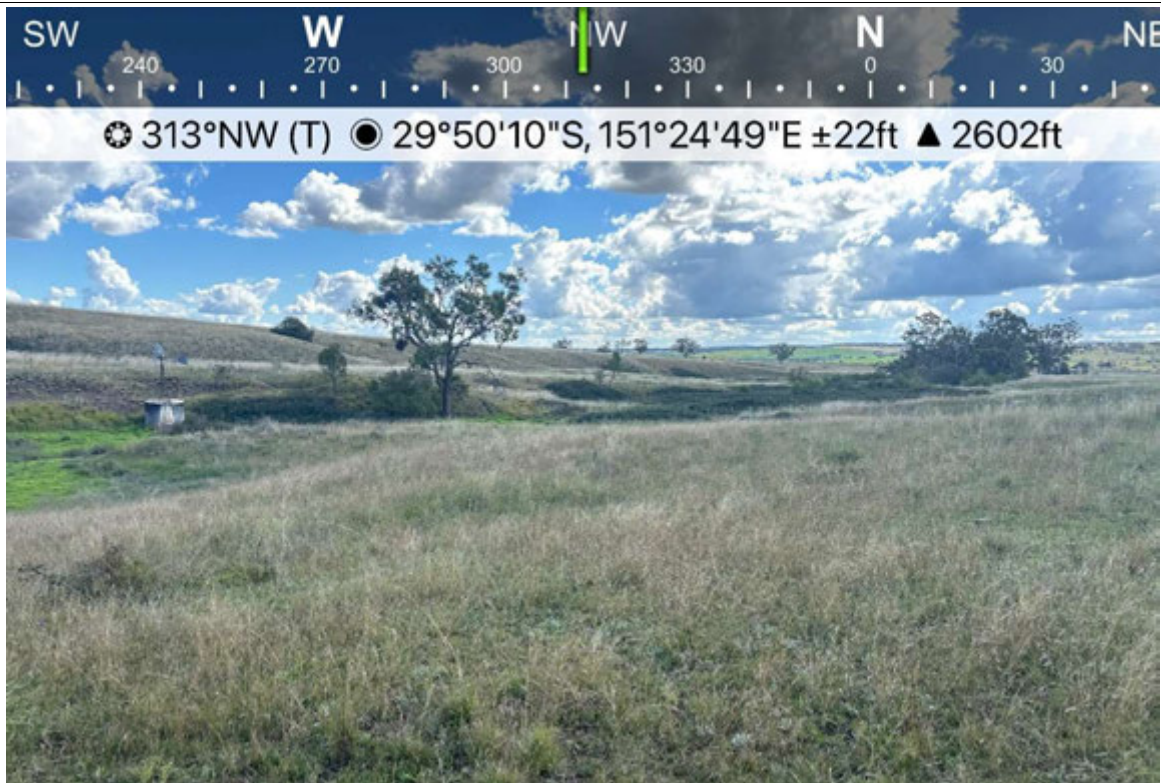


Plate 37

General site photo, near Kateys Creek – South-west corner of disturbance footprint (Newstead property)

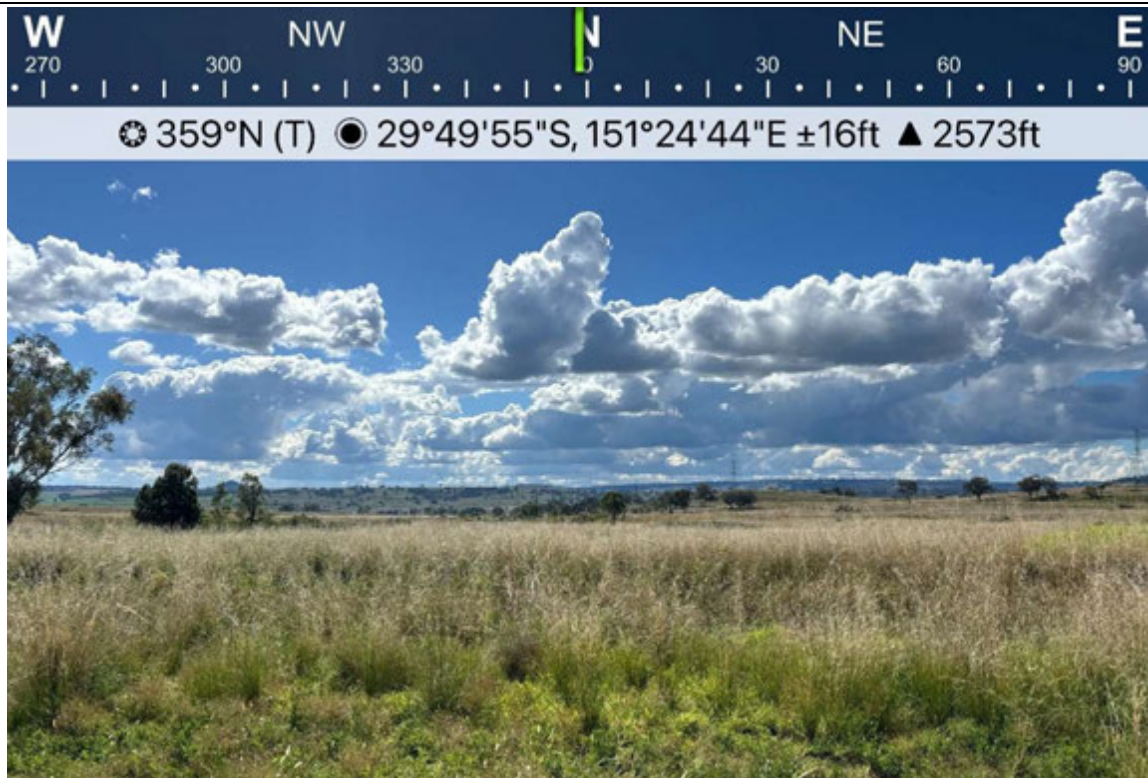


Plate 38

General site photo – West side of disturbance footprint (Newstead property)



Plate 39

General site photo – West side of disturbance footprint (Newstead property)



Plate 40

General site photo – West side of disturbance footprint looking east (Newstead property)



Plate 41

General site photo – Southern end of disturbance footprint (Newstead property)

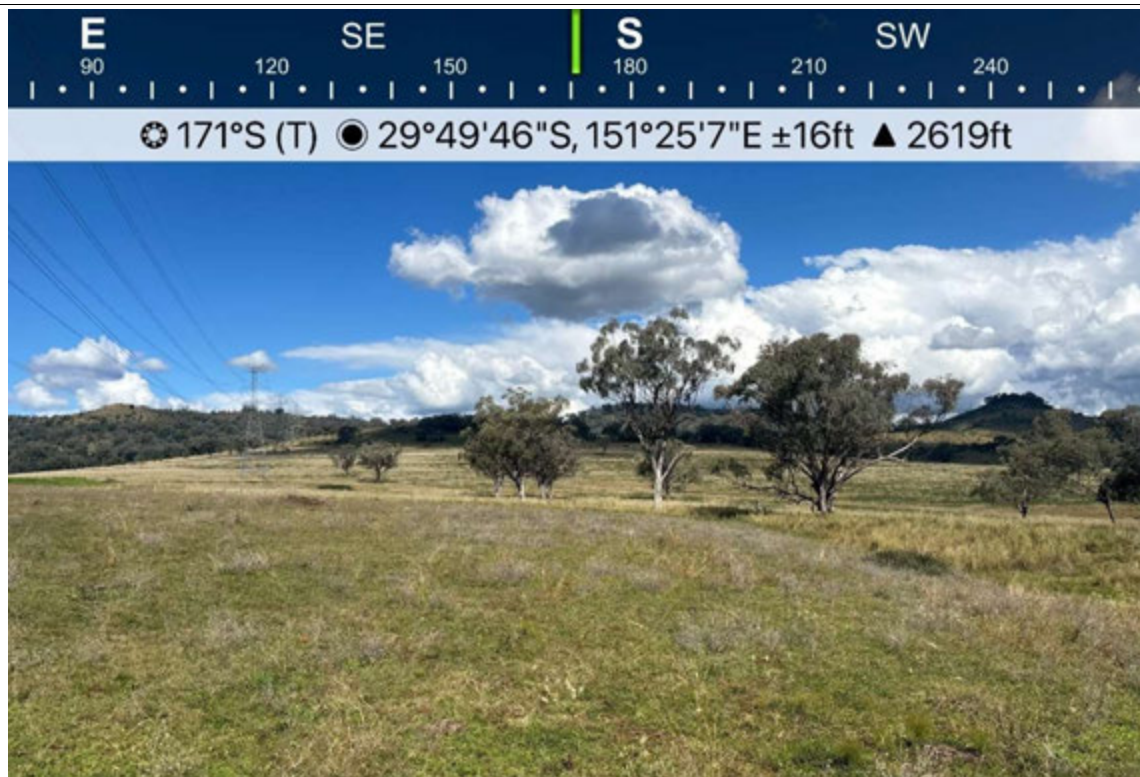


Plate 42

General site photo – Southern end of disturbance footprint (Newstead property)



Plate 43

General site photo – Eastern side of disturbance footprint (Newstead property)

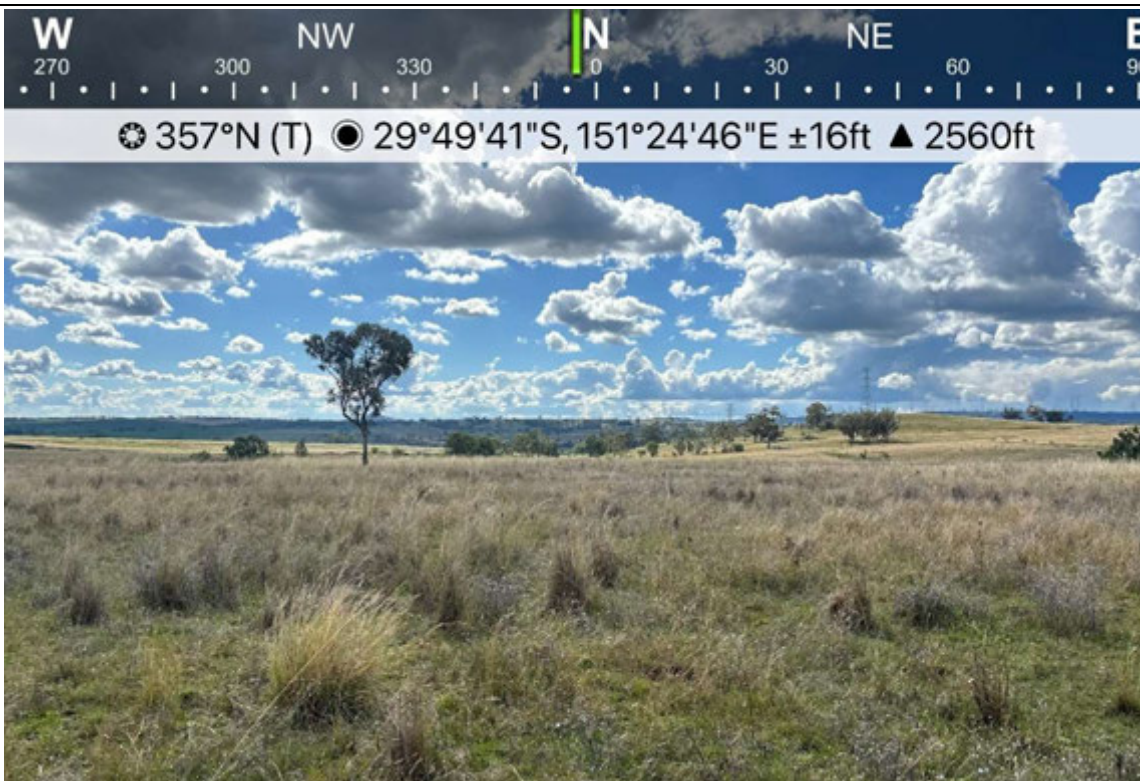


Plate 44

General site photo – Western side of disturbance footprint (Newstead property)

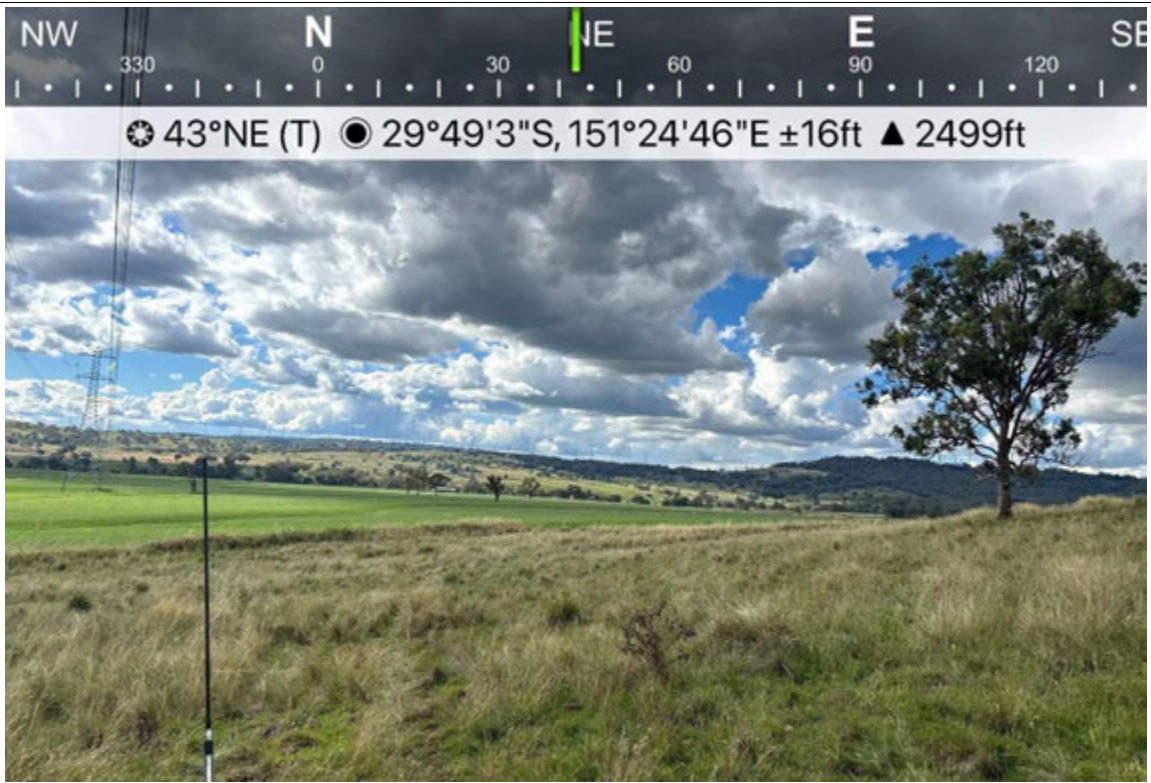


Plate 45

General site photo – South of AOI 2, looking into northern end of disturbance footprint (Newstead property)



Plate 46

General site photo – Near AOI 2 looking at AOI 3 (Newstead property)



Plate 47

General site photo – Near AOI 3 looking at AOI 2 (Newstead property)

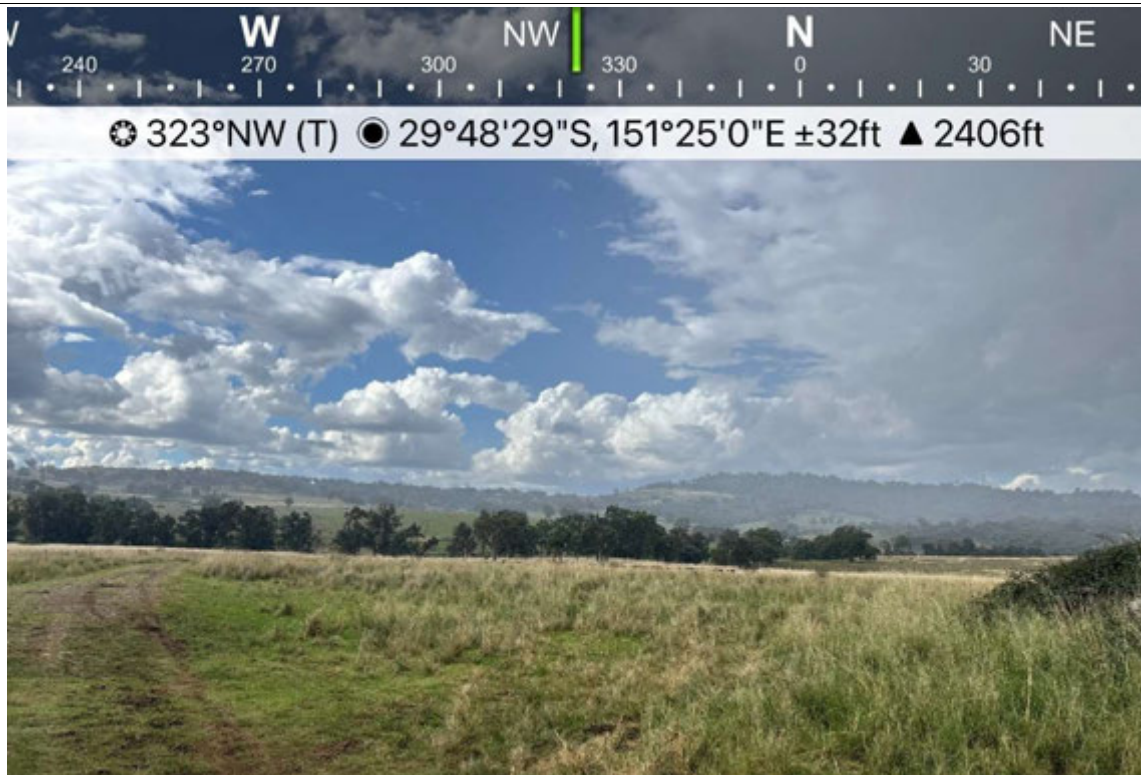


Plate 48

General site photo – Looking at northern end of disturbance footprint (Newstead property)



Plate 49

General site photo – North-east corner of Newstead property looking at north-west corner of Spring Valley property



Plate 50

General site photo – North-west corner of disturbance footprint (Spring Valley property)

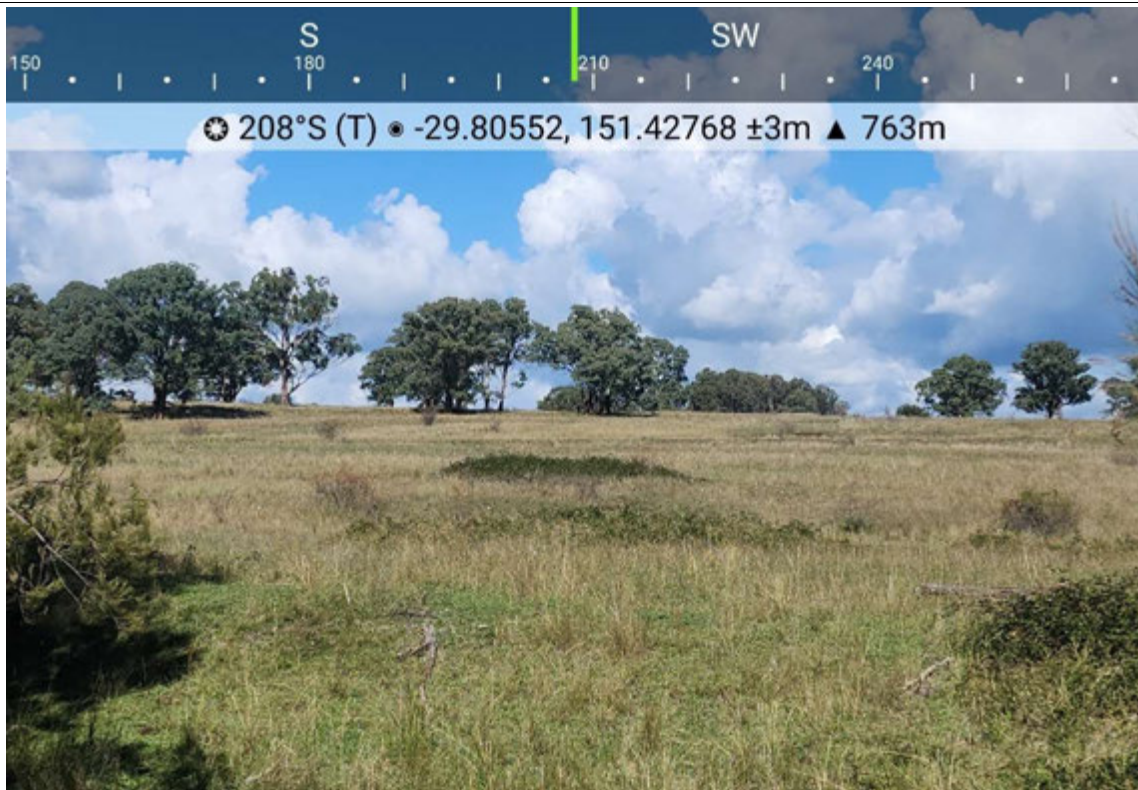


Plate 51

General site photo – Looking at central north end of disturbance footprint from Kings Creek (Spring Valley property)



Plate 52

General site photo – Looking at central north end of disturbance footprint from Kings Creek (Spring Valley property)

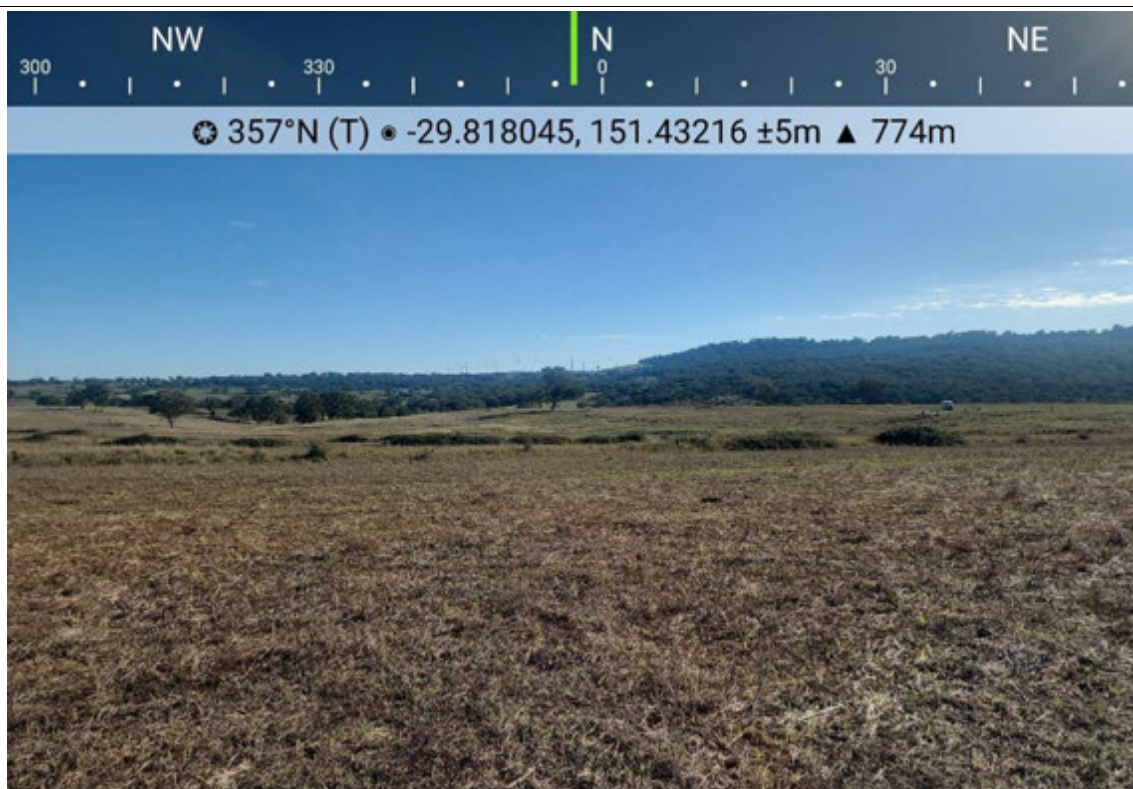


Plate 53

General site photo – Northern end of disturbance footprint (Glen Eisle property)



Plate 54

General site photo – Centre of disturbance footprint looking north-west from Glen Eisle property at Jessie Creek on Newstead property



Plate 55

General site photo – North end looking at southern disturbance footprint (Glen Eisle property)



Plate 56

General site photo – Eastern side of disturbance footprint (Glen Eisle property)



Plate 57

General site photo – Eastern side of disturbance footprint (Glen Eisle property)



Plate 58

General site photo – Southern end of disturbance footprint (Glen Eisle property)



Plate 59

General site photo – South-east corner of disturbance footprint (Glen Eisle property)



Plate 60

General site photo – Near AOI 7 looking at south-west corner of disturbance footprint (Glen Eisle property)



Plate 61

General site photo – Looking north from the south-west corner of disturbance footprint (Glen Eisle property)

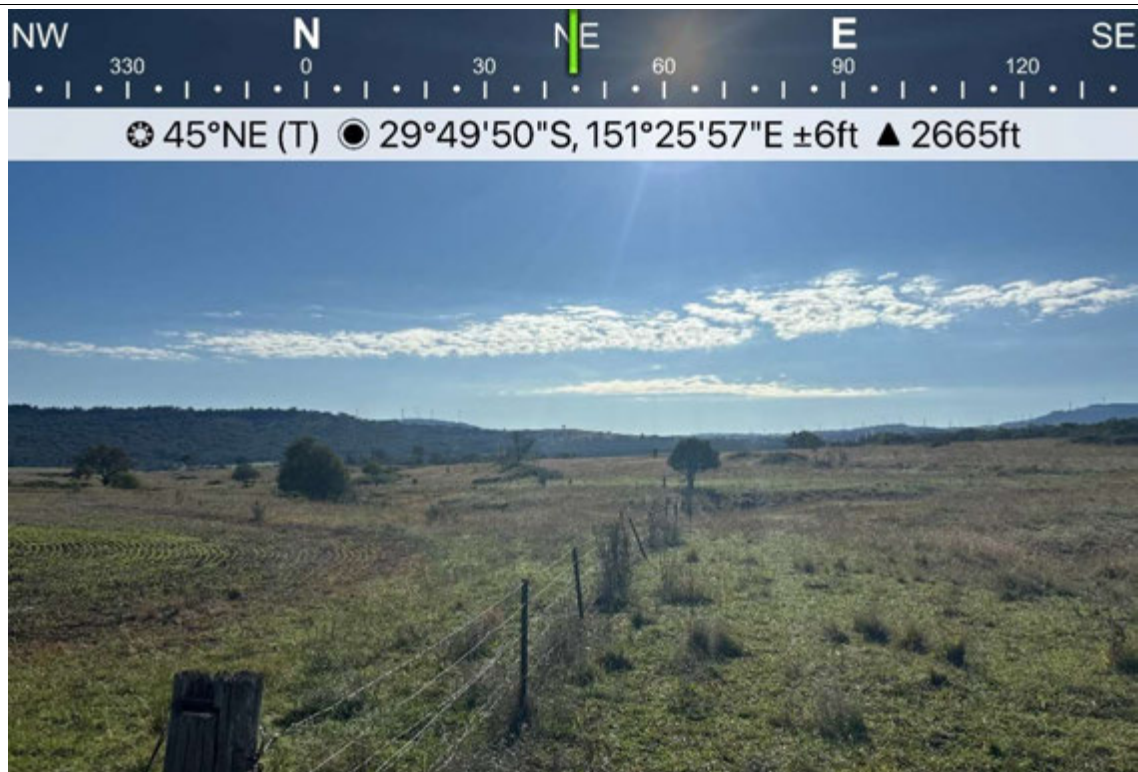


Plate 62

General site photo – Looking north-east from AOI 7 (Glen Eisle property)



Plate 63

General site photo – Looking at south-west corner of disturbance footprint (Glen Eisle property)

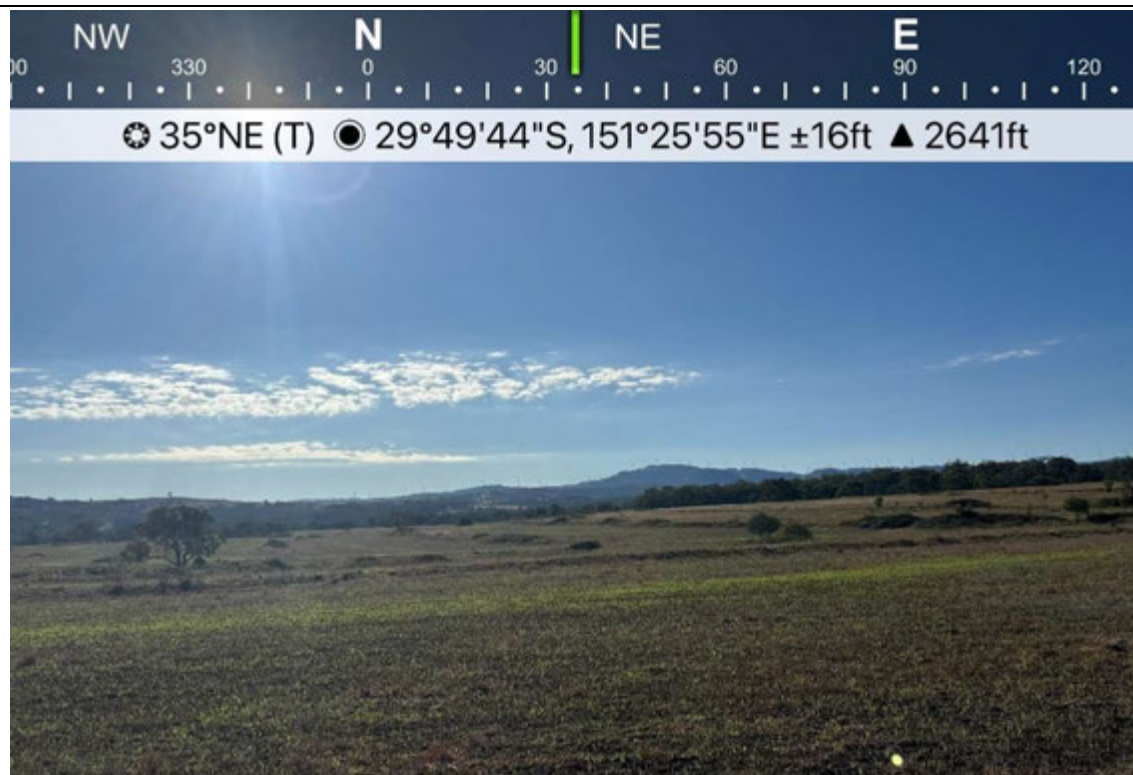


Plate 64

General site photo – Looking from Glen Eisle property to Jessie Creek on Newstead property

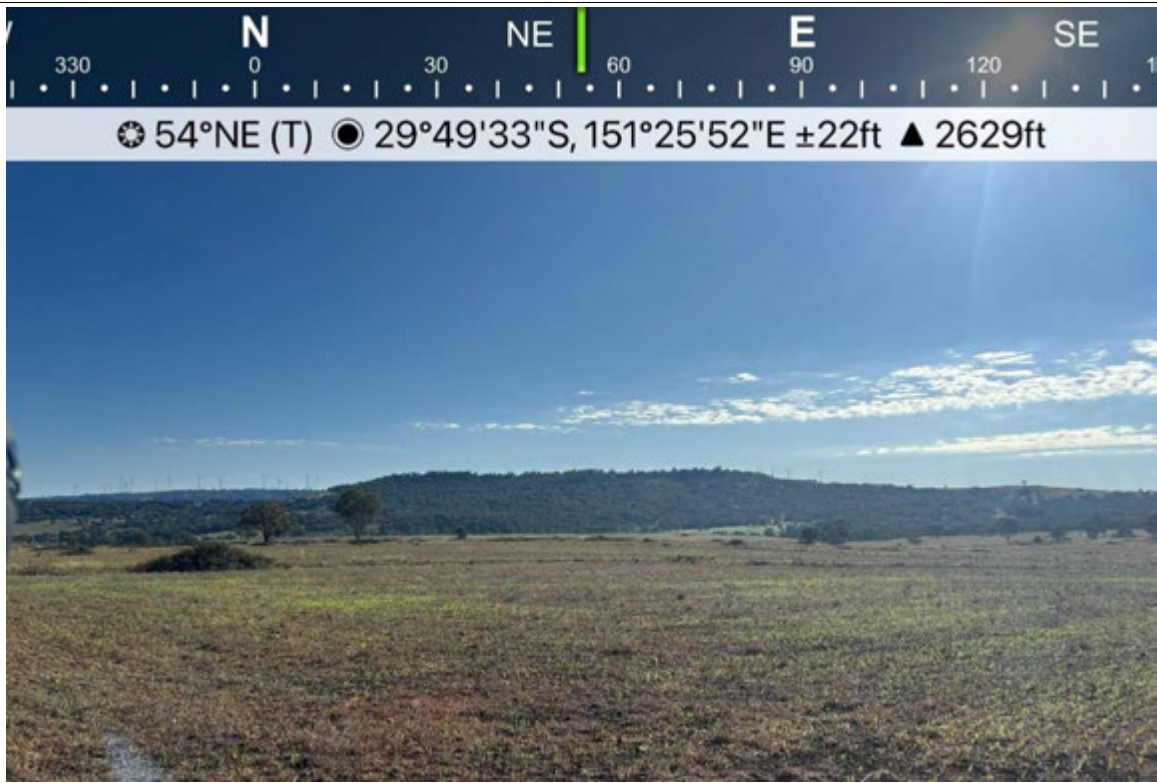


Plate 65

General site photo – Looking towards Jessie Creek from Glen Eisle property

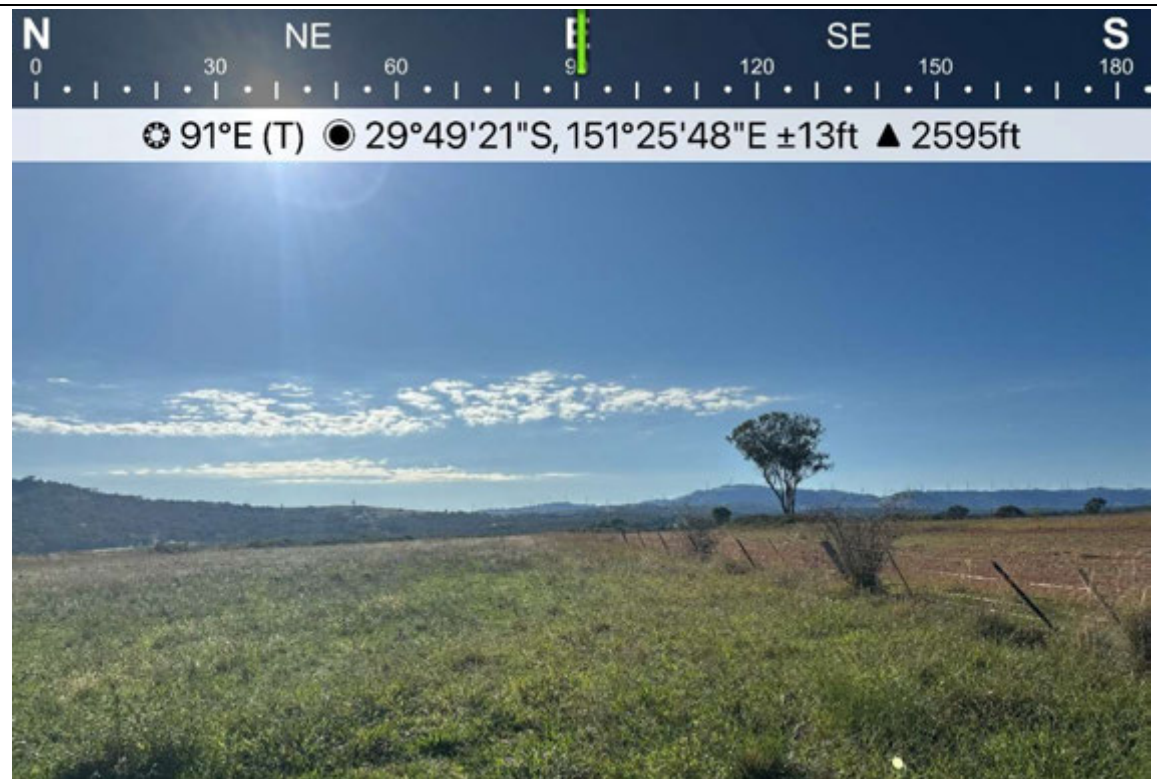


Plate 66

General site photo – Looking at the central area of disturbance footprint from Newstead property

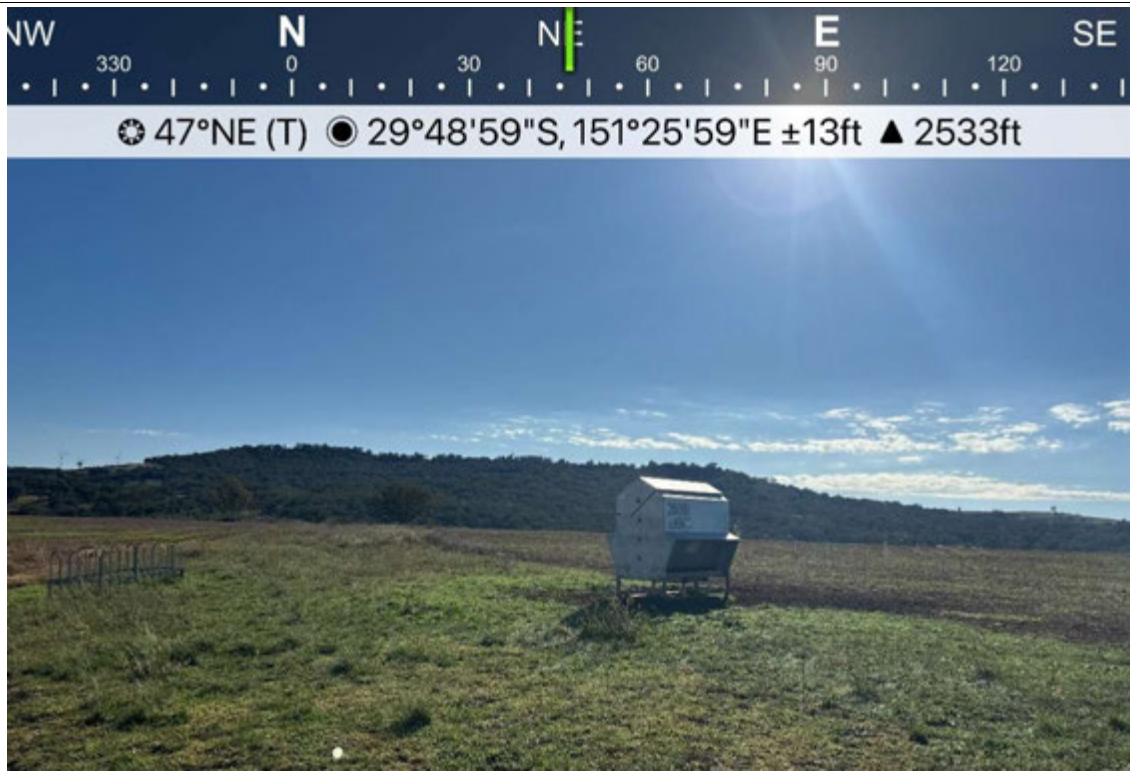


Plate 69

General site photo – Cattle feeder in central area of disturbance footprint (Glen Eisle property)

Australia

SYDNEY

Level 10 201 Pacific Highway
St Leonards NSW 2065
T 02 9493 9500

NEWCASTLE

Level 3 175 Scott Street
Newcastle NSW 2300
T 02 4907 4800

BRISBANE

Level 1 87 Wickham Terrace
Spring Hill QLD 4000
T 07 3648 1200

CANBERRA

Suite 2.04 Level 2
15 London Circuit
Canberra City ACT 2601

ADELAIDE

Level 4 74 Pirie Street
Adelaide SA 5000
T 08 8232 2253

MELBOURNE

Suite 9.01 Level 9
454 Collins Street
Melbourne VIC 3000
T 03 9993 1900

PERTH

Suite 3.03
111 St Georges Terrace
Perth WA 6000
T 08 6430 4800

Canada

TORONTO

2345 Yonge Street Suite 300
Toronto ON M4P 2E5
T 647 467 1605

VANCOUVER

2015 Main Street
Vancouver BC V5T 3C2
T 604 999 8297

CALGARY

700 2nd Street SW Floor 19
Calgary AB T2P 2W2



[linkedin.com/company/emm-consulting-pty-limited](https://www.linkedin.com/company/emm-consulting-pty-limited)



emmconsulting.com.au