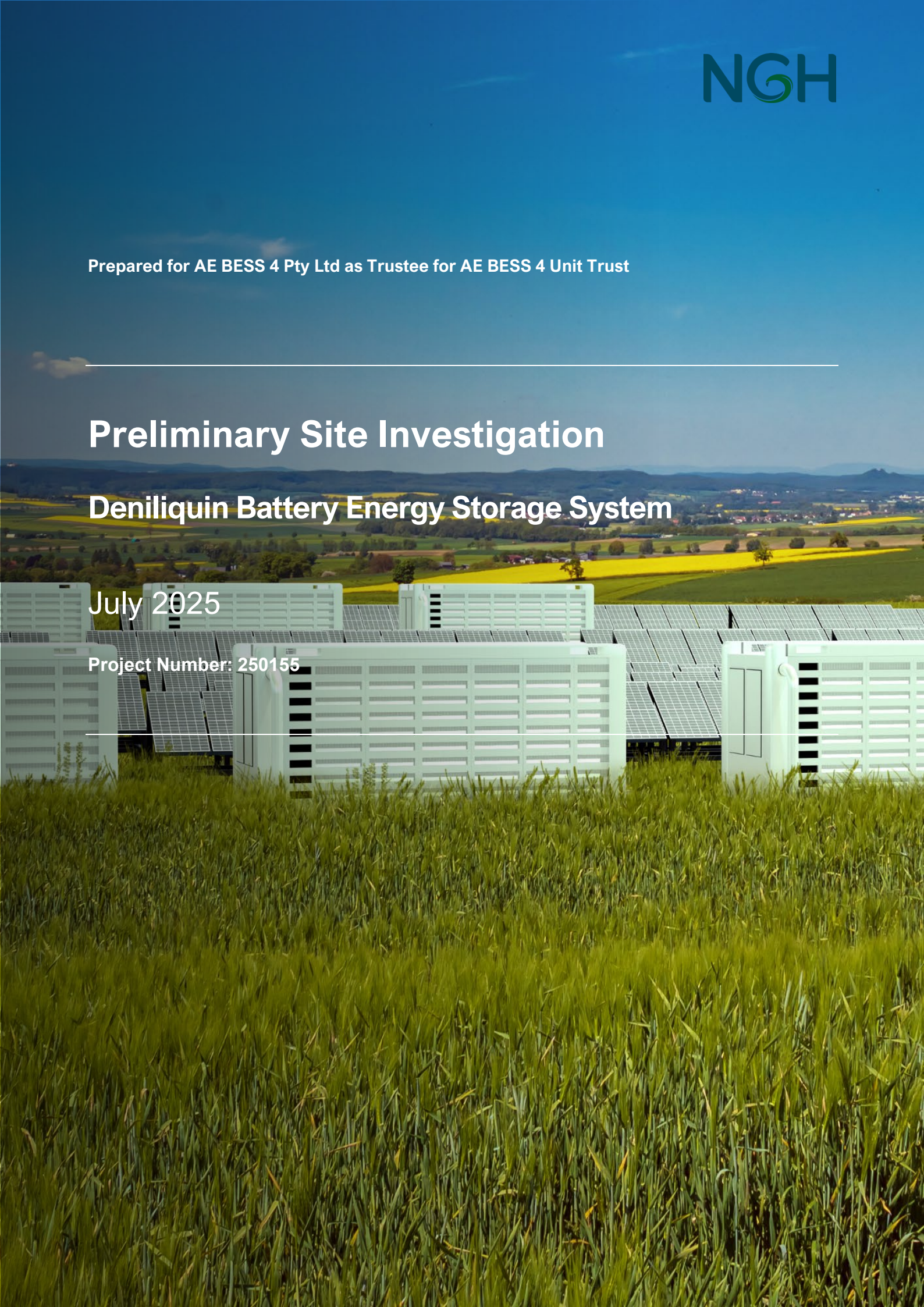

Prepared for AE BESS 4 Pty Ltd as Trustee for AE BESS 4 Unit Trust

Preliminary Site Investigation

Deniliquin Battery Energy Storage System

July 2025

Project Number: 250155

Document verification

Project Title:	Deniliquin Battery Energy Storage System
Project Number:	250155
Project File Name:	250155 Deniliquin BESS PSI Final v.1

Revision	Date	Prepared by	Approved by
Draft v.1	14/07/2025	Alyce Gill	Willy Van Vaerenbergh
Final v.1	28/07/2025	Alyce Gill	Willy Van Vaerenbergh

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We acknowledge the Traditional Owners of this land and pay our respect to Elders past, present and emerging. We recognise that the First Nations peoples of Australia have traditionally managed the resources of this land in a sustainable way, and that they are the original custodians of the Australian environment.

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Acronyms and abbreviations

ACM	Asbestos containing material
AEC	Areas of Environmental Concern
AHD	Australian Height Datum
ASC	Australian Soil Classification
ASS	Acid Sulfate Soils
AWS	Automatic weather station
BESS	Battery Energy Storage System
BTEXN	Benzene, Toluene, Ethylbenzene, Xylene and Naphthalene
CoPC	Chemicals of potential concern
CSM	Conceptual Site Model
DCP	Development Control Plan
DP	Deposited Plan
DPHI	Department of Planning, Housing and Infrastructure
DQIs	Data Quality Indicators
DQOs	Data Quality Objectives
EPA	Environmental Protection Authority
EP&A Act	*Environmental Planning and Assessment Act 1979* (NSW)
GDE	Groundwater dependent ecosystem
GSG	Greater Soil Group
ha	hectares
HIL	Health Investigation Levels
HSL	Health Screening Levels
km	kilometres

LCS	Laboratory control sample
LEP	Local Environment Plan
LGA	Local government area
LOR	Limit of reporting
m	metres
mbgl	Metres below ground level
NATA	National Association of Testing Authorities
NEPM	National Environment Protection Measure
NGH	NGH Pty Ltd
NOA	Naturally Occurring Asbestos
NSW	New South Wales
OCPs	Organochlorine Pesticides
OPPs	Organophosphate Pesticides
PAHs	Polycyclic Aromatic Hydrocarbons
PCBs	Polychlorinated biphenyls
PCT	Plant Community Type
PFAS	Per- and Polyfluoroalkyl Substances
pH	Potential hydrogen
POEO Act 1997	*Protection of the Environment Operations Act 1997*
PQLs	Practical quantification limits
PSI	Preliminary Site Investigation
QA	Quality assurance
QC	Quality control
RPD	Relative Percentage Difference
SEPP	State Environmental Planning Policy

SSLs	Soil Screening Levels
TRHs	Total Recoverable Hydrocarbons
UCL	Upper confidence limit
UXO	Unexploded Ordnance

1. Introduction

1.1. Background

NGH Pty Ltd (NGH) was engaged by AE BESS 4 Pty Ltd as Trustee for AE BESS 4 Unit Trust (the Applicant) to prepare a Preliminary Site Investigation (PSI) report to support the development of a Battery Energy Storage System (BESS, the Project). The BESS would require excavation and land forming works. These activities may have the potential to mobilise soil contaminants (if present), which may present a risk to human health or the environment.

The Project is located on part of Lot 1 Deposited Plan (DP) 536901, Lot 2 DP 536901 and the Riverina Highway road easement (the site), also known as 21541 Riverina Highway, Deniliquin, New South Wales (NSW) 2710, refer to Figure 1-1.

The site has been historically utilised for agricultural activities, specifically cropping. In addition to this, a substation is located within the central-northern portion of the site. Agricultural activities and substations are listed as potentially contaminating land use activities within Table 1 of the Managing Land Contamination Planning Guidelines (EPA, 1998). Therefore, a PSI including preliminary soil sampling is required to determine if there is a potential soil contamination risk at the site.

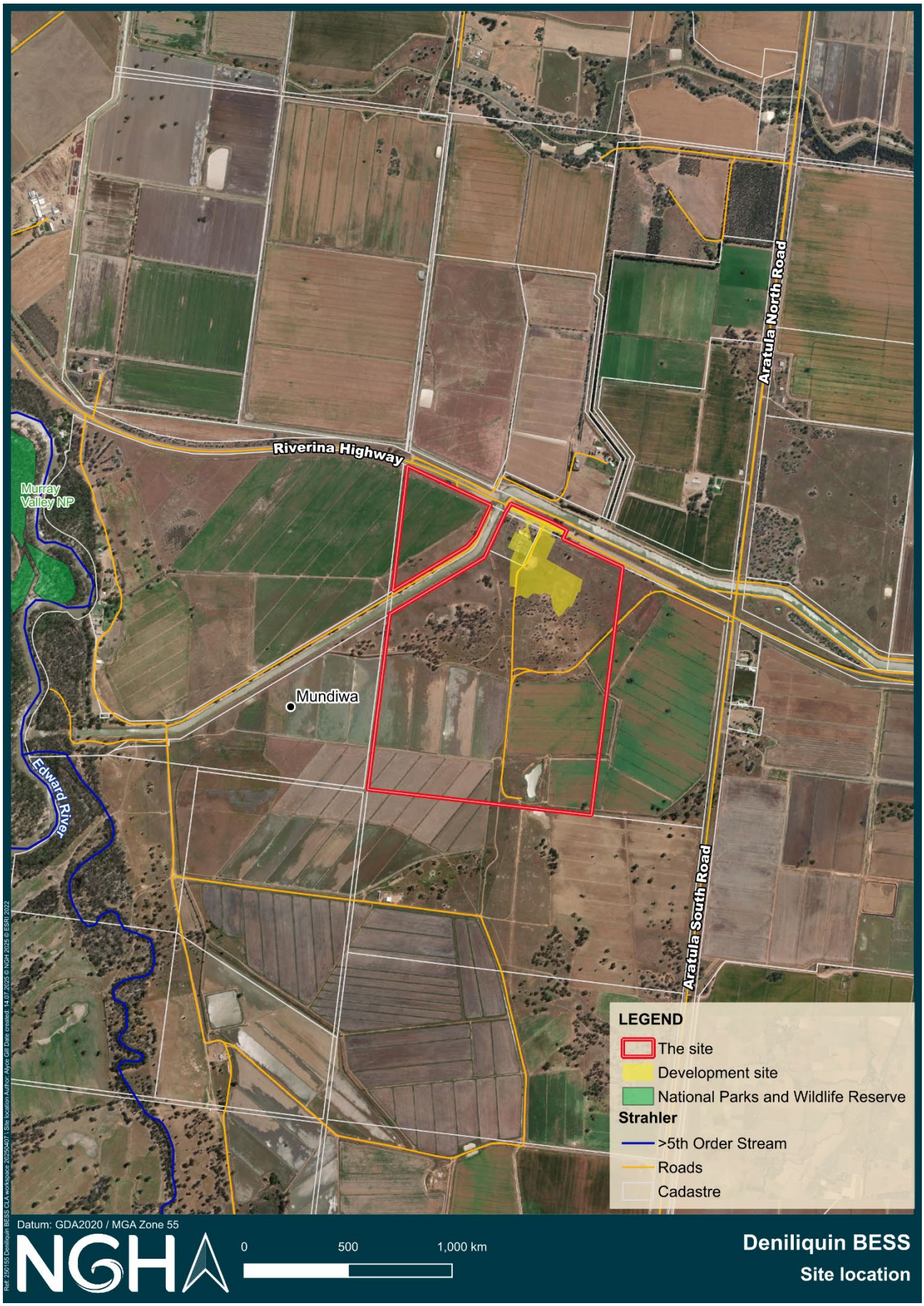

Figure 1-1 Site location

1.2. Objectives and scope

The objectives of the PSI were to:

- Provide a report specific to the site, in general accordance with the *National Environment Protection (Assessment of Site Contamination) Measure,* as amended in 2013 (ASC NEPM) (NEPC, 1999)
- Identify and assess the nature of existing or potential soil contamination at the sample locations at the site in general accordance with the *Contaminated Land Management Act 1997* (CLM Act) and relevant guidelines made or endorsed by the NSW Environment Protection Authority (EPA)
- Assess whether, based on the preliminary soil analysis results, identified soil contamination poses unacceptable risks to human health or the environment on-site
- Evaluate the adequacy and completeness of all information available for use in the assessment of risk and for making decisions on management requirements, including an assessment of uncertainty
- Determine whether the site is suitable for its current approved or the proposed land use and, if warranted, provide recommendations for further action.

The scope of work included:

- A review of the site history and environmental settings
- A site inspection
- Field investigations including:
  - A site walkover
  - A soil sampling program, including:
    - Four (4) test pits to a maximum depth of 0.5 metres below ground level (mbgl)
- Collection of soil samples at 0.5 metre (m) intervals, and:
  - After a change in soil profile
  - If fill is encountered
  - If staining / odours are observed
- Sample analysis (refer to Section 8.3)
- Reporting including:
  - Completion of a Quality Assurance/Quality Control (QA/QC) program
  - Reviewing analytical data and comparing against the site assessment criteria
  - Providing a conclusion and recommendations for further work if required.

1.3. Applicable guidelines and standards

This PSI has been prepared in general accordance with the following reference documents:

- National Environment Protection (Assessment of Site Contamination) Measure, 1999 [ASC NEPM] (as amended May 2013) (NEPM, 2013)
- Schedule B1 - Guideline on Investigation Levels for Soil and Groundwater of the National Environment Protection (Assessment of Site Contamination) Measure 1999 (NEPC, 2013a)
- Schedule B2 - Guideline on Data Collection, Sample Design and Reporting of the National Environment Protection (Assessment of Site Contamination) Measure 1999 (NEPC, 2013b)
- Contaminated Land Guidelines. Sampling Design Part 1 - Application (NSW EPA, 2022)
- Contaminated Land Guidelines. Sampling Design part 2 - Interpretation (NSW EPA, 2022)

- AS4482.1-2005 Guide to the investigation and sampling of sites with potentially contaminated soil. Part 1: Non-volatile and semi-volatile compounds. (Australian Standards, 2005) (currently withdrawn but referenced in the ASC NEPM)
- Managing Land Contamination Planning Guidelines (EPA, 1998).

2. Site information

2.1. Site identification

Relevant details for the site are provided in Table 2-1.

Table 2-1 Site identification details

Aspect	Description		
Lot / DP	Lot 1 DP 536901	Lot 2 DP 536901	Riverina Highway road easement (no Lot / DP)
Street address	21541 Riverina Highway, Deniliquin, 2710		
Site area (hectares (ha))	3.65	140.3	N/A
Project footprint (ha)	1.37	7.02	0.59
Local government area (LGA)	Edward River LGA		
Planning scheme	Deniliquin Local Environmental Plan (LEP) 2013		
Site zoning	RU1 Primary Production	RU1 Primary Production	SP2 Infrastructure

2.2. Contaminated land registers

Lotsearch (Appendix A) conducted a search of the following contaminated land databases on 3 April 2025:

- NSW Contaminated Land List
- Contaminated land – Records of Notice
- Former Gasworks
- EPA notices.

The searches identified no record of contamination within the site.

2.3. Site history

2.3.1. Land zoning and use

The site is located within the Edward River LGA. Lot 1 DP 536901 and Lot 2 DP 536901 are zoned RU1 Primary Production under the Deniliquin LEP 2013. The Riverina Highway easement is zoned SP2

Infrastructure, refer to Figure 2-1. The site is currently used for the purposes of grazing (native vegetation and improved pastures), electricity substations and transmission, and roads, refer to Figure 2-2.

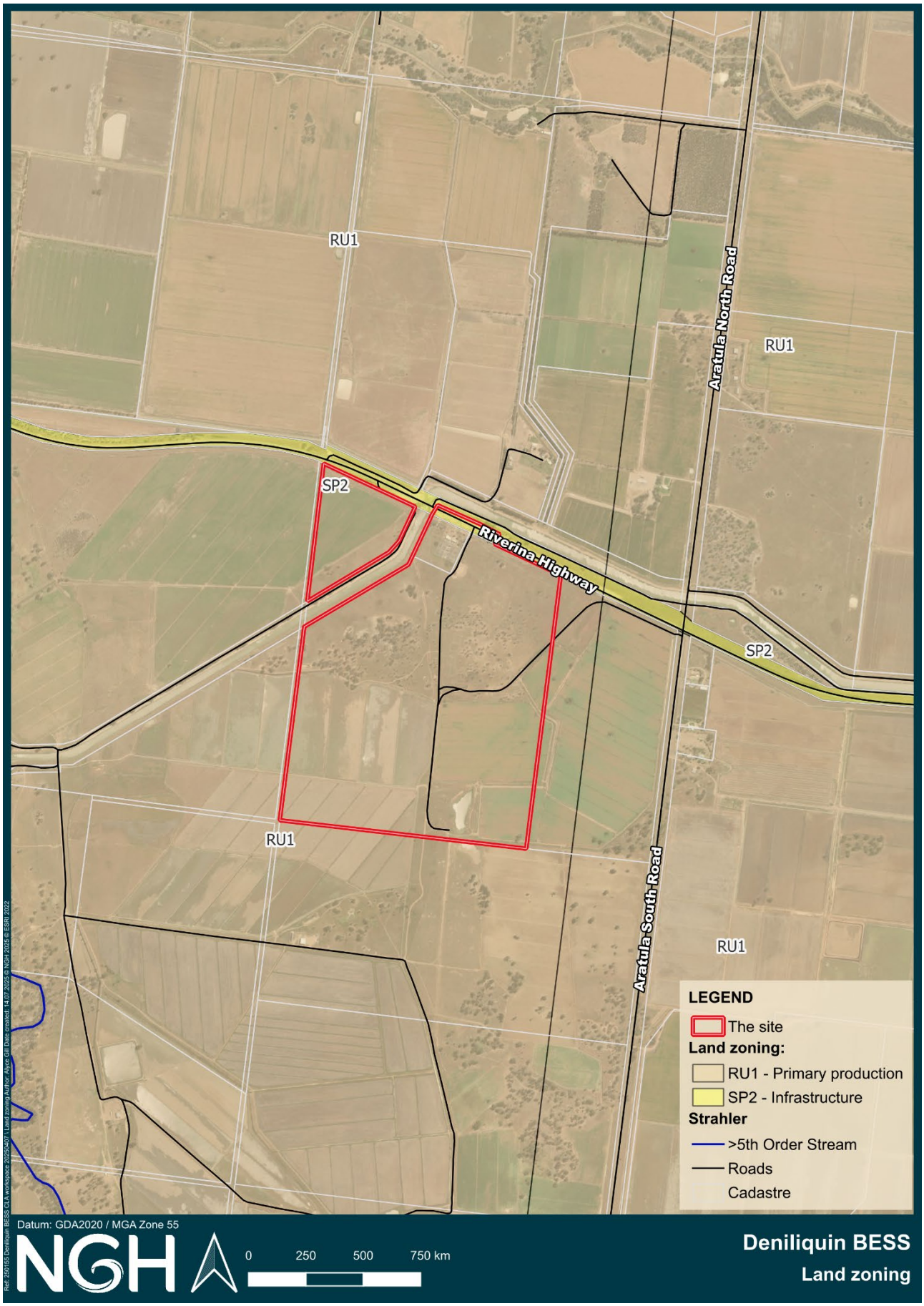

Figure 2-1 Land zoning

Figure 2-2 Land use

2.3.2. Aerial imagery review

Aerial images are compared to identify changes to the site over time with particular interest in the addition or removal of built infrastructure and use of the land. Changes in built infrastructure and land uses on a rural property of importance to note include but not limited to cropping, other agricultural activities such as livestock dips, infrastructure addition and removal, compounds and waste disposal on-site.

Aerial imagery for the site commences in 1945. The aerial imagery is reviewed in sequence to note changes, which are detailed in Table 2-2. The aerial imagery is provided in the Lotsearch Enviro Pro Report, which is provided as Appendix A.

Table 2-2 Aerial photography review

Year	Source	Lot 1 DP 536901 and Lot 2 DP 536901	Land surrounding Lot 1 DP 536901 and Lot 2 DP 536901
1945	Geoscience Australia[1]	The southern and northwestern portions of Lot 1 DP 536901, and Lot 2 DP 536901, have been cleared. A farm dam occurs within Lot 2 DP 536901. Irrigation channels have been constructed in the north-western portion of Lot 2 DP 536901.	An irrigation canal intersects and runs along the northern boundary of Lot 1 DP 536901 and Lot 2 DP 536901. Land around Lot 1 DP 536901 and Lot 2 DP 536901 has been cleared. Fences are evident to the north and west.
1964	Geoscience Australia	There is evidence of cropping within the southwestern portion of Lot 1 DP 536901 and Lot 2 DP 536901. An additional farm dam has been constructed within Lot 2 DP 536901.	The Riverina Highway has been constructed to the north of Lot 1 DP 536901 and Lot 2 DP 536901. An unformalised access track has been constructed within Lot 1 DP 536901 and Lot 2 DP 536901. Cropping activities are evident to the southwest of Lot 2 DP 536901.

[1] All images were provided within the Lotsearch Report (Appendix A)

Year	Source	Lot 1 DP 536901 and Lot 2 DP 536901	Land surrounding Lot 1 DP 536901 and Lot 2 DP 536901
		Fencing is evident within Lot 1 DP 536901 and Lot 2 DP 536901. Canal infrastructure enters Lot 2 DP 536901 from the southern boundary then continues in for one quarter of Lot 2 DP 536901 before turning to the west and continuing beyond the western boundary. Evidence of commencement of a gravel pit in the north-eastern portion of Lot 2 DP 536901.	A farm dam has been constructed to the south of Lot 2 DP 536901.
1968	NSW Department of Customer Service	An additional farm dam has been constructed within the northern portion of Lot 2 DP 536901. There is evidence of cropping activities within the northern and central portion of Lot 2 DP 536901. There is evidence of land contouring within the southeastern portion of Lot 2 DP 536901.	A dwelling and access roads have been constructed to the north of Lot 2 DP 536901. There is evidence of land contouring to the southwest of Lot 2 DP 536901.
1979	Geoscience Australia	The Deniliquin substation has been constructed within Lot 1 DP 536901. Additional access roads have been constructed within Lot 1 DP 536901 and Lot 2 DP 536901. There is evidence of additional cropping activities within the southwestern and eastern portions of Lot 2 DP 536901.	Cropping activities are evident to the north, east, west and south of Lot 1 DP 536901 and Lot 2 DP 536901.

Year	Source	Lot 1 DP 536901 and Lot 2 DP 536901	Land surrounding Lot 1 DP 536901 and Lot 2 DP 536901
		There is evidence of land disturbance within the southern portion of Lot 2 DP 536901. Tree clearing in southern portion of gravel pit in the north-eastern portion of Lot 2 DP 536901.	
1985	NSW Department of Customer Service	An irrigation channel has been constructed that enters Lot 2 DP 536901 from the south-eastern boundary.	There is evidence of land contouring to the north of Lot 1 DP 536901 and Lot 2 DP 536901.
1996	NSW Department of Customer Service	Changes to the substation, gravel roads and detention basins to the west and south-east of the substation have occurred between 1985 and 1996 in Lot 1 DP 536901.	Evidence of transmission line infrastructure occurs to the northeast of Lot 2 DP 536901.
2005	Google Inc	There is evidence of cropping activities within the southern portion of Lot 2 DP 536901. Irrigation channel that enters Lot 2 DP 536901 from the south-east has been modified to straight lines.	There is evidence of additional cropping activities to the east, west and north of Lot 2 DP 536901.
2013	Google Inc	The size of the farm dam occurring within the southern portion of Lot 2 DP 536901 has increased.	The size of the farm dam occurring to the south of Lot 2 DP 536901 has increased.
2024	Google Inc	No notable changes.	No notable changes.

2.3.3. Database searches

NGH engaged Lotsearch to prepare an Enviro Pro database search report. The dataset listing for this Lotsearch is included on page two of the report, refer to Appendix A. The search was undertaken on 26 February 2024 and identified the following items within a 1000 – 2000 m buffer of Lots 2 DP 864272.

Of note is that the only record returned for the site is in relation to former licenced activities under the *Protection of the Environment Operations Act 1997* (POEO ACT) and includes three former licences for other activities / non-scheduled activity – application of herbicides – waterways throughout NSW.

Contaminated Land

- List of NSW contaminated sites notified to the EPA returned no records within the buffer
- The Contaminated Land Record of Notices search returned no records within the buffer
- The Former Gasworks returned no records within the buffer
- The EPA Notices search returned no records within the buffer.

Waste Management and Liquid Fuel Facilities

- National Waste Management Site Database search returned no records within the buffer
- National Liquid Fuel Facilities search returned no records within the buffer.

Per- and Polyfluoroalkyl Substances (PFAS) Investigation and Management Programs

- The EPA PFAS Investigation Program search returned no records within the buffer
- The Defence PFAS Investigation Program search returned no records within the buffer
- The Defence PFAS Management Program search returned no records within the buffer
- The Airservices Australia National PFAS Management Program search returned no records within the buffer
- The Defence Controlled Areas search returned no records within the buffer
- The Defence 3 Year Regional Contamination Investigation Program search returned no records within the buffer
- The National Unexploded Ordnance (UXO) search returned no results within the buffer.

EPA Activities

- The EPA Other Sites with Contamination Issues search returned no records within the buffer.
- Licensed activities under the *Protection of the Environment Operations Act 1997* (POEO Act 1997) returned one record within the buffer:
  - Murray Irrigation Limited (irrigated agriculture), located within the site
- Delicensed activities still regulated by the EPA returned no records within the buffer
- Former licensed activities under the POEO Act 1997 now revoked or surrendered returned with three records within the buffer that are listed as *other activities / non scheduled activity – application of herbicides*, all located within the site and include:
  - Luhrmann Environment Management Pty Ltd
  - Robert Orchard
  - Sydney Weed and Pest Management Pty Ltd.

Historic Business Directories

- Business Directory Records 1950-1991 Premise or Road Intersection Matches returned no records within the buffer
- Business Directory Records 1950-1991 Road or Area Matches returned no records within the buffer
- Dry Cleaners, motor garages & service stations premise or road intersection matches, returned no records within the buffer
- Dry cleaners, motor garages and service station road or area matches returned no records within the buffer.

2.3.4. Title Search

A Title Search was conducted by the NSW Land Registry Services on 23 December 2024, refer to Appendix B.

2.3.5. Planning instruments

A search of the NSW Planning Portal was undertaken on 7 April 2025. Property Reports were obtained for Lot 1 DP 536901 and Lot 2 DP 536901, refer to Appendix C.

Environmental Planning Instruments

The Deniliquin LEP (2013) applies to Lot 1 DP 536901 and Lot 2 DP 536901.

State Environmental Planning Policies (SEPPs)

A list of relevant SEPPs can be found in Appendix C.

Proposed Environmental Planning Instruments

There are no draft local environmental plans applying to Lot 1 DP 536901 and Lot 2 DP 536901.

Development Control Plans

Deniliquin Development Control Plan (DCP) 2016.

Bushfire Prone Land

Lot 1 DP 536901 and Lot 2 DP 536901 are identified as bushfire prone land.

2.4. Site environmental settings

2.4.1. Climate

Understanding the climate in the context of the site can help to characterise the persistence, mobility and in some cases toxicity of potential contaminants. Deniliquin, NSW, exhibits a semi-arid climate characterized by hot, dry summers and cold, partly cloudy winters, with annual temperature variations ranging from approximately 3°C to 34°C.

Climate and weather statistics for the Deniliquin Airport Automatic Weather Station (AWS) (station number 074258) are provided in Table 2-3.

Table 2-3 Climate and weather statistics for Deniliquin AWS (station number 074258)

Statistics	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual average
Temperature													
Mean maximum temperature (°C)	33.3	32.2	28.8	23.5	18.5	15.0	14.4	16.3	20.0	23.8	27.9	30.7	**23.7**
Mean minimum temperature (°C)	16.7	16.1	13.6	9.5	6.1	4.2	3.3	4.1	6.0	8.5	12.0	14.3	**9.5**
Rainfall													
Mean rainfall (mm)	24.7	25.1	26.0	27.8	27.8	30.5	27.9	32.7	32.9	40.6	48.8	29.8	**374.8**
Decile 5 (median) rainfall (mm)	22.9	18.8	17.0	22.4	23.2	25.9	25.5	27.9	25.3	27.3	45.5	21.9	
Mean number of days of rain ≥ 1 mm	3.4	2.5	2.6	3.6	4.0	5.0	5.8	6.0	5.1	4.6	4.7	3.7	**51.0**
9AM Conditions													
Mean 9am relative humidity (%)	48	55	61	65	82	90	90	82	70	56	53	48	**67**
Mean 9am wind speed (km/h)	19.5	19.3	17.9	16.4	13.8	14.0	13.7	15.9	17.9	19.6	19.2	19.6	**17.2**

Statistics	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual average
3PM Conditions													
Mean 3pm relative humidity (%)	22	27	29	37	49	61	60	51	44	33	29	25	**39**
Mean 3pm wind speed (km/h)	20.5	19.2	18.4	17.4	17.7	17.9	18.6	20.3	21.3	21.3	20.3	21.1	**19.5**

Note: Red represents the highest value in the range, blue represents the lowest value in the range.

2.4.2. Topography

The topography of the site is used to identify the way in which potential contaminants will move across the landscape within the site and from upgradient surrounding sites. It can provide the probable direction of groundwater flow.

The topography of the site is generally flat, with elevations approximately 94 metres above Australian Height Datum (AHD), refer to Figure 2-3. A historic gravel pit in the north-eastern portion of the site has a low point of 92 m AHD.

2.4.3. Surface water and hydrology

No waterways occur within the site, refer to Figure 2-3. Irrigation channels occur throughout and adjacent to the site. A trunk irrigation channel runs between the lot boundaries in the north-west of the site. An irrigation channel follows the crop boundary in the north-western portion of the site and two distributary irrigation channels enter from the south and south-eastern boundaries of the site. No farm dams occur within the site.

Surface water runoff is guided by existing land contouring, roads and landscape micro-relief.

An existing substation is located within the site. Topography of the site indicates there is potential for surface water runoff from Lot 1 DP 536901 substation into Lot 2 DP 536901.

2.4.4. Vegetation

Much of the site consists of derived native grasslands, due to agricultural grazing practices and historic tree clearing. Two native Plant Community Types (PCT) were identified within the Development site during preparation of the BDAR (Biosis, 2025) (refer to Figure 2-4), including:

- PCT 20 - Buloke - Moonah - Black Box open woodland on sandy rises of semi-arid (warm) climate zone
- PCT 237 - Riverine Western Grey Box grassy woodland of the semi-arid (warm) climate zone.

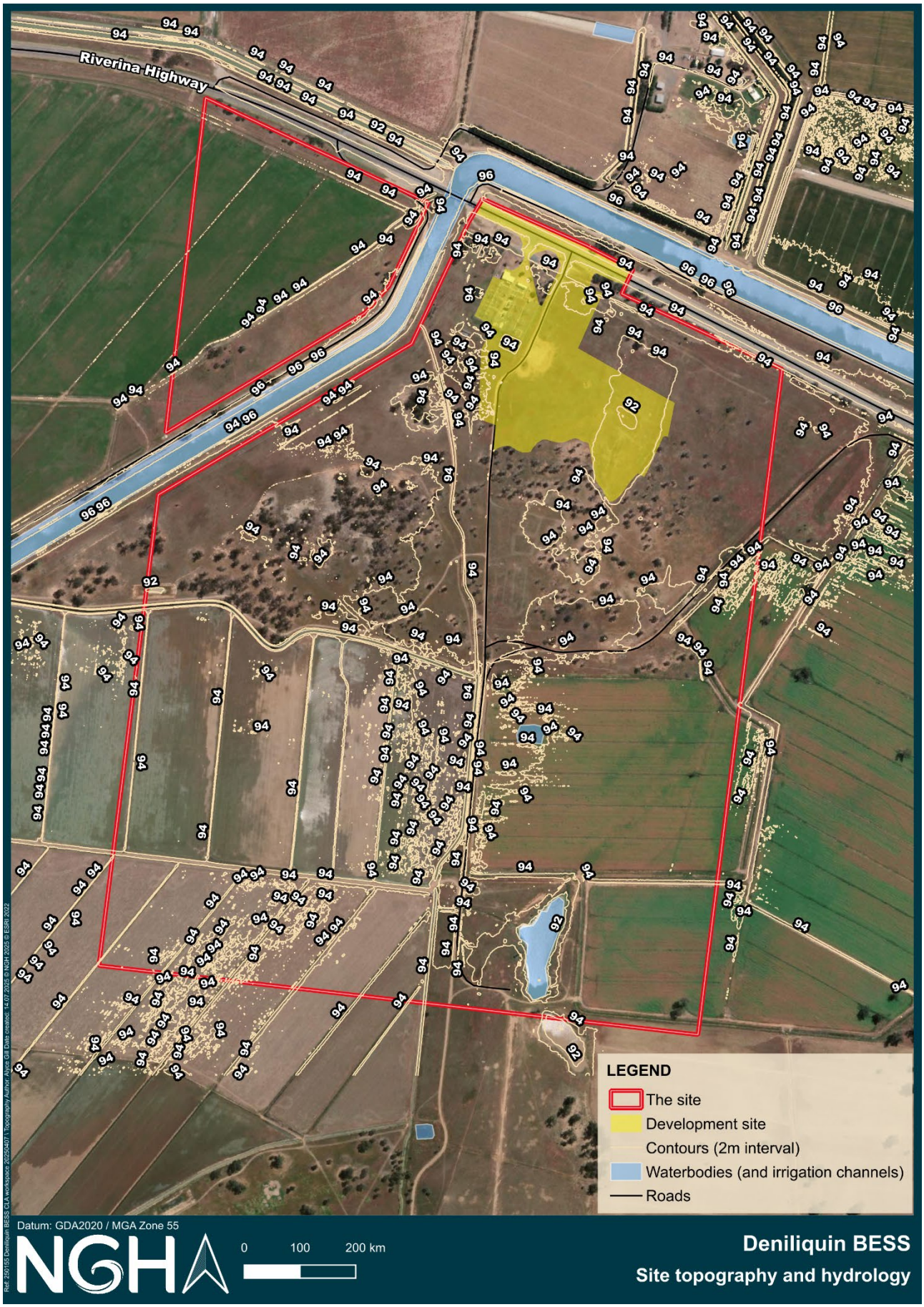

Figure 2-3 Site topography and hydrology

Figure 2-4 Native vegetation mapped within the site

2.4.5. Hydrogeology

Registered groundwater bores

One groundwater bore (GW503030) is located within the site, while an additional five groundwater bores occur within 1 km of the site, refer to Figure 2-5 and Table 2-4. The depth of GW503030 is approximately 9.1 metres below ground level, indicating potentially relatively shallow groundwater levels in this part of the landscape.

Table 2-4 Groundwater bores occurring within 1 km of the site

State Bore ID	Bore depth (m)	Status	Drilled date	Distance (m)	Direction
GW503030	9.1	Functioning	12/08/2000	0	Onsite
GW503031	8.2	Functioning	12/08/2000	137	Northeast
GW505001	20	Unknown	01/01/1950	374	Northeast
GW502629	12.2	Functioning	08/05/1995	585	East
GW500194	28	Unknown	14/04/1996	822	West
GW502630	15.85	Functioning	08/05/1995	856	Southeast

Groundwater dependent ecosystems

The site is mapped as containing porous, highly productive aquifers, refer to Figure 2-5. No aquatic groundwater dependent ecosystems (GDEs) occur within the site. Low potential terrestrial GDEs occur within the site, indicating a moderate connection between terrestrial vegetation and groundwater aquifers.

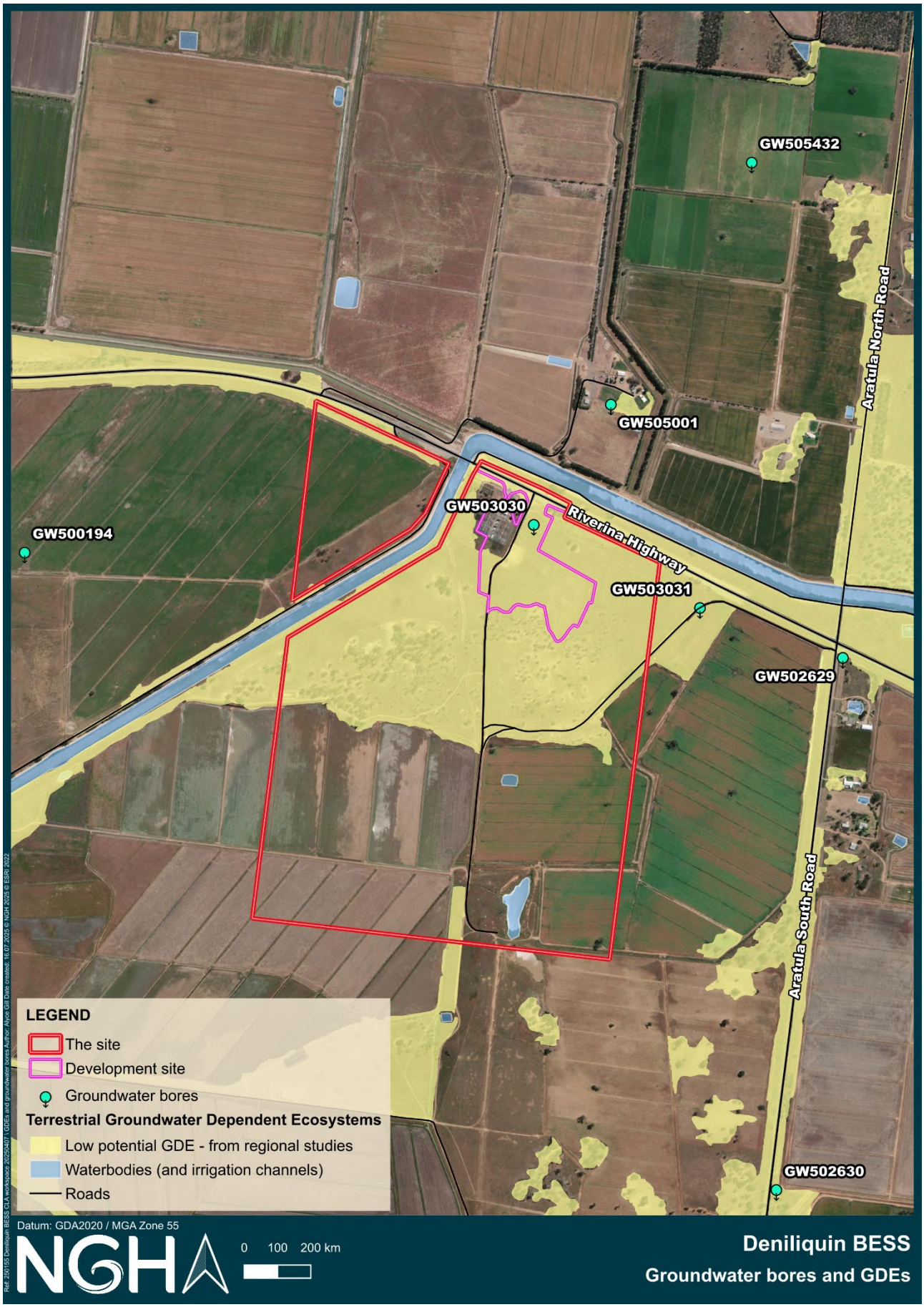

Figure 2-5 Groundwater bores and groundwater dependent ecosystems

2.4.6. Geology

The underlying geology of the site consists of the Shepparton Formation, refer to Appendix A. This geological unit contains unconsolidated to poorly consolidated mottled variegated clay and silty clay with lenses of polymictic, coarse to fine sand and gravel. This geological unit forms extensive flat alluvial floodplains.

There were no records of Naturally Occurring Asbestos (NOA) identified within the dataset buffer used by Lotsearch, refer to Appendix A.

2.4.7. Soils

The majority of the site is mapped as containing sodosols (Australian Soil Classification, ASC), refer to Appendix A. Chief soils are hard alkaline red soils, grey and brown cracking clays. Sodosols have strong texture contrast between surface (A) horizons and dense and coarsely structured clayey subsoil (B) horizons that are sodic (i.e. exchangeable sodium percentage is 6 or greater) and not strongly acid (i.e. pH 5.5 is or greater), in at least the upper subsoil (Victoria Agriculture, 2020).

Soil mapping from the SEED data portal identifies the Greater Soil Group (GSG) associated with the site as red-brown earths (NSW Government, 2023).

Soil characteristics are important in understanding rates of movement of potential contaminants through the soil profile and how they may interact with parameters such as pH (Potential Hydrogen). These soils are sodic, which indicates a potential erosion risk if subsoils are exposed.

No records of Acid Sulfate Soils (ASS) occur within 1 km of the site, nor is the site mapped as containing saline soils (refer to Appendix A).

3. Preliminary conceptual site model

A preliminary conceptual site model (CSM) has been prepared to develop an understanding of the potential Areas of Environmental Concern (AEC) and potential contaminating pathways, refer to Table 3-1.

Table 3-1 Preliminary CSM

Potential Source of Contamination	Potential Chemicals of Concern	Transport Mechanisms	Potential Exposure Pathways	Potential Receptors
AEC1 Agricultural practices (cropping)	• Heavy metals (arsenic, cadmium, chromium, copper, nickel, lead, zinc and mercury) • Organochlorine Pesticides (OCPs) • Organophosphate Pesticides (OPPs)	• Disturbance – airborne release • Surface water runoff • Leachability into surficial, sub soils and underlying groundwater and transport via groundwater flows	• Inhalation of dust • Ingestion • Dermal contact	**Human receptors:** Construction workers and intrusive maintenance workers Farm workers
			• Inhalation of dust • Dermal contact	**Off-site human receptors:** Adjacent land users
			• Inhalation of dust • Ingestion • Dermal contact	**Environmentally sensitive receptors:** No natural waterways occur within the site; however, irrigation channels occur within and adjacent to the site. Two farm dams occur within the site.
	• Heavy metals • OCPs	• Disturbance – airborne release	• Inhalation of dust • Ingestion	**Human receptors:**

Potential Source of Contamination	Potential Chemicals of Concern	Transport Mechanisms	Potential Exposure Pathways	Potential Receptors
AEC2 Electrical substation	• OPPs • Benzene, Toluene, Ethylbenzene, Xylene and Naphthalene (BTEXN) • Total Recoverable Hydrocarbons (TRHs) • Polychlorinated biphenyls (PCBs) • Polycyclic Aromatic Hydrocarbons (PAHs) • Phenols	• Surface water runoff • Leachability into surficial, sub soils and underlying groundwater and transport via groundwater flows	• Dermal contact	Construction workers and intrusive maintenance workers
			• Inhalation of dust • Dermal contact	**Off-site human receptors:** Adjacent land users
			• Inhalation of dust • Ingestion • Dermal contact	**Environmentally sensitive receptors:** No natural waterways occur within the site; however, irrigation channels occur within and adjacent to the site. Two farm dams occur within the site.

4. Potential Areas of Environmental Concern

The site history review, site inspection and review of anecdotal information identified the following potential Areas of Environmental Concern (AECs) and Chemicals of Potential Concern (CoPC):

AEC1 – Agricultural practices (cropping)

Agricultural practices are associated with heavy metals, OCPs and OPPs. Organochlorine compounds are known for their high toxicity, slow degradation and bioaccumulation. OCP/OPPs can leach through the soil profile and into groundwater, contaminating terrestrial and aquatic systems.

AEC2 – Electrical substation

The Deniliquin substation was constructed between 1968 and 1979. Electrical substations constructed around this time are associated with a range of chemicals including but not limited to heavy metals, BTEXN, TRHs, PCBs, PAHs and phenols.

5. Sampling strategy and plan

5.1. Sampling strategy and justification

Justification for the adopted sampling strategy has been provided in Table 5-1.

Table 5-1 Justification for the sampling strategy

AEC	Investigation methodology	Justification
AEC1 - Agricultural practices	Test pits	Results of the PSI indicate that agricultural activities have occurred onsite. Agricultural activities are associated with heavy metals, OCPs, and OPPs. A preliminary soil sampling program is required to determine the presence of soil contamination within the site.
AEC2 – Electrical substation	Test pits	The Deniliquin substation occurs within the northwestern portion of the site. Electrical substations are associated with a range of chemicals including but not limited to heavy metals, BTEXN, TRHs, PCBs, PAHs and phenols. A preliminary soil sampling program is required to determine the presence of soil contamination within the site.

This PSI was designed to target surface and subsurface soils within the Development site using a judgemental sampling pattern for site characterisation, refer to Figure 5-1. NGH engaged a local bobcat operator to undertake the intrusive investigation (under the direction of a NGH Environmental Consultant).

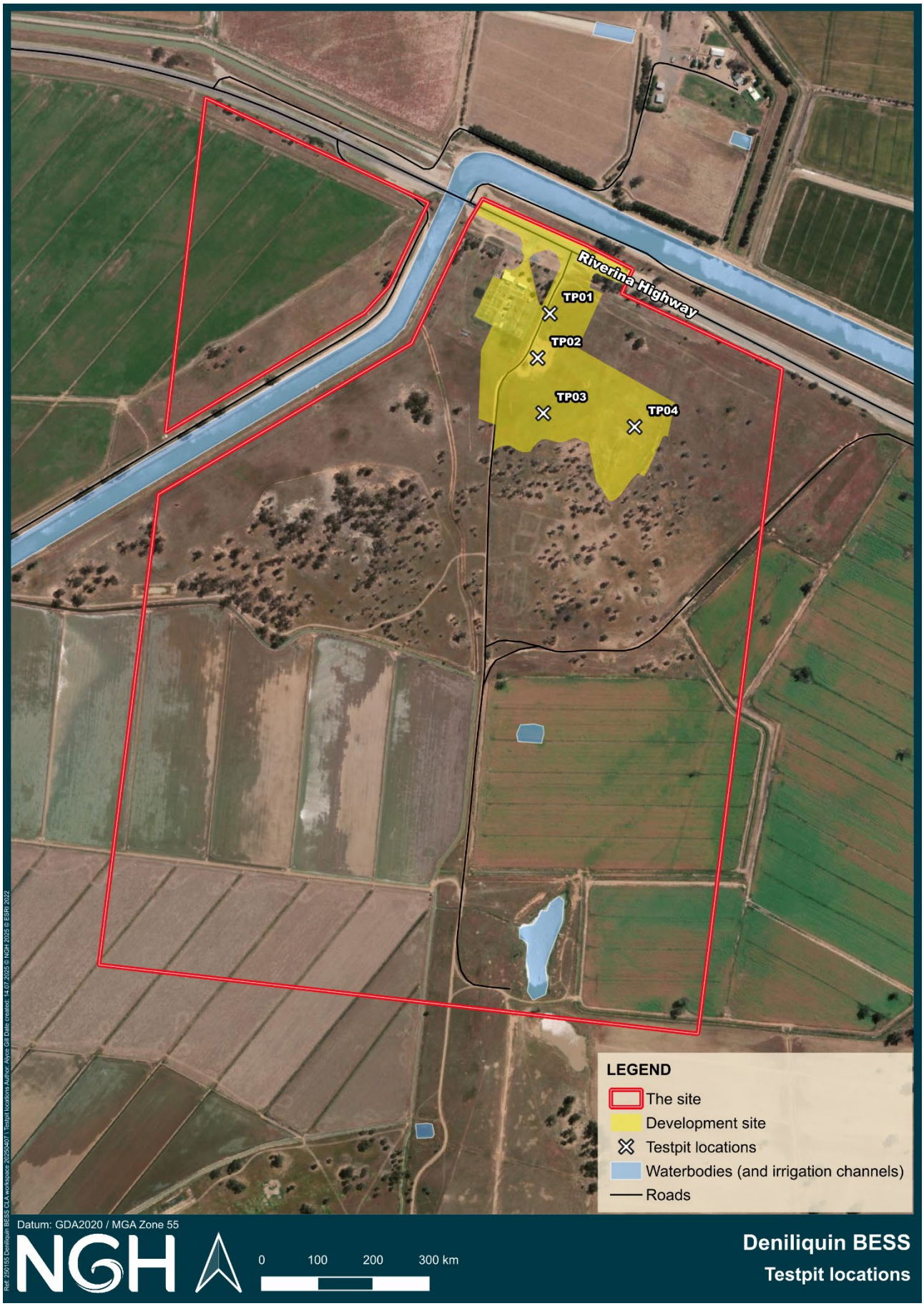

Figure 5-1 Sampling locations

6. Applicable Tier 1 soil screening levels

6.1. Introduction

As per Schedule B1 of the ASC NEPM (NEPM, 2013):

"*Investigation and screening levels can be used to evaluate potential risks to human health and ecosystems from site contamination.*

Investigation levels and screening levels are applicable to the first stage of site assessment. The selection and use of investigation and screening levels should be considered in the context of the iterative development of a conceptual site model to ensure appropriate evaluation of human health and ecosystem risks."

The ASC NEPM also states that:

"*Investigation and screening levels are not clean-up or response levels nor are they desirable soil quality criteria. Investigation and screening levels are intended for assessing existing contamination and to trigger consideration of an appropriate site-specific risk-based approach or appropriate risk management options when they are exceeded.*"

The selection of applicable screening levels needs to consider the protection of human health and the environment under current and proposed land use scenarios.

As the proposed land use is for commercial / industrial purposes, the site has been assessed against land use 'D' under the ASC NEPM.

6.2. Protection of human health

Health-based Investigation Levels (HIL), Health Screening Levels (HSL) and other criteria derived from the NEPM Schedule B1 (NEPM 2013) will be adopted to assess site contamination. The Tier 1 Soil Screening Levels (SSLs) for this site include:

- HIL/HSL D - Commercial/industrial such as shops, offices, factories and industrial sites.

Assessment criteria are discussed in Table 6-1 and Table 6-2.

Table 6-1 Assessment criteria rationale

Media	Criteria	Rationale	Reference
Soil	NEPM HIL/HSL D	Soil health-based investigation levels and other soil criteria derived from the NEPM Schedule B1 (NEPM 2013) will be adopted to assess site soil contamination.	NEPM Schedule B1 Table 1A(1) and Table 1A(3)

Table 6-2 Site assessment criteria for protection of human health

Analyte	Units	HIL/HSL 'D'
Metals		
Arsenic	mg/kg	3,000
Cadmium	mg/kg	900
Chromium	mg/kg	3,600
Copper	mg/kg	240,000
Lead	mg/kg	1,500
Mercury	mg/kg	730
Nickel	mg/kg	6,000
Zinc	mg/kg	400,000
BTEXN		
Benzene	mg/kg	4 (0.0 m – 1.0 m) 6 (1.0 m – 2.0 m) 9 (2.0 m – 4.0 m)
Toluene	mg/kg	NL
Ethylbenzene	mg/kg	NL
Total Xylenes	mg/kg	NL
Naphthalene	mg/kg	NL
TRHs		
C6 - C10 Fraction	mg/kg	-
C6 - C10 Fraction minus BTEX (F1)	mg/kg	800
>C10 - C16 Fraction	mg/kg	-
>C10 - C16 Fraction minus Naphthalene (F2)	mg/kg	1,000
>C16 - C34 Fraction	mg/kg	5,000
>C34 - C40 Fraction	mg/kg	10,000
PAHs		
Total PAHs	mg/kg	4,000
PCBs		
PCB (sum of total)	mg/kg	7

Analyte	Units	HIL/HSL 'D'
OCPs		
DDT+DDE+DDE	mg/kg	3,600
Aldrin and dieldrin	mg/kg	45
Chlordane	mg/kg	530
Endosulfan	mg/kg	2,000
Endrin	mg/kg	100
Heptachlor	mg/kg	50
HCB	mg/kg	80
Methoxychlor	mg/kg	2,500
Mirex	mg/kg	100
Toxphene	mg/kg	160
Other pesticides		
Atrazine	mg/kg	2,500
Phenols		
Phenol	mg/kg	240,000
2-Chlorophenol	mg/kg	-
2,4-Dichlorophenol	mg/kg	-
2,4,6 - Trichlorophenol	mg/kg	-
Pentachlorophenol	mg/kg	660

7. Data quality objectives and QA/QC

7.1. Data quality objectives

The ASC NEPM (NEPM, 2013) specifies that the nature and quality of the data produced in an investigation will be determined by the data quality objectives (DQOs). As referenced by the ASC NEPM, the DQO process is described in detail in the United States Environmental Protection Agency (US EPA) *Guidance on Systematic Planning Using the Data Quality Objectives Process (EPA QA/G-4: EPA/240/B-06/001),* February 2006 (US EPA, 2006).

The Data Quality Objectives (DQOs) processes are used to define the type, quantity and quality of data needed to support decisions relating to the Project objectives. It provides a systematic approach for defining the criteria a data collection design should satisfy, including when, where and how to collect samples or measurements; determination of tolerable decision error rates; and the number of samples or measurements that should be collected.

In determining the type, quantity and quality of data needed to support decisions relating to the environmental condition of the site, NGH has undertaken the seven-step process to develop the DQOs in accordance with the National Environment Protection Measure (ASC NEPM, Schedule B2) Guideline on Site Characterisation (2013). This document specifies that the nature and quality of the data produced in an investigation will be determined by the Data Quality Objectives (DQOs).

The DQO process used for the investigation can be found in Steps 1 to 7 below.

Step 1

The purpose of step 1 is to summarise the contamination problem that requires new environmental data, identify the resources available to resolve the problem, and develop a CSM.

Step 1 – State the problem	
Objective:	Determine the presence, concentration, and potential risks to human health and the environment from potential AECs, refer to Section 4 of this PSI.
Contamination Issue:	This PSI is required to determine the presence of contamination onsite, prior to the potential development of the site. Contaminants of concern include those listed in Table 6-2.
Project Driver:	Development of the site.
Project team and technical support:	• Client Name / Project Manager: Tom Lukins • NGH Project Manager: Madison Batchelor • NGH Environmental Consultants: Willy Van Vaerenbergh, Nicola Smith, Alyce Gill and Martin Wyburn.

Step 1 – State the problem	
Community Concerns:	The scope of works planned for this investigation is unlikely to draw attention from the local community.

Step 2

The purpose of step 2 is to identify the decisions that need to be made about the contamination problem and the new environmental data required to make them.

Step 2 – Identify the decisions	
Contamination sources	• What are the historical operations and infrastructure that may have caused soil contamination?
Chemicals of Concern:	• What are the major CoPC?
Media and Receptors:	• Does a contaminant pose a human health risk to the receptors of concern? • Is there any evidence of or potential for migration of contaminants from the site which may impact offsite receptors?
Guidelines:	• Does the concentration of contaminants exceed assessment criteria?
End Use:	• Does the contamination affect the suitability of site for the proposed use?

Step 3

The purpose of step 3 is to identify the information needed to support any decision and whether new environmental measurements will be needed.

Step 3 – Identify inputs to the decision	
Environmental data:	• Sample analysis data. • Field observations
The media that is to be collected:	Soil
Assessment Criteria:	See Section 6.2 of this report
Laboratory Analytical Methods:	Laboratory analytical methods will be undertaken in accordance with the NEPM Schedule B3 *Guideline on Laboratory Analysis of Potentially Contaminated Soils* and the National Association of Testing Authorities (NATA) certification requirements.

Step 4

The purpose of step 4 is to specify the spatial and temporal aspects of the environmental media that the data must represent to support decision(s).

Step 4 – Define the study boundaries	
Geographical Limit:	The spatial boundary of the investigation is indicated in Figure 5-1. The vertical boundary is limited to the maximum depth of the sampling program (i.e. 0.5 m).
Temporal limit	The temporal limit for the investigation is confined to the time frame over which the investigation was conducted (sampling occurred on 1 July 2025).
Investigation Limit:	The on-site investigation will target onsite AECs based on historic land uses. Potential onsite sources of contamination within the site are associated with the Deniliquin substation and agricultural activities.
Constraints:	Existing infrastructure (Deniliquin substation).

Step 5

The purpose of step 5 is to define the parameter of interest, specifying the action level, and integrating information from Steps 1–4 into a single statement that gives a logical basis for choosing from alternative actions.

Step 5 – Develop a decision rule	
Assessment Criteria:	Refer to Section 6.2 of this report.
Decision Rule (tests of hypothesis):	Has the analytical data collected as part of the assessment met the Data Quality Indicators (DQIs) (see below)? • If **yes,** then the data can be used to answer the decision rule below and the decision statements developed in Step 2. If **no,** then an assessment of the need to collect additional data will be required: ○ .

Step 6

The purpose of step 6 is to specify the decision-maker's acceptable limits on decision errors, which are used to establish performance goals for limiting uncertainties in the data. This process uses systematic planning and statistical hypothesis testing to differentiate between two or more clearly defined alternatives.

Step 6 – Specify limits on decision errors

Documentation and data completeness:	• Site conditions properly described • Sampling locations properly described and located • Completion of field records, chain of custody documentation, laboratory test certificates from NATA-registered laboratories • Samples are collected from identified areas of potential environmental concern • Samples are tested for all potential contaminants of concern • Sampling events encounter samples most likely to be contaminated on more than one occasion.
Data Comparability:	• Use of appropriate techniques for the sampling, storage, and transportation of samples • Use of laboratories with NATA certification for the analyses conducted and undertaken using NEPM procedures • Use of secondary laboratories with NATA certification for the analyses conducted.
Data representativeness:	• Collection of representative samples from each sampling location • Collection of representative samples across the lateral and vertical extent • Use of appropriate techniques for the sampling, storage, and transportation of samples.
Precision for sampling and analysis:	• Achieve laboratory QC criteria • Blanks returned with no contamination • All matrix and surrogates returned acceptable results • All laboratory duplicates within acceptable ranges • All split duplicates within acceptable ranges • All control results within acceptable ranges • All practical quantification limits (PQLs) within acceptable ranges.
Accuracy for sampling and analysis:	• Use of properly trained and qualified field personnel • Use of blind field duplicate samples to be collected at a minimum rate of 1 in 20 • Relative Percentage Differences (RPDs) to be less than 30% for inorganic and 50% for organic analyses • Acceptable quality of rinsate samples • Acceptable quality of trip blank samples • Acceptable quality of trip spike samples • Acceptable quality of split duplicates.
Sampling Design:	The investigation methodology and sample design are summarised in Section 5.
Investigation null hypothesis	The site is not impacted by contaminated soil.

Step 7

The purpose of step 7 is to identify the most resource-effective sampling and analysis design for generating the data that are required to satisfy the DQOs.

Step 7 – Optimise the design for obtaining data	
Review of DQO outputs:	With consideration to NSW EPA, review of existing data and the evaluation of operational decision rules, a resource-effective sampling and analysis plan has been prepared with details provided in the following Sections.

7.2. Data quality indicators and QA/QC assessment

Project DQIs are provided in Table 7-1.

Table 7-1 Project DQIs

DQI	Frequency	Acceptance Criteria
Completeness		
All critical locations sampled and analysed in accordance with the sampling strategy	-	All critical locations sampled
Appropriate methods and limits of reporting (LORs)	All samples	Samples were analysed using NATA approved methods
All samples collected (from grid and at depth)	All samples	Samples collected in accordance with the sampling strategy
Standard operating practices appropriate and complied with	All samples	Work complies with NGH standard operating practices
Appropriate documentation for testing and COCs, all completed	All samples	This work was documented in accordance with NGH standard operating practices
Sampling holding times complied with	All samples	The samples were submitted for extraction within holding times specified by NATA laboratory
Suitability qualified and experienced sampler	All samples	Person deemed competent by NGH collecting and logging samples
Data considered 95% valid	-	Data complies with DQIs
Comparability		
Suitability qualified and experienced sampler	All samples	Person deemed competent by NGH collecting and logging samples
Consistent analytical methods, laboratories, and units of measure	All samples	All analysis undertaken by NATA accredited laboratory

DQI	Frequency	Acceptance Criteria
Climatic conditions recorded and influences (quantify or physical) on samples (if required)	All samples	Climatic conditions documented on field sheets
Representativeness		
Appropriate media sampled according to the sampling strategy	All samples	Sample analysis to be in accordance with NATA approved methods
Appropriate sample transport and handling	All samples	Samples arrive at the laboratory in an acceptable condition
Samples extracted and analysed within the correct holding times	All samples	Samples extracted and analysed in accordance with the nominated NATA accredited laboratory recommended holding times.
Precision		
Standard operating practices complied with	All samples	All samples
Intra-laboratory field duplicates	5% frequency or greater of the primary samples	<50% RPD for organic <30% RPD for inorganic Or <5 x LOR
Inter-laboratory field duplicates (triplicates)	5% frequency or greater of the primary samples	<50% RPD for organic <30% RPD for inorganic Or <5 x LOR
Laboratory duplicates	1 per batch of 20 samples	>10 x LOR
Accuracy (bias)		
Matrix spikes, Laboratory control samples and Surrogate recoveries	1 per batch of 20 samples	70-130% for inorganics/metals 60-140% for organics
Trip blank	1 per day	< LOR
Rinsate	1 per day where reusable equipment is used	< LOR

7.3. Field QA/QC assessment

7.3.1. Field QA/QC program

A field QA/QC program was undertaken, and includes the following:

Sampling Team: All field work was conducted by appropriately trained environmental consultants.

Field Notes: For each sample location, logging was taken and includes (where relevant) the data, time, location (with coordinates if possible), sampler name, duplicate samples, site observation and meteorological conditions, photos, diagrams, and maps. Soil logs are provided in Appendix D.

Chain of Custody: All samples were logged and transferred under appropriately completed Chain of Custody forms, refer to Appendix E.

Sample Labelling: The sample labels include sample identification numbers, date of collection, sampler initials and project number. Each sample was labelled with a unique sample identification number to facilitate tracking and cross referencing of sample information. QA/QC samples are also to be numbered with a unique sample number, consistent with the numbering system required for the project.

Preservation: All samples were collected in appropriate containers (supplied by the laboratory) and transported on ice bricks in eskies.

Decontamination: Sampling was undertaken using a mini excavator. Loose soil was brushed off in between sampling locations.

Rinsate: A rinsate sample was not required for this sampling program (see comments on decontamination above).

Intra-Laboratory Duplicate: An intra-laboratory duplicate is a QC sample used to determine the precision associated with all or part of the sample collection. Field duplicates are two independent samples that are collected from the same point at the same time and used to assess the homogeneity and reproducibility of the sampling technique. The precision or reproducibility is measured from the differences observed in the analysis of duplicate samples. The precision or reproducibility is measured from the differences observed in the analysis of duplicate samples.

Where samples are analysed in duplicate, the quality of the results is assessed by calculating the relative percent difference (RPD) between the reported and repeated results.

The RPD is calculated as follows: RPD = 200 * (lX1 - X2 l) / (X1 + X2)

Where X1 and X2 are the results obtained for the samples and its duplicate, and lX1 - X2l is the absolute difference between the duplicate samples.

A relative level of difference up to 50% is considered acceptable. Where the results are below the detection limits a calculation was not possible.

Inter-Laboratory Duplicate: An inter laboratory duplicate is a sample taken from the same point and the same time as the other samples and analysed by a separate and independent laboratory. This provides some degree of confidence that the analyses conducted by the main laboratory has been undertaken according to acceptable reproducible standards. Where samples are analysed in duplicate, the quality of the results is assessed by calculating the relative percent difference (RPD) between the primary, and duplicate laboratory results.

The RPD is calculated as follows: RPD = 200 * IX1 - X2 I / X1 + X2

Where X1 and X2 are the results obtained for the samples and its duplicate, and IX1 - X2I is the absolute difference between the duplicate samples.

A relative level of difference up to 50% is considered acceptable. Where the results are below the detection limits a calculation was not possible.

Trip Spike: A laboratory prepare clean glass jar is filled clean soil and then 'spiked' with a pre-determined quantity of volatile compounds. The purpose of the trip blank is to test the loss of volatile compounds during the sampling program. The trip spike is taken out into the field and returned (unopened) for analysis. Noting the small scope of the sampling program, a trip spike was not considered necessary. The results of the inter-laboratory and intra-laboratory duplicate were considered sufficient to inform the QA/QC program.

Trip Blank: A laboratory prepared clean glass jar is filled with clean soil (sand) supplied by the analysing laboratory and is stored within the sample 'esky' and transported to the laboratory with the other samples. The purpose of the trip blank is to detect any sample contamination due to transport activities. Trip blanks are analysed at a rate of one per day. Noting the small scope of the sampling program, a trip blank was not considered necessary. The results of the inter-laboratory and intra-laboratory duplicate were considered sufficient to inform the QA/QC program.

7.3.2. Field QA/QC assessment

The results of the laboratory analysis for field QA/QC samples are shown in the chemical analysis summary tables provided in Appendix F and summarised as follows:

- One (1) intra-laboratory duplicate sample was collected as part of this investigation. This sample was analysed by ALS Environmental (Sydney). The calculated RPD values for the duplicate sample were compared against the acceptable range of 30% for inorganic analytes and 40% for organic analytes. RPDs for DUP01 were below or at the acceptable ranges for all analytes, refer to Appendix G
- One (1) inter-laboratory sample was collected as part of the investigation. The inter-laboratory sample broke during transit and was unable to be tested. The results of the intra-laboratory duplicate were considered sufficient to inform the QA/QC program
- One trip blank / spike is required for each sampling program. Noting the small scope of the sampling program, a trip blank / spike was not considered necessary. The results of the intra-laboratory duplicate were considered sufficient to inform the QA/QC program
- Sampling was undertaken using a mini excavator. Loose soil was brushed off in between sampling locations. As such, a rinsate sample was not collected.

7.4. Laboratory QA/QC program

NATA accredited laboratories undertake specific registered tests. A data validation process assesses the effectiveness and reliability of the analytical process undertaken for the use of the data. This includes but not limited to the following:

Holding Times: Holding times are the maximum time in days from the collection of the sample to its extraction and/or analysis. All extraction and analyses are completed within the standard guidelines.

Reagent Blanks: The reagent (chemical) blank sample is a laboratory prepared sample containing the reagents used to prepare the sample for final analysis. The purpose of this procedure is to identify contamination in the reagent materials and assess potential bias in the sample analysis due to contaminated reagents. The QC criterion is no detectable contamination in the reagents.

Control Standard: Prepared from a source independent of the calibration standards. At least one control standard is included in each run to confirm calibration validity.

Internal Standard: Added to all samples requiring analysis for organics (where relevant). After the extraction process; the compounds serve to give a standard of retention time and response, which is invariant from run to run with the instruments.

Laboratory Duplicates: Laboratory duplicates are field samples that are split in the laboratory and subsequently analysed several times in the same batch. These sub-samples are selected by the laboratory to assess accuracy / precision of the analytical method. ALS Environmental undertake QA/QC procedures such as calibration standards, laboratory control samples, surrogates, reference materials, sample duplicates and matrix spikes. Intra-laboratory duplicates are performed at a frequency of 1 per 20.

Matrix Spike: A portion of the sample is spiked with a known concentration of a targeted analyte. The spiking occurs during the sample preparation and prior to the extraction / digestion procedure. They are used to document the precision and bias of a method in a given sample matrix. Where there is not enough sample available to prepare a spiked sample, another known soil/sand or water may be used. (It is usual for a duplicate spiked sample to be prepared at least every 20 samples).

Laboratory Control Sample: A laboratory control sample (LCS) is a standard reference material used in preparing primary samples. The concentration should be equivalent to a mid-range standard to confirm the primary calibration. LCS are performed at a frequency of 1 per 20 samples or at least one per analytical run.

Surrogate Spike: Surrogates are additions to each sample, blank, matrix spike and LCS in a batch of compounds that are like the analyte of interest. They are used to determine the extraction efficiency. However, are not expected to be found in real samples.

Laboratory Reporting: For laboratories with appropriate QA, the reagent blank, duplicates, matrix spikes and surrogate spikes are reported along with the results. The targeted recovery range for the laboratory spikes, controls and surrogates shall be 70% to 130% of the known addition.

The laboratory QA/QC indicators should all comply with the required standards or have no significant variations that would affect the quality of the data.

7.4.1. Laboratory QA/QC assessment

The primary laboratory used for chemical analysis of the validation samples was ALS Environmental (Sydney). A summary of the laboratory report comments indicated that:

- No method blank value outliers were identified
- No duplicate outliers were identified
- No laboratory control outliers were identified
- No matrix spike outliers were identified
- No surrogate outliers were identified
- No analysis holding time outliers were identified

- No quality control sample frequency outliers were identified.

The laboratory QA/QC data as supplied for each analysis confirm acceptable precision and accuracy of the analytical result for ALS Environmental.

A comprehensive review of the Project DQIs has been provided in Table 7-2.

7.5. Review of DQIs

Table 7-2 Post fieldwork review of DQIs

DQI	Frequency	Acceptance Criteria	Post field work review comments
Completeness			
All critical locations sampled and analysed in accordance with the sampling strategy	-	All critical locations sampled	Yes
Appropriate methods and LR's	All samples	Samples were analysed using NATA approved methods	Yes
All samples collected (from each location and at depth)	All samples	Samples collected in accordance with sampling strategy	Yes
Standard operating practices appropriate and complied with	All samples	Work complies with NGH standard operating practices	Yes
Appropriate documentation for testing and COCs, all completed	All samples	This work was documented in accordance with NGH standard operating practices	Yes
Sampling holding times complied with	All samples	The samples were submitted for extraction within holding times specified by NATA laboratory	Yes
Suitability qualified and experienced sampler	All samples	Person deemed competent by NGH collecting and logging samples	Yes
Data considered 95% valid	-	Data complies with DQIs.	Yes

DQI	Frequency	Acceptance Criteria	Post field work review comments
Comparability			
Suitability qualified and experienced sampler	All samples	Person deemed competent by NGH collecting and logging samples	Yes
Consistent analytical methods, laboratories and units of measure	All samples	All analysis undertaken by NATA accredited laboratory	Yes
Climatic conditions recorded and influences (quantify or physical) on samples (if required)	All samples	Climatic conditions documented on field sheets	Yes – weather on both days was partly sunny, with no wind
Representativeness			
Appropriate media sampled according to the sampling strategy	All samples	Sample analysis to be in accordance with NATA approved methods	Yes
Appropriate sample transport and handling	All samples	Samples arrive at laboratory in acceptable condition	Yes - with the exception of the inter-laboratory sample, which broke during transit
Samples extracted and analysed within the correct holding times	All samples	In accordance with the nominated NATA accredited laboratory recommended holding times.	Yes
Precision			
Standard operating practices complied with	All samples	All samples	Yes

DQI	Frequency	Acceptance Criteria	Post field work review comments
Intra-laboratory field duplicates	5% frequency or greater of the primary samples	<50% RPD for organic <30% RPD for inorganic Or <5 x LOR	Results for the intra-laboratory field duplicate were compliant with the acceptance criteria, refer to Appendix G
Inter-laboratory field duplicates (triplicates)	5% frequency or greater of the primary samples	<50% RPD for organic <30% RPD for inorganic Or <5 x LOR	The inter-laboratory sample broke during transit and was unable to be tested. Noting the small scope of the sampling program, the results of the intra-laboratory sample were considered sufficient to inform the QA/QC program
Laboratory duplicates	1 per batch of 20 samples	>10 x LOR	Yes
Accuracy (bias)			
Matrix spikes, Laboratory control samples and Surrogate recoveries	1 per batch of 20 samples	70-130% for inorganics/metals 60-140% for organics	Laboratory control samples, matrix spikes and surrogate recoveries were within the acceptable ranges
Rinsate	1 per day where reusable equipment is used	<LOR	Sampling was undertaken using a mini excavator. Loose soil was brushed off in between sampling locations. As such, a rinsate sample was not collected.

7.6. Data completeness evaluation

Completeness is a quality assurance/quality control term and is defined as the measure of the amount of valid data obtained from a measurement system compared to the amount that was expected to be obtained under normal conditions.

The goals for this project shall be 90% completeness. Completeness is assessed or calculated with respect to the following equation:

C = 100 x (V/N)

where: C = percent completeness

V = number of measurements judged valid

N = total number of measurements.

- **Sample Collection**: Eight (8) primary soil samples and two (2) QA/QC samples were collected. All samples were delivered to the laboratory (with the exception of the inter-laboratory sample, which broke in transit) using appropriate Chain of Custody procedures
- **Sample Analysis**: All primary and QA/QC samples were successfully analysed (with the exception of the inter-laboratory sample, which broke in transit) and results received from ALS (Sydney)
- **Duplicate/Triplicate/Primary Sample Assessment**: One (1) duplicate and one (1) triplicate sample was collected. The intra-laboratory sample was delivered to the laboratory using appropriate Chain of Custody procedures. The inter-laboratory sample broke during transit and was unable to be analysed. Results for the intra-laboratory field duplicate were compliant with the acceptance criteria, refer to Appendix G.

With respect to the above comments, all the valid data expected to be obtained, was able to be used to assess the 'completeness of data'.

In summary, data completeness was 90% and it was concluded that data generated for the report is of an acceptable quality to achieve the objectives of the report.

8. Site investigation

8.1. Site walkover

An NGH Environmental Consultant completed a site walkover on 1 July 2025.

The site walkover included a targeted inspection of the Development site, as well as general observations of the adjacent surroundings. No attempt was made to access adjoining properties.

Observations made during the site walkover included the following:

- The Development site is relatively flat and generally well vegetated. The topography of the site gently slopes downwards into a historic gravel pit, to the east of the Development site. A notable change in soil composition and texture was noted in proximity to this location (TP04), refer to Appendix D
- Two access points were observed: one servicing the substation and the other the Development site. Unformalised gravel access roads service both access points
- Two stag trees were observed. One of the stag trees was surrounded by coarse woody debris
- Transmission lines intersect the site (in an east – west direction) before connecting to the adjacent substation
- Decommissioned power poles were observed within the Development site
- Scrap metal was observed within proximity to the transmission lines
- Active construction activities were observed within the Deniliquin substation
- Drainage channels and culverts were observed within the road corridor
- No notable signs of contamination (odour, soil staining, etc) were noted
- No Asbestos Containing Material (ACM) was observed.

Refer to Appendix H for site photos and Figure 8-1 for the location of onsite observations.

8.2. Soil sampling program

A NGH Environmental Consultant and a local bobcat operator attended the site on 1 July 2025.

Soil sampling involved the excavation and sampling of four (4) test pits to a maximum depth of 0.5 mbgl.

No evidence of potential surface soil contamination (e.g. staining or odours) was observed during the site walkover. Therefore, test pit locations were selected on a judgemental basis, to target the substation, decommissioned power poles, the historic gravel pit and cropped areas.

NGH engaged a local bobcat operator to undertake the intrusive investigation (under the direction of a NGH Environmental Consultant). Surface samples were taken immediately below any vegetation or detritus layers. Subsurface soil samples were taken at 0.5 mbgl. Additional samples were collected if:

- There was a change in soil profile
- Fill was encountered
- Staining / odours were observed.

Refer to Figure 5-1 for soil sampling locations.

8.3. Laboratory analysis program

Soil samples were sent to ALS Environmental (Sydney) for the following analyses, refer to Table 8-1.

Table 8-1 Laboratory analysis program

Test pit ID	Heavy metals	OCPs/OPPS	BTEXN	TRHs	PAHs	PCBs	Phenols
TP01 – surface (0.0 – 0.1 m)	X	X	X	X	X	X	X
TP01 – subsurface (0.5 m)	X	X	X	X	X	X	X
TP02 – surface (0.0 – 0.1 m)	X	X					
TP02 – subsurface (0.5 m)	X	X					
TP03 – surface (0.0 – 0.1 m)	X	X					
TP03 – subsurface (0.5 m)	X	X					
TP04 – surface (0.0 – 0.1 m)	X	X					
TP04 – subsurface (0.5 m)	X	X					
DUP01	X						

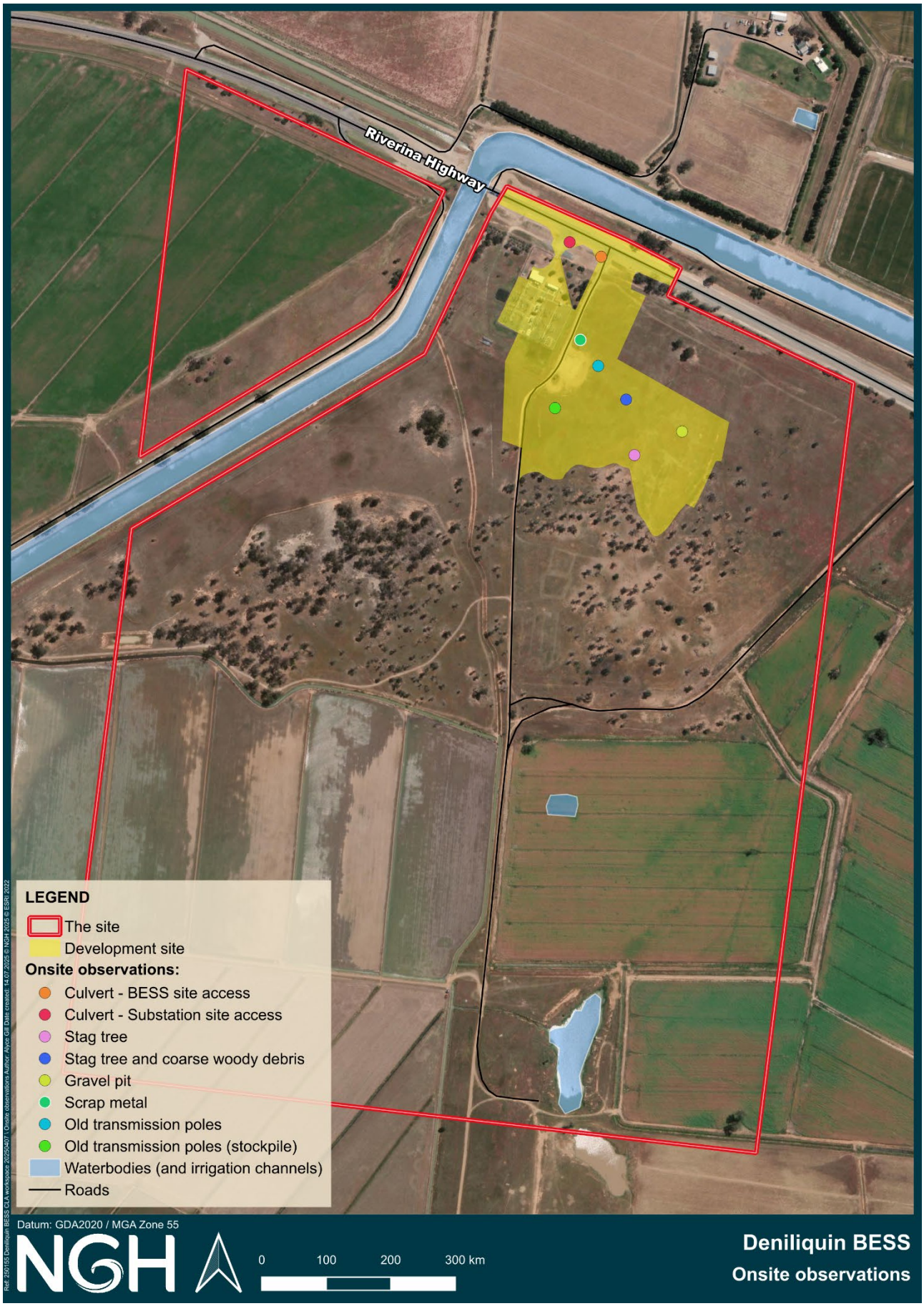

Figure 8-1 Onsite observations

9. Soil investigation results

9.1. Field observations

The following observations were recorded during the intrusive investigation:

- Four (4) test pits were advanced to 0.5 mbgl using an excavator
- Borehole lithologies were generally observed to consist of dark brown sandy clay (0.0 – 0.1 m) over light brown / brown clay (0.5 m)
- Black and orange mottling was observed within all samples taken at depth (0.5 m)
- Ground coverings, including soil and grass, were observed
- No anthropogenic materials, such as waste, nails or rubble, was observed
- No asbestos containing material (ACM) was observed at the test pit locations
- Groundwater was not encountered during the investigation.

Refer to Appendix D for soil logs and Appendix H for photos taken during the sampling program.

9.2. Soil analysis results

Laboratory documentation is provided in Appendix E. Detailed analysis results with comparison against Tier 1 SSLs are provided in Appendix F.

9.2.1. Analysis program

A total of eight (8) primary soil samples and 2 QA/QC soil samples were submitted to ALS Environmental (Sydney), a NATA accredited laboratory, for analysis of the CoPCs, refer to Table 8-1.

Laboratory results are provided in Appendix E. A chemical summary table is provided in Appendix F.

9.2.2. Comparison against HILs/HSLs (protection of human health)

The soil analysis results can be summarised as follows:

- BTEXN concentrations were below the LOR in all analysed samples
- PAH concentrations were below the LOR in all analysed samples
- PCB concentrations were below the LOR in all analysed samples
- Phenol concentrations were below the LOR in all analysed samples
- OCP concentrations were below the LOR in all analysed samples
- OPP concentrations were below the LOR in all analysed samples
- TRH concentrations were below the LOR in all analysed samples
- Metal concentrations exceeded the LOR but less than the HIL D Tier 1 SSLs, as further discussed below.

Metals in soil samples

As shown in Table 9-1, metal concentrations were above the LOR but less than the HIL D Tier 1 SSLs.

Table 9-1 Summary of metal concentrations (mg/kg) in primary soil samples

Analyte	No. Results	LOR (mg)	No results < LOR	No. results > LOR	Minimum result > LOR (mg/kg)	Maximum result > LOR (mg/kg)	HIL D criteria (mg/kg)
Arsenic	8	5	4	4	6	9	3,000
Cadmium	8	1	8	0	N/A	N/A	900
Chromium	8	2	0	8	12	27	3,600
Copper	8	5	0	8	7	19	240,000
Lead	8	5	0	8	7	18	1,500
Mercury	8	0.1	8	0	N/A	N/A	730
Nickel	8	2	0	8	6	18	6,000
Zinc	8	5	0	8	15	36	400,000

10. Revised conceptual site model

A revised tabulated CSM based on the findings of the PSI has been developed. The revised CSM has been prepared to provide an understanding of the contamination risk to the site and discuss the linkages between the mechanisms for the identified contamination, affected media, receptors and exposure pathways as outlined below.

Table 10-1 Revised CSM

Potential Source of Contamination	Potential Chemicals of Concern	Transport Mechanisms	Potential Exposure Pathways	Potential Receptors	Risk rating	Summary comments
AEC1 Agricultural practices (cropping)	• Heavy metals • OCPs • OPPs	• Disturbance – airborne release • Surface water runoff • Leachability into surficial, sub soils and underlying groundwater and transport via groundwater flows	• Inhalation of dust • Ingestion • Dermal contact	**Human receptors:** Construction workers and intrusive maintenance workers Farm workers	**LOW RISK**	Minor detections above the laboratory LOR for heavy metals. Results for all other CoPCs (refer to Table 8-1) were below the LOR. No anthropogenic materials were noted.
			• Inhalation of dust • Dermal contact	**Off-site human receptors:** Adjacent land users	**LOW RISK**	
			• Inhalation of dust • Ingestion • Dermal contact	**Environmentally sensitive receptors:** No natural waterways occur within the site; however, irrigation channels occur within and adjacent	**LOW RISK**	

Potential Source of Contamination	Potential Chemicals of Concern	Transport Mechanisms	Potential Exposure Pathways	Potential Receptors	Risk rating	Summary comments
				to the site. No farm dams occur within the site.		
AEC2 Electrical substation	• Heavy metals • OCPs • OPPs • BTEXN • TRHs • PCBs • PAHs • Phenols	• Disturbance – airborne release • Surface water runoff • Leachability into surficial, sub soils and underlying groundwater and transport via groundwater flows	• Inhalation of dust • Ingestion • Dermal contact	**Human receptors:** Construction workers and intrusive maintenance workers	**LOW RISK**	Minor detections above the laboratory LOR for heavy metals. Results for all other CoPCs (refer to Table 8-1) were below the LOR. No anthropogenic materials were noted.
			• Inhalation of dust • Dermal contact	**Off-site human receptors:** Adjacent land users	**LOW RISK**	
			• Inhalation of dust • Ingestion • Dermal contact	**Environmentally sensitive receptors:** No natural waterways occur within the site; however, irrigation channels occur within and adjacent to the site. No farm dams occur within the site.	**LOW RISK**	

11. Discussion

The results of the PSI indicate that the site is situated on sodosols. Soils occurring within the site are associated with the red-brown earths GSG and are typical of the area. The topography of the site is generally flat, occurring at an elevation of approximately 94 m AHD.

No natural waterways occur within the site; however, irrigation channels occur within and adjacent to the site. No farm dams occur within the site. Surface water runoff is guided by existing land contouring, roads and landscape micro-relief.

A search of the Contaminated Land Record returned no records within the site. The Contaminated Land Record of Notices did not return any notices within the site, nor is the land known to contain a former gasworks development. The site is currently used for the purposes of electrical infrastructure, irrigated cropping, residential and farm infrastructure and transport.

CoPCs associated with cropping activities include heavy metals, OCPs and OPPs, while COPCs associated with substations include heavy metals, BTEXN, TRHs, PCBs, PAHs and phenols. No records of Naturally Occurring Asbestos (NOA) occur within 1 km of the site, nor is the site mapped as containing saline soils.

Analytical results for the soil sampling program were below the LOR for all analytes, except for some metals/metalloids and nutrients. All results were below the adopted Tier 1 SSLs.

11.1. Data gaps

Based on the findings of this PSI, the following data gaps have been identified:

- **Contaminants of Potential Concern** - The CoPC were limited to the chemicals associated with agricultural activities and the substation. Should it become known that other CoPC may have been present on the site, further testing may be required
- **Groundwater** – Groundwater sampling was not undertaken due to the likely depth to groundwater (>20m) and low potential for runoff infiltration. Groundwater was not encountered during the investigation
- **Vertical extent of contamination –** this sampling program was conducted to a maximum depth of 0.5 mbgl. Additional testing will be required, should additional works (below 0.5 mbgl) be required.

Additional limitations regarding this PSI have been discussed in Section 14 of this PSI.

12. Conclusion

NGH were engaged by the Applicant to undertake a PSI to support the development of a BESS on part of Lot 1 DP 536901, Lot 2 DP 536901 and the Riverina Highway road easement, also known as 21541 Riverina Highway, Deniliquin, NSW. The purpose of this PSI was to summarise the history of the site, provide up to date site information, a CSM and recommendations for further investigation, if required.

The soil investigation and analytical testing undertaken concludes that all soil sample analysis results were below the adopted site assessment criteria. This analysis indicates that disturbance of site soils during construction activities are not likely to present a risk to human health or the environment under a commercial / industrial land use.

12.1. Recommendations

An Unexpected Finds Procedure should be developed and implemented, should contaminated material be identified onsite during the construction program.

13. References

Biosis. (2025). *Deniliquin BESS - Biodiversity Development Assessment Report.*

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NEPC. (2013a). *Schedule B1 - Guideline on Investigation Levels for Soil and Groundwater of the National Environment Protection (Assessment of Site Contamination) Measure.* National Environment Protection Council.

NEPC. (2013b). *Schedule B2 - Guideline on Data Collection, Sample Design and Reporting of the National Environment Protection (Assessment of Site Contamination) Measure .* National Environment Protection Council.

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NSW EPA. (2022). *Contaminated Land Guidelines. Sampling Design Part 1 - Application.* Parramatta: NSW Environment Protection Authority.

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US EPA. (2006). *Guidance on Systematic Planning Using the Data Quality Objectives Process (EPA QA/G-4: EPA/240/B-06/001).* United States Environment Protection Authority.

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14. Limitations

NGH Pty Ltd (NGH) has prepared this report for AE BESS 4 Pty Ltd as Trustee for AE BESS 4 Unit Trust in accordance with the usual care and thoroughness of the consulting profession. This report is based on current practices and professional standards at the time of the preparation of this report. Opinions and judgements herein, based on our understanding and interpretation of existing regulatory standards, should not be construed as legal opinions. This report may not be relied upon by any other party without the explicit written agreement of NGH. No other warranty, expressed or implied, is made regarding the professional advice included in this report.

The scope of work undertaken, and sources of information used by NGH in this report were limited to that detailed in this report. NGH has made no independent verification of this information beyond the agreed scope of works. NGH assumes no responsibility for any inaccuracies or omissions in the provided information.

This report was prepared between the period of February and July 2025 and is based on the conditions encountered and information reviewed during preparation. NGH disclaims responsibility for any changes that may have occurred after this time. We do not assume any liability for misinterpretation or items not visible, accessible or present at the site during the time of works.

This report should be read in full. No responsibility is accepted for using any part of this report in any other context, for any other purpose, or by third parties. This report does not purport to give legal advice. Legal advice can only be given by qualified legal practitioners.

This report may contain information obtained by interview(s), documentation review, inspection, sampling, testing or other means of investigation. Our conclusions are based on professional experience. Future advances regarding the understanding of chemicals and their behaviour, and changes in regulations affecting their management, could impact our conclusions and recommendations regarding their potential presence on this site. Given that the agreed scope of work performed was limited and governed by budgetary constraints, NGH does not guarantee that hazardous substances, other than those identified in this report, do not exist at the site. Certain conditions that could cause contamination of the land may not have been identified such as naturally occurring toxins in groundwater and flora, contamination from domestic products or building materials, or contamination that has occurred after the site investigations/ monitoring by NGH.

There are no investigative or remedial works that are thorough enough to preclude the presence of material, which, presently or in the future, may be considered hazardous at the site. As regulatory evaluation criteria are constantly changing, concentrations of contaminants presently regarded as low may, in the future, fall under different regulatory standards that require further investigations or remediation.

Where conditions encountered at the site are subsequently found to differ significantly from those anticipated in this report, NGH must be notified of any such findings and be provided with an opportunity to review the recommendations of this report.

To the best of our knowledge, information contained in this report is accurate at the date of issue, but subsurface conditions, including groundwater levels, can change in a limited time. Therefore, this document and the information contained herein should only be regarded as valid at the time of the investigation unless otherwise explicitly stated in this report.

Appendix A Lotsearch

LOTSEARCH

LOTSEARCH ENVIRO PROFESSIONAL

Date: 03 Apr 2025 14:05:55

Reference: LS078039 EP

Address: 21541 Riverina Highway, Deniliquin, NSW 2710

Dataset Listing

Datasets contained within this report, detailing their source and data currency:

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features On-site	No. Features within 100m	No. Features within Buffer
Cadastre Boundaries	NSW Department of Customer Service - Spatial Services	07/03/2025	07/03/2025	Monthly	-	-	-	-
Topographic Data	NSW Department of Customer Service - Spatial Services	21/05/2024	21/05/2024	Annually	-	-	-	-
List of NSW contaminated sites notified to EPA	Environment Protection Authority NSW	07/03/2025	11/12/2024	Monthly	1000m	0	0	0
Contaminated Land Records of Notice	Environment Protection Authority NSW	07/03/2025	07/03/2025	Monthly	1000m	0	0	0
Former Gasworks	Environment Protection Authority NSW	21/02/2025	14/07/2021	Quarterly	1000m	0	0	0
Notices under the POEO Act 1997	Environment Protection Authority NSW	26/03/2025	26/03/2025	Monthly	1000m	0	0	0
National Waste Management Facilities Database	Geoscience Australia	29/04/2024	29/11/2022	Annually	1000m	0	0	0
National Liquid Fuel Facilities	Geoscience Australia	16/10/2024	19/01/2023	Annually	1000m	0	0	0
EPA PFAS Investigation Program	Environment Protection Authority NSW	26/03/2025	05/02/2025	Monthly	2000m	0	0	0
Defence PFAS Investigation & Management Program - Investigation Sites	Australian Department of Defence	05/03/2025	28/10/2024	Monthly	2000m	0	0	0
Defence PFAS Investigation & Management Program - Management Sites	Australian Department of Defence	05/03/2025	28/10/2024	Monthly	2000m	0	0	0
Airservices Australia National PFAS Management Program	Airservices Australia	05/03/2025	05/03/2025	Monthly	2000m	0	0	0
Defence Controlled Areas	Australian Department of Defence	23/01/2025	23/01/2025	Quarterly	2000m	0	0	0
Defence 3 Year Regional Contamination Investigation Program	Australian Department of Defence	18/02/2025	02/09/2022	Quarterly	2000m	0	0	0
National Unexploded Ordnance (UXO)	Australian Department of Defence	23/01/2025	23/01/2025	Quarterly	2000m	0	0	0
EPA Other Sites with Contamination Issues	Environment Protection Authority NSW	28/11/2024	15/12/2022	Annually	1000m	0	0	0
Licensed Activities under the POEO Act 1997	Environment Protection Authority NSW	13/03/2025	13/03/2025	Monthly	1000m	1	1	1
Delicensed POEO Activities still regulated by the EPA	Environment Protection Authority NSW	13/03/2025	13/03/2025	Monthly	1000m	0	0	0
Former POEO Licensed Activities now revoked or surrendered	Environment Protection Authority NSW	13/03/2025	13/03/2025	Monthly	1000m	0	3	3
UBD Business Directories (Premise & Intersection Matches)	Hardie Grant			Not required	150m	0	0	0
UBD Business Directories (Road & Area Matches)	Hardie Grant			Not required	150m	-	0	0
UBD Business Directory Dry Cleaners & Motor Garages/Service Stations (Premise & Intersection Matches)	Hardie Grant			Not required	500m	0	0	0
UBD Business Directory Dry Cleaners & Motor Garages/Service Stations (Road & Area Matches)	Hardie Grant			Not required	500m	-	0	0
Points of Interest	NSW Department of Customer Service - Spatial Services	18/02/2025	18/02/2025	Quarterly	1000m	0	0	3
Tanks (Areas)	NSW Department of Customer Service - Spatial Services	18/02/2025	18/02/2025	Quarterly	1000m	0	0	0
Tanks (Points)	NSW Department of Customer Service - Spatial Services	18/02/2025	18/02/2025	Quarterly	1000m	0	0	0
Major Easements	NSW Department of Customer Service - Spatial Services	21/02/2025	21/02/2025	Quarterly	1000m	4	6	7
State Forest	Forestry Corporation of NSW	18/12/2024	11/11/2024	Annually	1000m	0	0	0
Hydrogeology Map of Australia	Geoscience Australia	17/04/2024	19/08/2019	Annually	1000m	1	1	1

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features On-site	No. Features within 100m	No. Features within Buffer
Temporary Water Restriction (Botany Sands Groundwater Source) Order 2024	NSW Department of Climate Change, Energy, the Environment and Water	12/02/2025	28/06/2024	Quarterly	1000m	0	0	0
National Groundwater Information System (NGIS) Boreholes	Bureau of Meteorology; Water NSW	28/05/2024	20/06/2023	Annually	2000m	1	1	15
NSW Seamless Geology Single Layer: Rock Units	NSW Department of Primary Industries and Regional Development	17/05/2024	01/05/2024	Annually	1000m	1	1	2
NSW Seamless Geology Single Layer: Geological Boundaries and Faults	NSW Department of Primary Industries and Regional Development	17/05/2024	01/05/2024	Annually	1000m	0	0	0
NSW Seamless Geology Single Layer: Trendlines	NSW Department of Primary Industries and Regional Development	17/05/2024	01/05/2024	Annually	1000m	0	0	0
NSW Seamless Geology Single Layer: Fold Axes	NSW Department of Primary Industries and Regional Development	17/05/2024	01/05/2024	Annually	1000m	0	0	0
Naturally Occurring Asbestos Potential	NSW Department of Primary Industries and Regional Development	26/04/2024	14/03/2024	Annually	1000m	0	0	0
Atlas of Australian Soils	Australian Bureau of Agriculture and Resource Economics and Sciences (ABARES)	15/01/2025	17/02/2011	Annually	1000m	1	1	1
Environmental Planning Instrument Acid Sulfate Soils	NSW Department of Planning, Housing and Infrastructure	10/03/2025	14/02/2025	Monthly	500m	0	-	-
Atlas of Australian Acid Sulfate Soils	CSIRO	15/01/2025	21/02/2013	Annually	1000m	1	1	1
Dryland Salinity - National Assessment	Australian Bureau of Agricultural and Resource Economics and Sciences	03/06/2024	24/05/2024	Annually	1000m	0	0	1
Mining Subsidence Districts	NSW Department of Customer Service	21/02/2025	21/02/2025	Quarterly	1000m	0	0	0
Current Mining Titles	NSW Department of Primary Industries and Regional Development	03/04/2025	03/04/2025	Monthly	1000m	0	0	0
Mining Title Applications	NSW Department of Primary Industries and Regional Development	03/04/2025	03/04/2025	Monthly	1000m	0	0	0
Historic Mining Titles	NSW Department of Primary Industries and Regional Development	03/04/2025	03/04/2025	Monthly	1000m	6	6	6
Environmental Planning Instrument SEPP State Significant Precincts	NSW Department of Planning, Housing and Infrastructure	10/03/2025	08/09/2023	Monthly	1000m	0	0	0
Environmental Planning Instrument Land Zoning	NSW Department of Planning, Housing and Infrastructure	10/03/2025	21/02/2025	Monthly	1000m	1	3	6
Commonwealth Heritage List	Australian Department of Climate Change, Energy, the Environment and Water	23/10/2024	13/04/2022	Annually	1000m	0	0	0
National Heritage List	Australian Department of Climate Change, Energy, the Environment and Water	23/10/2024	13/04/2022	Annually	1000m	0	0	0
State Heritage Register - Curtilages	NSW Department of Planning, Industry and Environment	21/02/2025	17/12/2024	Quarterly	1000m	0	0	0
Environmental Planning Instrument Local Heritage	NSW Department of Planning, Housing and Infrastructure	10/03/2025	21/02/2025	Monthly	1000m	0	0	0
Bush Fire Prone Land	NSW Rural Fire Service	20/03/2025	10/01/2025	Monthly	1000m	1	2	2
NSW Native Vegetation Type Map	NSW Department of Climate Change, Energy, the Environment and Water	26/02/2025	08/11/2024	Quarterly	1000m	20	28	106
Ramsar Wetlands of Australia	Australian Department of Climate Change, Energy, the Environment and Water	16/05/2024	11/04/2024	Annually	1000m	0	0	0
Collaborative Australian Protected Areas Database (CAPAD) 2022 - Terrestrial	Australian Department of Climate Change, Energy, The Environment and Water	20/03/2025	19/06/2024	Annually	1000m	0	0	0
Collaborative Australian Protected Areas Database (CAPAD) 2022 - Marine	Australian Department of Climate Change, Energy, The Environment and Water	20/03/2025	30/06/2022	Annually	1000m	0	0	0
Groundwater Dependent Ecosystems	Bureau of Meteorology	28/05/2024	28/05/2024	Annually	1000m	1	1	2

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features On-site	No. Features within 100m	No. Features within Buffer
Inflow Dependent Ecosystems Likelihood	Bureau of Meteorology	28/05/2024	28/05/2024	Annually	1000m	4	6	8
NSW BioNet Species Sightings	NSW Department of Climate Change, Energy, the Environment and Water	28/03/2025	28/03/2025	Monthly	10000m	-	-	-

Site Diagram

21541 Riverina Highway, Deniliquin, NSW 2710

Legend

- Site Boundary
- Internal Parcel Boundaries

Total Area: 1.42km²

Total Perimeter: 6.26km

Disclaimers:

Measurements are approximate only and may have been simplified or smaller lengths removed for readability.

Parcels that make up a small percentage of the total site area have not been labelled for increased legibility.

Scale:

0 25 50 100 150 200 250
Meters

Data Sources: Property Boundaries & Topographic Data: © Department Finance, Services & Innovation 2025

Coordinate System: GDA 1994 MGA Zone 56

Date: 03 April 2025

Contaminated Land

21541 Riverina Highway, Deniliquin, NSW 2710

List of NSW contaminated sites notified to EPA

Records from the NSW EPA Contaminated Land list within the dataset buffer:

Map Id	Site	Address	Suburb	Activity	Management Class	Status	Location Confidence	Dist	Direction
N/A	No records in buffer								

The values within the EPA site management class in the table above, are given more detailed explanations in the table below:

EPA site management class	Explanation
Contamination being managed via the planning process (EP&A Act)	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation. The contamination of this site is managed by the consent authority under the Environmental Planning and Assessment Act 1979 (EP&A Act) planning approval process, with EPA involvement as necessary to ensure significant contamination is adequately addressed. The consent authority is typically a local council or the Department of Planning and Environment.
Contamination currently regulated under CLM Act	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation under the Contaminated Land Management Act 1997 (CLM Act). Management of the contamination is regulated by the EPA under the CLM Act. Regulatory notices are available on the EPA's Contaminated Land Public Record of Notices.
Contamination currently regulated under POEO Act	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation. Management of the contamination is regulated under the Protection of the Environment Operations Act 1997 (POEO Act). The EPA's regulatory actions under the POEO Act are available on the POEO public register.
Contamination formerly regulated under the CLM Act	The EPA has determined that the contamination is no longer significant enough to warrant regulation under the Contaminated Land Management Act 1997 (CLM Act). The contamination was addressed under the CLM Act.
Contamination formerly regulated under the POEO Act	The EPA has determined that the contamination is no longer significant enough to warrant regulation. The contamination was addressed under the Protection of the Environment Operations Act 1997 (POEO Act).
Contamination was addressed via the planning process (EP&A Act)	The EPA has determined that the contamination is no longer significant enough to warrant regulation. The contamination was addressed by the appropriate consent authority via the planning process under the Environmental Planning and Assessment Act 1979 (EP&A Act).
Ongoing maintenance required to manage residual contamination (CLM Act)	The EPA has determined that ongoing maintenance, under the Contaminated Land Management Act 1997 (CLM Act), is required to manage the residual contamination. Regulatory notices under the CLM Act are available on the EPA's Contaminated Land Public Record of Notices.
Regulation being finalised	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation under the Contaminated Land Management Act 1997. A regulatory approach is being finalised.
Regulation under the CLM Act not required	The EPA has completed an assessment of the contamination and decided that regulation under the Contaminated Land Management Act 1997 is not required.
Under assessment	The contamination is being assessed by the EPA to determine whether regulation is required. The EPA may require further information to complete the assessment. For example, the completion of management actions regulated under the planning process or Protection of the Environment Operations Act 1997. Alternatively, the EPA may require information via a notice issued under s77 of the Contaminated Land Management Act 1997 or issue a Preliminary Investigation Order.

NSW EPA Contaminated Land List Data Source: Environment Protection Authority

Contaminated Land

21541 Riverina Highway, Deniliquin, NSW 2710

Contaminated Land: Records of Notice

Record of Notices within the dataset buffer:

Map Id	Name	Address	Suburb	Notices	Area No	Location Confidence	Distance	Direction
N/A	No records in buffer							

Contaminated Land Records of Notice Data Source: Environment Protection Authority

Terms of use and disclaimer for Contaminated Land: Record of Notices, please visit http://www.epa.nsw.gov.au/clm/clmdisclaimer.htm

Former Gasworks

Former Gasworks within the dataset buffer:

Map Id	Location	Council	Further Info	Location Confidence	Distance	Direction
N/A	No records in buffer					

Former Gasworks Data Source: Environment Protection Authority

Contaminated Land

21541 Riverina Highway, Deniliquin, NSW 2710

EPA Notices

Penalty Notices, s.91 & s.92 Clean up Notices and s.96 Prevention Notices within the dataset buffer:

Map ID	Number	Type	Name	Address	Status	Issued Date	Act	Offence	Offence Date	Loc Conf	Dist	Dir
N/A	No records in buffer											

NSW EPA Notice Data Source: Environment Protection Authority

Waste Management & Liquid Fuel Facilities

21541 Riverina Highway, Deniliquin, NSW 2710

National Waste Management Facilities Database

Sites on the National Waste Management Facilities Database within the dataset buffer:

Map ID	Owner	Name	Address	Management Type	Facility Type	Status	Loc Conf	Dist	Dir
N/A	No records in buffer								

Source: Waste Management Facilities Database

National Liquid Fuel Facilities

National Liquid Fuel Facilties within the dataset buffer:

Map Id	Owner	Name	Address	Suburb	Class	Operational Status	Operator	Revision Date	Loc Conf	Dist	Direction
N/A	No records in buffer										

National Liquid Fuel Facilities Data Source: Geoscience Australia

PFAS Investigation & Management Programs

21541 Riverina Highway, Deniliquin, NSW 2710

EPA PFAS Investigation Program

Sites that are part of the EPA PFAS investigation program, within the dataset buffer:

Map ID	Site	Address	Loc Conf	Dist	Dir
N/A	No records in buffer				

EPA PFAS Investigation Program: Environment Protection Authority

Defence PFAS Investigation Program

Sites being investigated by the Department of Defence for PFAS contamination within the dataset buffer:

Map ID	Base Name	Address	Loc Conf	Dist	Dir
N/A	No records in buffer				

Defence PFAS Investigation Program Data Custodian: Department of Defence, Australian Government

Defence PFAS Management Program

Sites being managed by the Department of Defence for PFAS contamination within the dataset buffer:

Map ID	Base Name	Address	Loc Conf	Dist	Dir
N/A	No records in buffer				

Defence PFAS Management Program Data Custodian: Department of Defence, Australian Government

Airservices Australia National PFAS Management Program

Sites being investigated or managed by Airservices Australia for PFAS contamination within the dataset buffer:

Map ID	Site Name	Impacts	Loc Conf	Dist	Dir
N/A	No records in buffer				

Airservices Australia National PFAS Management Program Data Custodian: Airservices Australia

Defence Sites and Unexploded Ordnance

21541 Riverina Highway, Deniliquin, NSW 2710

Defence Controlled Areas (DCA)

Defence Controlled Areas provided by the Department of Defence within the dataset buffer:

Site ID	Location Name	Loc Conf	Dist	Dir
N/A	No records in buffer			

Defence Controlled Areas, Data Custodian: Department of Defence, Australian Government

Defence 3 Year Regional Contamination Investigation Program (RCIP)

Sites which have been assessed as part of the Defence 3 Year Regional Contamination Investigation Program within the dataset buffer:

Property ID	Base Name	Address	Known Contamination	Loc Conf	Dist	Dir
N/A	No records in buffer					

Defence 3 Year Regional Contamination Investigation Program, Data Custodian: Department of Defence, Australian Government

National Unexploded Ordnance (UXO)

Sites which have been assessed by the Department of Defence for the potential presence of unexploded ordnance within the dataset buffer:

Site ID	Location Name	Category	Area Description	Additional Information	Commonwealth	Loc Conf	Dist	Dir
N/A	No records in buffer							

National Unexploded Ordnance (UXO), Data Custodian: Department of Defence, Australian Government

EPA Other Sites with Contamination Issues

21541 Riverina Highway, Deniliquin, NSW 2710

EPA Other Sites with Contamination Issues

This dataset contains other sites identified on the EPA website as having contamination issues. This dataset currently includes:

- James Hardie asbestos manufacturing and waste disposal sites
- Radiological investigation sites in Hunter's Hill
- Pasminco Lead Abatement Strategy Area

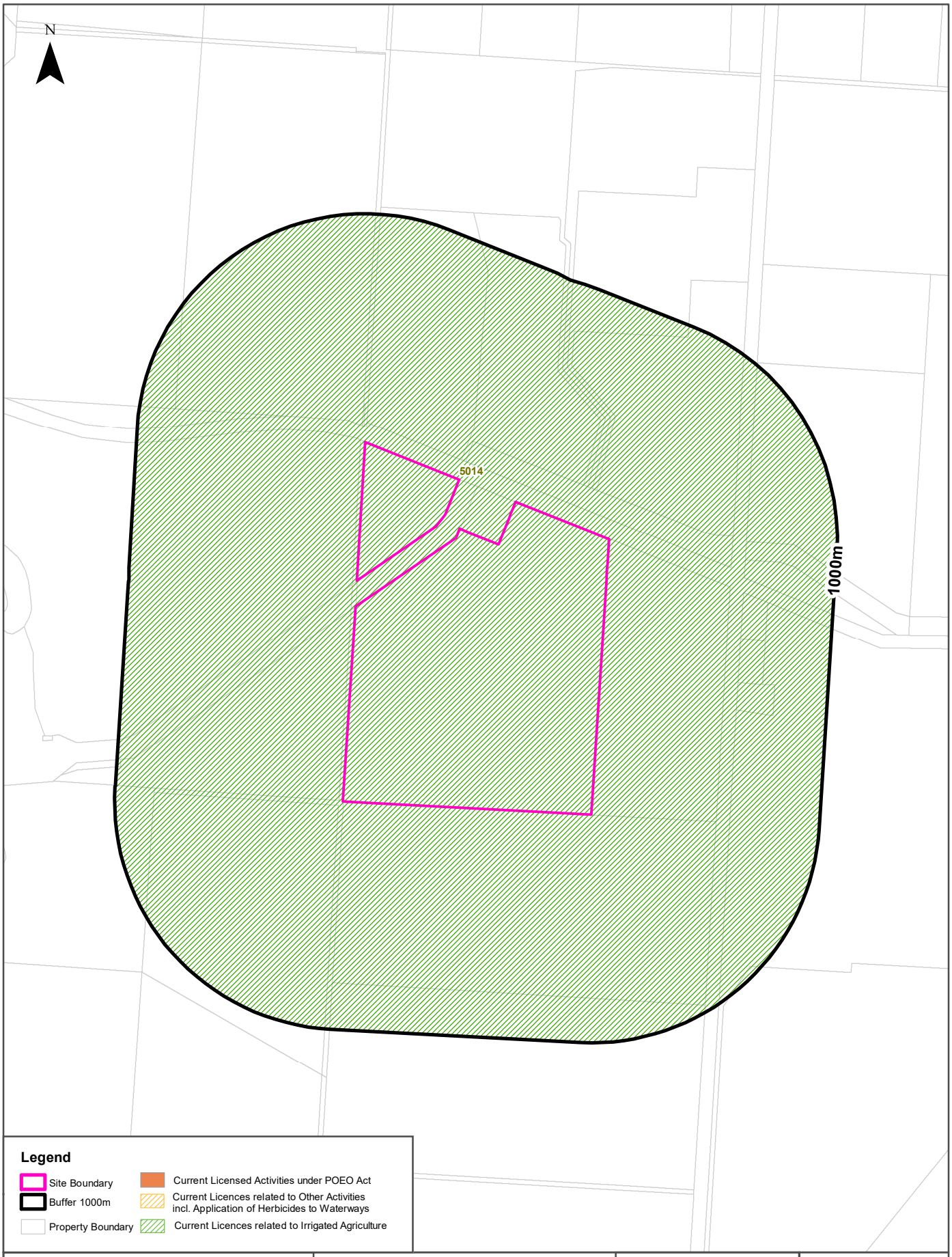
Sites within the dataset buffer:

Site Id	Site Name	Site Address	Dataset	Comments	Location Confidence	Distance	Direction
N/A	No records in buffer						

EPA Other Sites with Contamination Issues: Environment Protection Authority

Current EPA Licensed Activities

21541 Riverina Highway, Deniliquin, NSW 2710



EPA Activities

21541 Riverina Highway, Deniliquin, NSW 2710

Licensed Activities under the POEO Act 1997

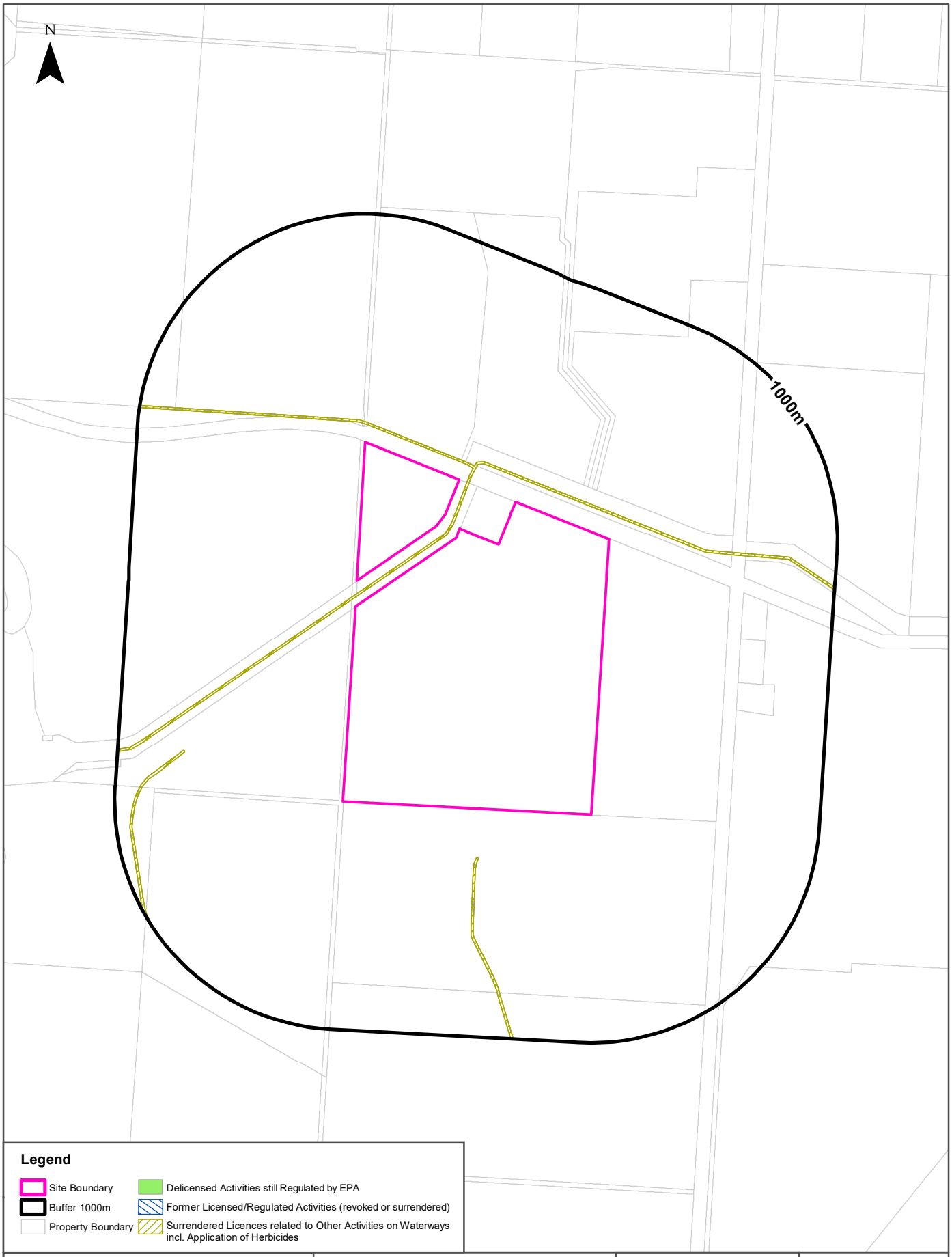
Licensed activities under the Protection of the Environment Operations Act 1997, within the dataset buffer:

EPL	Organisation	Name	Address	Suburb	Activity	Loc Conf	Distance	Direction
5014	MURRAY IRRIGATION LIMITED	MURRAY IRRIGATION AREA OF OPERATIONS WITHIN SHIRES OF	Berrigan, Murrumbidgee, Murray River, Edward River, Federation, DENILIQUIN, NSW 2710	DENILIQUIN	Irrigated agriculture	Area Match	0m	On-site

POEO Licence Data Source: Environment Protection Authority

Delicensed & Former Licensed EPA Activities

21541 Riverina Highway, Deniliquin, NSW 2710



EPA Activities

21541 Riverina Highway, Deniliquin, NSW 2710

Delicensed Activities still regulated by the EPA

Delicensed activities still regulated by the EPA, within the dataset buffer:

Licence No	Organisation	Name	Address	Suburb	Activity	Loc Conf	Distance	Direction
N/A	No records in buffer							

Delicensed Activities Data Source: Environment Protection Authority

Former Licensed Activities under the POEO Act 1997, now revoked or surrendered

Former Licensed activities under the Protection of the Environment Operations Act 1997, now revoked or surrendered, within the dataset buffer:

Licence No	Organisation	Location	Status	Issued Date	Activity	Loc Conf	Distance	Direction
4653	LUHRMANN ENVIRONMENT MANAGEMENT PTY LTD	WATERWAYS THROUGHOUT NSW	Surrendered	06/09/2000	Other Activities / Non Scheduled Activity - Application of Herbicides	Network of Features	33m	North West
4838	Robert Orchard	Various Waterways throughout New South Wales - SYDNEY NSW 2000	Surrendered	07/09/2000	Other Activities / Non Scheduled Activity - Application of Herbicides	Network of Features	33m	North West
6630	SYDNEY WEED & PEST MANAGEMENT PTY LTD	WATERWAYS THROUGHOUT NSW - PROSPECT, NSW, 2148	Surrendered	09/11/2000	Other Activities / Non Scheduled Activity - Application of Herbicides	Network of Features	33m	North West

Former Licensed Activities Data Source: Environment Protection Authority

Historical Business Directories

21541 Riverina Highway, Deniliquin, NSW 2710

Business Directory Records 1950-1991
Premise or Road Intersection Matches

Potentially contaminative business activities extracted from Universal Business Directories from years 1991, 1970, 1961 & 1950, mapped to a premise or road intersection within the dataset buffer:

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
N/A	No records in buffer						

Business Directory Records 1950-1991
Road or Area Matches

Potentially contaminative business activities extracted from Universal Business Directories from years 1991, 1970, 1961 & 1950, mapped to a road or an area, within the dataset buffer. Records are mapped to the road when a building number is not supplied, cannot be found, or the road has been renumbered since the directory was published:

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area
N/A	No records in buffer					

Historical Business Directories

21541 Riverina Highway, Deniliquin, NSW 2710

Dry Cleaners, Motor Garages & Service Stations Premise or Road Intersection Matches

Dry Cleaners, Motor Garages & Service Stations from UBD Business Directories, mapped to a premise or road intersection, within the dataset buffer.

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
N/A	No records in buffer						

Dry Cleaners, Motor Garages & Service Stations Road or Area Matches

Dry Cleaners, Motor Garages & Service Stations from UBD Business Directories, mapped to a road or an area, within the dataset buffer. Records are mapped to the road when a building number is not supplied, cannot be found, or the road has been renumbered since the directory was published.

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area
N/A	No records in buffer					

Aerial Imagery 2024

21541 Riverina Highway, Deniliquin, NSW 2710

Scale:
0 100 200 300 400
Meters

Data Source Aerial Imagery: © 2025 Google Inc, used with permission. Google and the Google logo are registered trademarks of Google Inc.

Coordinate System:
GDA 1994 MGA Zone 56

Date: 02 April 2025

Aerial Imagery 2013

21541 Riverina Highway, Deniliquin, NSW 2710

Scale: 0 100 200 300 400 Meters	Data Source Aerial Imagery: © 2025 Google Inc, used with permission. Google and the Google logo are registered trademarks of Google Inc.	Coordinate System: GDA 1994 MGA Zone 56	Date: 02 April 2025

Aerial Imagery 2005

21541 Riverina Highway, Deniliquin, NSW 2710

Scale:
0 100 200 300 400
Meters

Data Source Aerial Imagery: © 2025 Google Inc, used with permission. Google and the Google logo are registered trademarks of Google Inc.

Coordinate System:
GDA 1994 MGA Zone 56

Date: 02 April 2025

Aerial Imagery 1996

21541 Riverina Highway, Deniliquin, NSW 2710

Scale: 0 100 200 300 400 Meters	Data Source Aerial Imagery: © NSW Department of Customer Service	Coordinate System: GDA 1994 MGA Zone 56	Date: 02 April, 2025

Aerial Imagery 1985

21541 Riverina Highway, Deniliquin, NSW 2710

Aerial Imagery 1979

21541 Riverina Highway, Deniliquin, NSW 2710

Aerial Imagery 1968

21541 Riverina Highway, Deniliquin, NSW 2710

Scale:	Data Source Aerial Imagery:	Coordinate System:	Date: 02 April, 2025
0 100 200 300 400 Meters	© NSW Department of Customer Service	GDA 1994 MGA Zone 56	

Aerial Imagery 1964

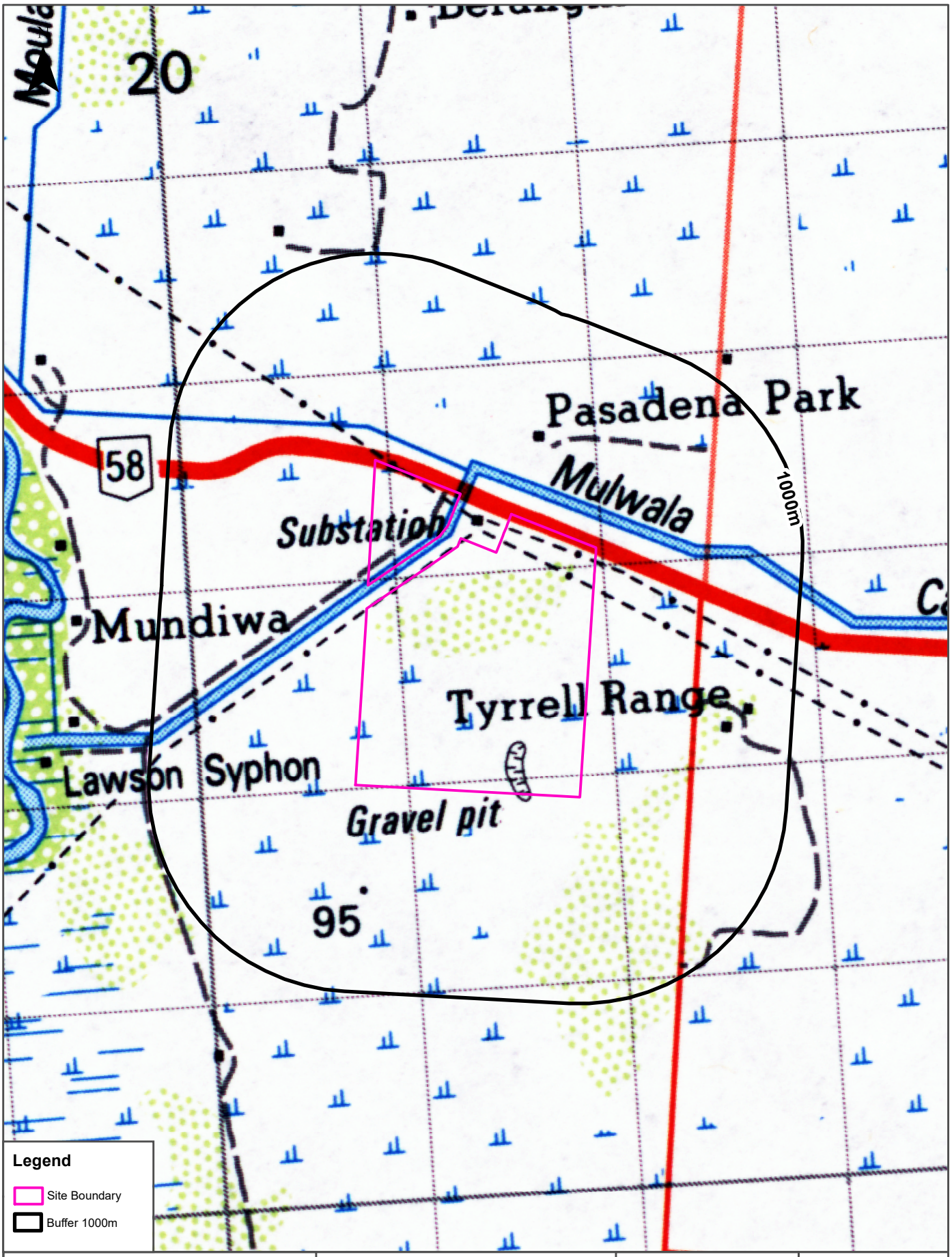
21541 Riverina Highway, Deniliquin, NSW 2710

Aerial Imagery 1945

21541 Riverina Highway, Deniliquin, NSW 2710

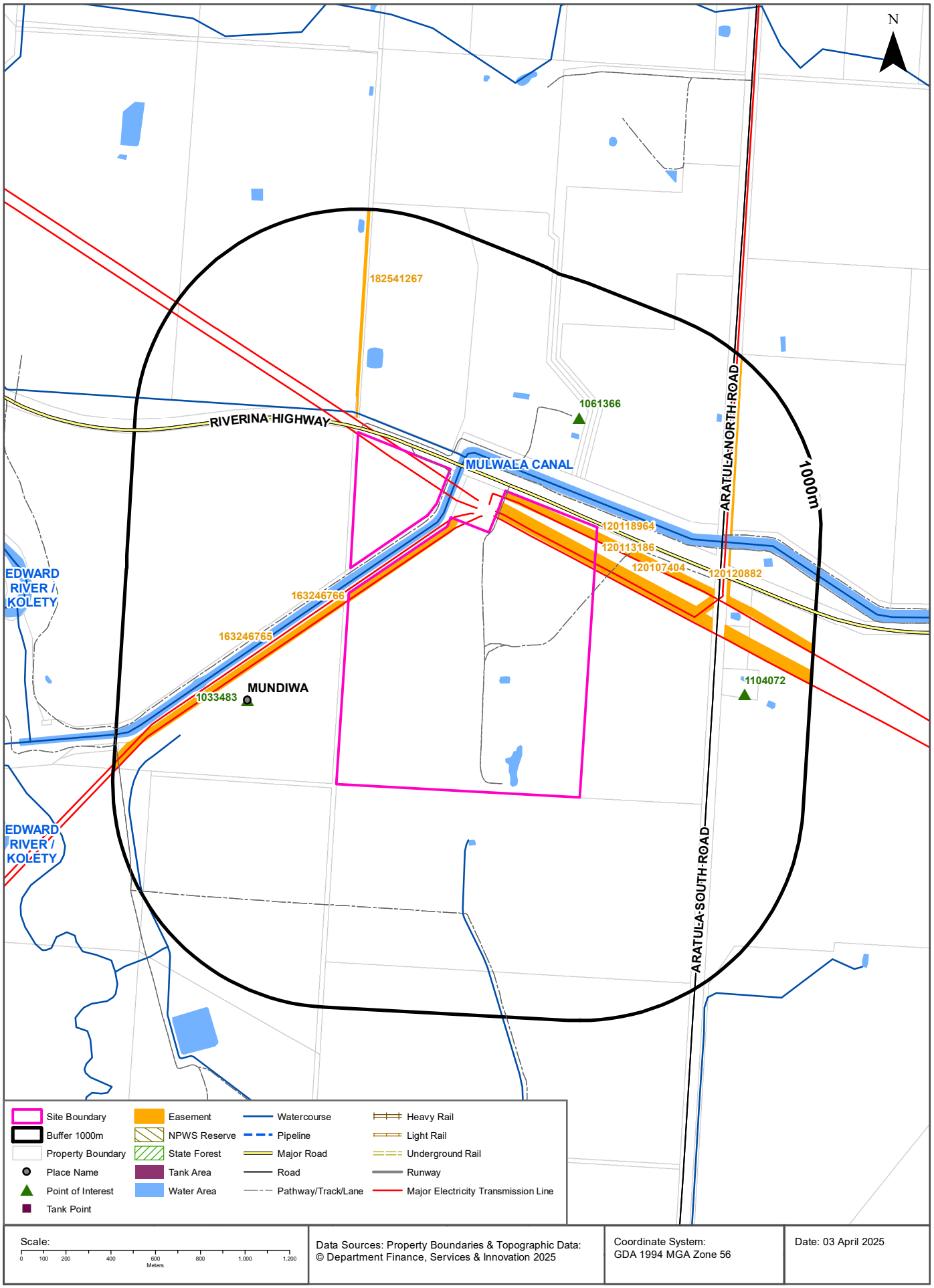
Historical Map 1980

21541 Riverina Highway, Deniliquin, NSW 2710



Topographic Features

21541 Riverina Highway, Deniliquin, NSW 2710



Topographic Features

21541 Riverina Highway, Deniliquin, NSW 2710

Points of Interest

What Points of Interest exist within the dataset buffer?

Map Id	Feature Type	Label	Distance	Direction
1033483	Rural Place	MUNDIWA	421m	West
1061366	Homestead	PASADENA PARK	426m	North East
1104072	Homestead	TYRELL RANGE	706m	East

Topographic Features

21541 Riverina Highway, Deniliquin, NSW 2710

Tanks (Areas)

What are the Tank Areas located within the dataset buffer?
Note. The large majority of tank features provided by LPI are derived from aerial imagery & are therefore primarily above ground tanks.

Map Id	Tank Type	Status	Name	Feature Currency	Distance	Direction
N/A	No records in buffer					

Tanks (Points)

What are the Tank Points located within the dataset buffer?
Note. The large majority of tank features provided by LPI are derived from aerial imagery & are therefore primarily above ground tanks.

Map Id	Tank Type	Status	Name	Feature Currency	Distance	Direction
N/A	No records in buffer					

Major Easements

What Major Easements exist within the dataset buffer?
Note. Easements provided by LPI are not at the detail of local governments. They are limited to major easements such as Right of Carriageway, Electrical Lines (66kVa etc.), Easement to drain water & Significant subterranean pipelines (gas, water etc.).

Map Id	Easement Class	Easement Type	Easement Width	Distance	Direction
120107404	Primary	Undefined		0m	On-site
120113186	Primary	Undefined		0m	On-site
120118964	Primary	Undefined		0m	On-site
163246766	Primary	Electricity	40m & Var	0m	On-site
163246765	Primary	Electricity	40m & Var	20m	West
182541267	Primary	Right of way	Var.	68m	North
120120882	Primary	Undefined		599m	North East

Topographic Features

21541 Riverina Highway, Deniliquin, NSW 2710

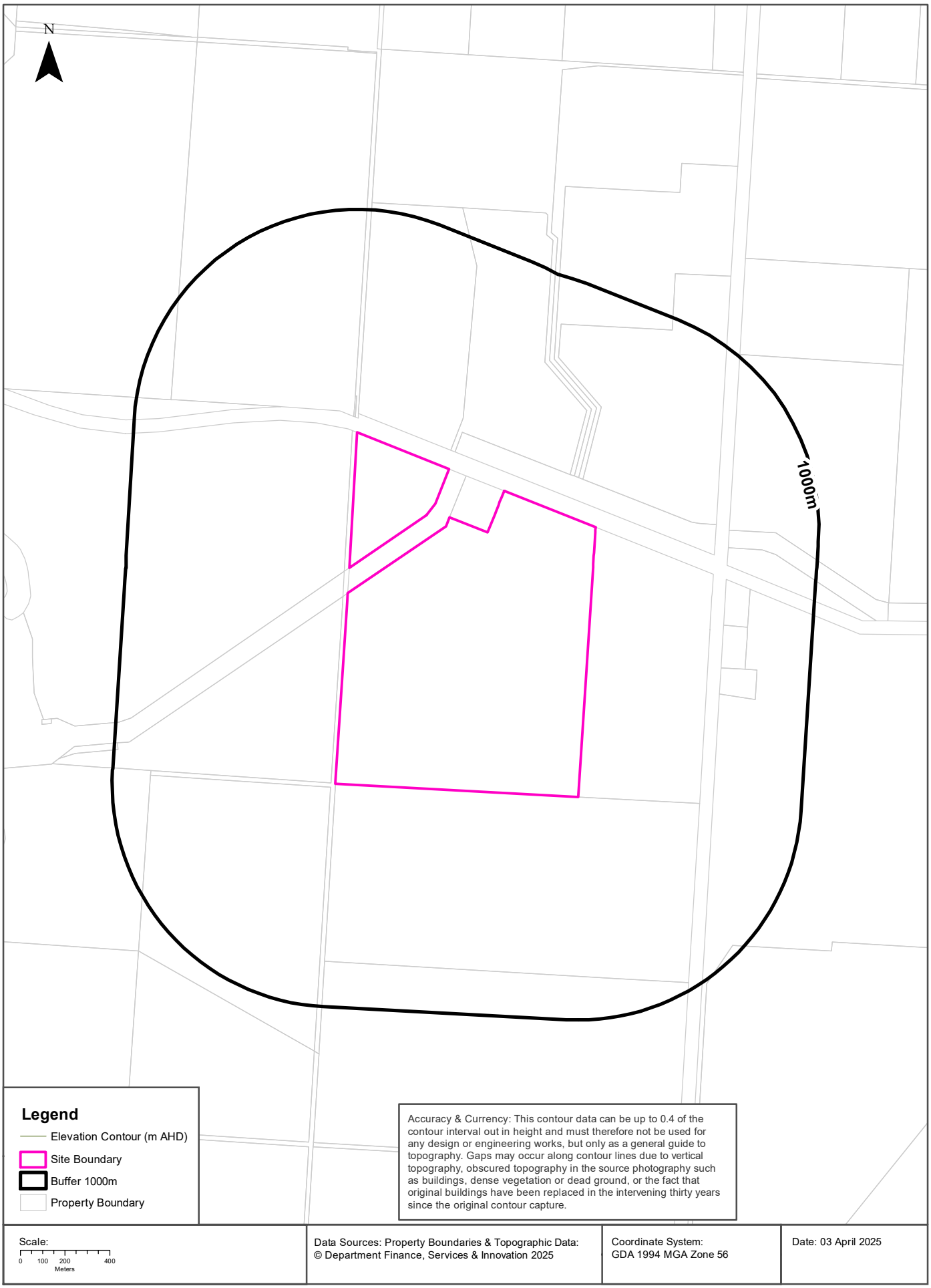
State Forest

What State Forest exist within the dataset buffer?

State Forest Number	State Forest Name	Distance	Direction
N/A	No records in buffer		

Elevation Contours (m AHD)

21541 Riverina Highway, Deniliquin, NSW 2710



Hydrogeology & Groundwater

21541 Riverina Highway, Deniliquin, NSW 2710

Hydrogeology

Description of aquifers within the dataset buffer:

Description	Distance	Direction
Porous, extensive highly productive aquifers	0m	On-site

Hydrogeology Map of Australia : Commonwealth of Australia (Geoscience Australia)

Temporary Water Restriction (Botany Sands Groundwater Source) Order 2024

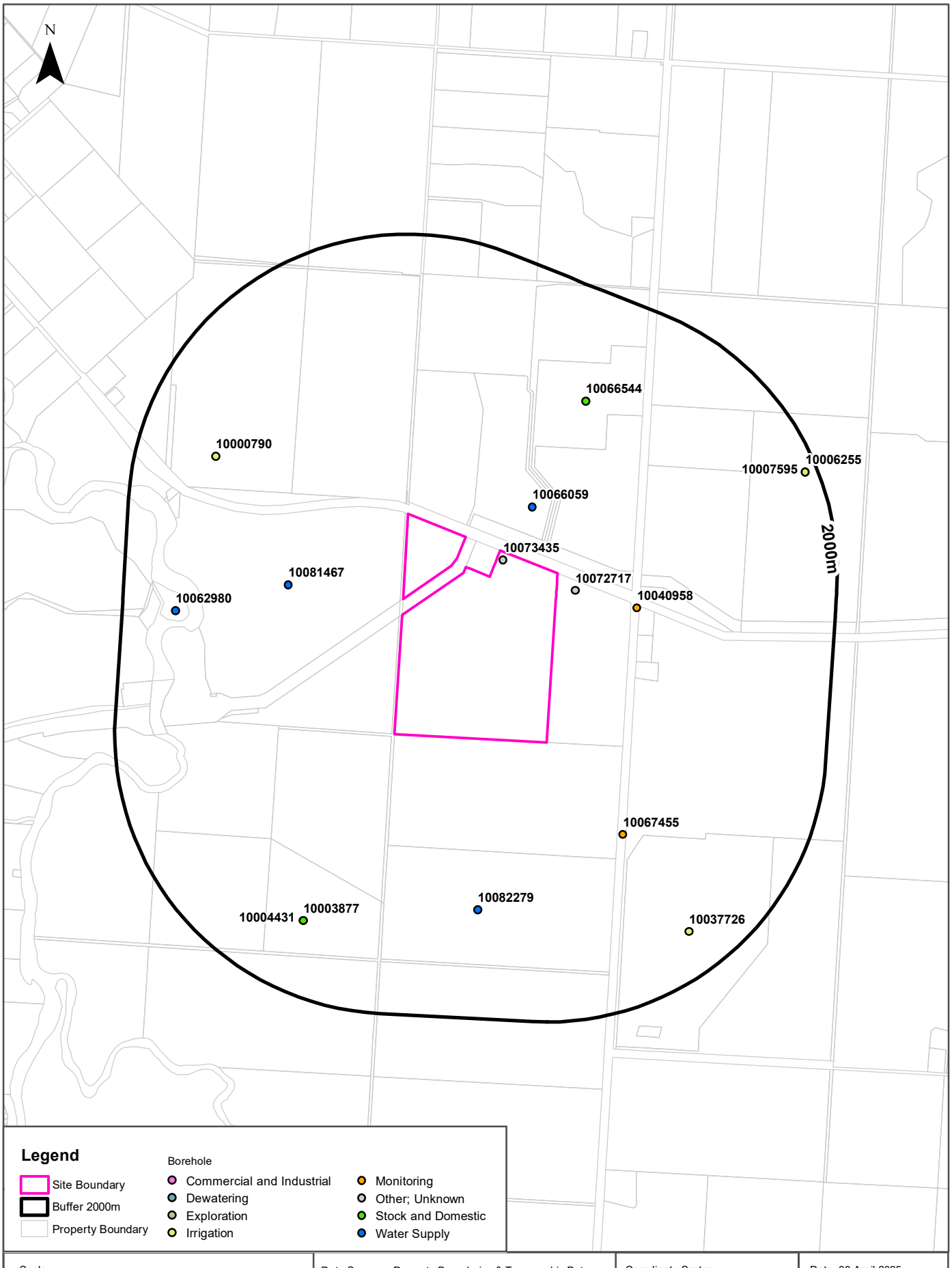
Temporary water restrictions relating to the Botany Sands aquifer within the dataset buffer:

Prohibition Area No.	Prohibition	Distance	Direction
N/A	No records in buffer		

Temporary Water Restriction (Botany Sands Groundwater Source) Order 2024 Data Source : NSW Department of Primary Industries

Groundwater Boreholes

21541 Riverina Highway, Deniliquin, NSW 2710



Hydrogeology & Groundwater

21541 Riverina Highway, Deniliquin, NSW 2710

Groundwater Boreholes

Boreholes within the dataset buffer:

NGIS Bore ID	NSW Bore ID	Bore Type	Status	Drill Date	Bore Depth (m)	Reference Elevation	Height Datum	Salinity (mg/L)	Yield (L/s)	SWL (mbgl)	Distance	Direction
10073435	GW503030	Unknown	Functioning	12/08/2000	9.10		AHD				0m	On-site
10072717	GW503031	Unknown	Functioning	12/08/2000	8.20		AHD				137m	North East
10066059	GW505001	Water Supply	Unknown	01/01/1950	20.00		AHD	fair			374m	North East
10040958	GW502629	Monitoring	Functioning	08/05/1995	12.20	95.03	AHD				585m	East
10081467	GW500194	Water Supply	Unknown	14/04/1996	28.00		AHD	200	1.900	7.20	822m	West
10067455	GW502630	Monitoring	Functioning	08/05/1995	15.85	95.32	AHD				856m	South East
10066544	GW505432	Stock and Domestic	Abandoned	27/01/2008	14.00		AHD				1218m	North East
10082279	GW500681	Water Supply	Unknown	01/01/1996	44.00		AHD	800	3.000	7.00	1224m	South
10000790	GW505683	Irrigation	Functioning	29/03/2015	209.00		AHD	1000	306.000	20.80	1433m	North West
10003877	GW505765	Stock and Domestic	Unknown	08/07/2016	139.00		AHD				1484m	South West
10004431	GW505765	Stock and Domestic	Unknown	08/07/2016	139.00		AHD				1484m	South West
10062980	GW500673	Water Supply	Unknown	01/09/1993	36.00		AHD	200	3.000	8.00	1617m	West
10037726	GW503508	Irrigation	Unknown	28/02/2005	186.00		AHD	600	10.000		1696m	South East
10006255	GW506021	Irrigation	Functioning	10/05/2019	232.00		AHD				1915m	North East
10007595	GW506021	Irrigation	Functioning	10/05/2019	232.00		AHD				1915m	North East

Hydrogeology & Groundwater

21541 Riverina Highway, Deniliquin, NSW 2710

Driller's Logs

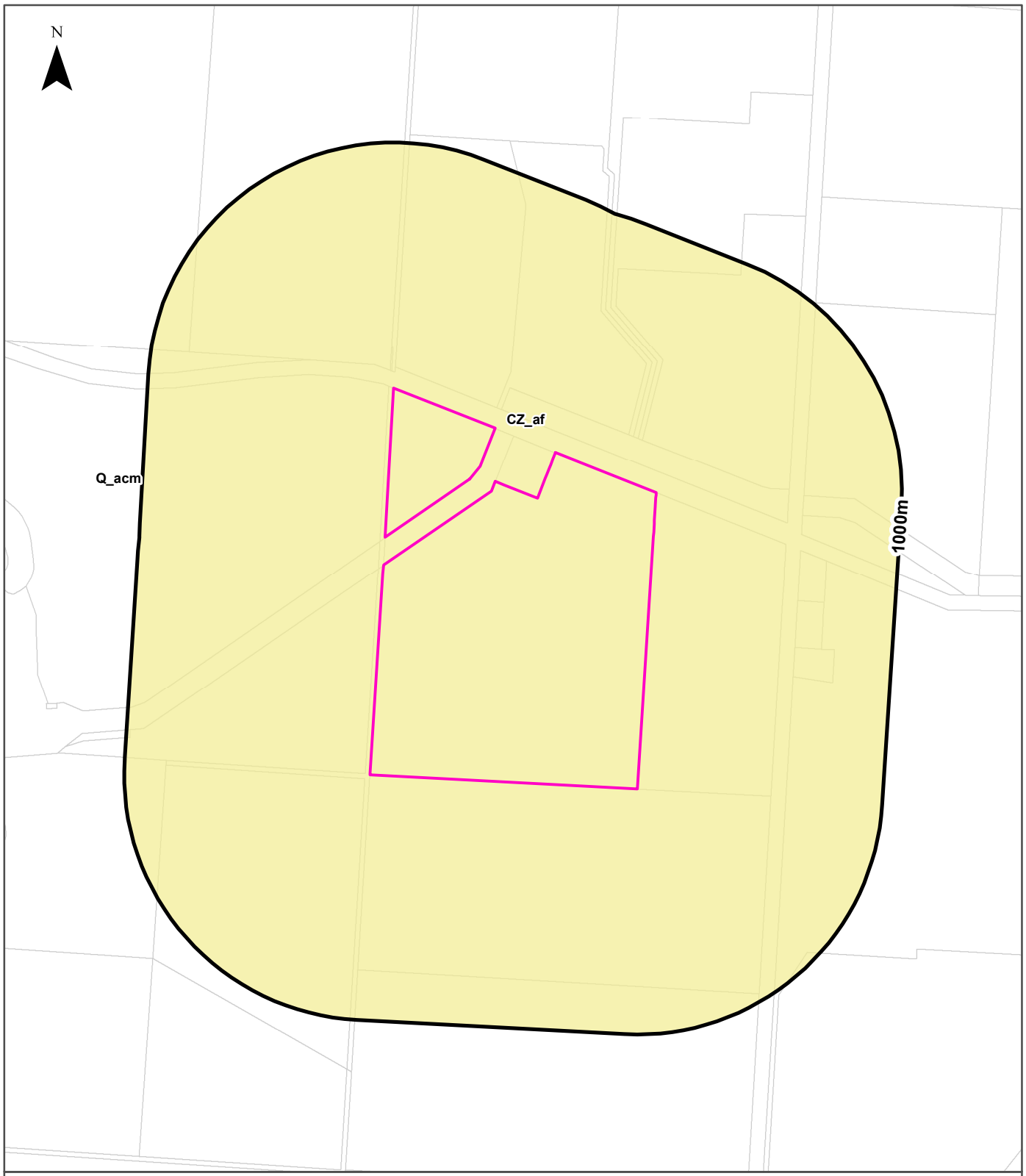
Drill log data relevant to the boreholes within the dataset buffer:

NGIS Bore ID	Drillers Log	Distance	Direction
10081467	0.00m-4.00m 4.00m-9.00m 9.00m-10.75m 10.75m-20.00m 20.00m-20.75m 20.75m-23.50m 23.50m-24.00m 24.00m-27.00m 27.00m-28.00m	822m	West
10066544	0.00m-1.00m topsoil, brown 1.00m-3.00m clay, grey 3.00m-4.00m clay, grey mustard 4.00m-6.00m clay, grey 6.00m-8.00m clay, grey orange 8.00m-9.00m sand, fine, orange 9.00m-10.00m clay, silty, grey 10.00m-11.00m clay, grey 11.00m-13.00m sand, coarse, white, gml 13.00m-14.00m clay, grey brown	1218m	North East
10082279	0.00m-1.00m Clay 1.00m-5.00m Clay 5.00m-6.00m Clay 6.00m-10.50m Sand 10.50m-12.00m Clay 12.00m-14.00m Invalid Code 14.00m-30.00m Clay 30.00m-30.30m Sand 30.30m-35.00m Clay 35.00m-36.00m Clay 36.00m-38.00m Clay 38.00m-39.00m Sand 39.00m-40.00m Sand 40.00m-41.00m Sandstone 41.00m-44.00m Sand 44.00m-45.00m Sandstone 45.00m-46.00m Clay	1224m	South
10000790	0.00m-8.00m clay, dark brown 8.00m-11.00m sand, yellow brown - mg 11.00m-18.00m clay, mustard white 18.00m-67.00m clayey sand, mustard brown 67.00m-68.00m sand, white - mg 68.00m-100.00m clay, grey white brown 100.00m-103.00m sand, clayed, brown 103.00m-109.00m sand, clayed, brown white 109.00m-117.00m sand, white, mg 117.00m-127.00m clayey sand, brown 127.00m-147.00m sand, white, mg 147.00m-157.00m silt, grey, fg 157.00m-168.00m coal 168.00m-174.00m silt, coal, grey 174.00m-211.00m sand, white, mg	1433m	North West
10062980	0.00m-0.50m Clay 0.50m-9.50m Clay 9.50m-11.00m Sand 11.00m-14.00m Clay 14.00m-15.00m Sand 15.00m-16.00m Sand Grains (Lithic) 16.00m-17.00m Sand Grains (Lithic) 17.00m-17.50m Clay 17.50m-21.00m Sand 21.00m-25.00m Sand 25.00m-32.50m Clay 32.50m-33.00m Sand 33.00m-34.00m Sand 34.00m-36.00m Clay	1617m	West

NGIS Bore ID	Drillers Log	Distance	Direction
10037726	0.00m-1.00m Topsoil 1.00m-20.00m Clay 20.00m-24.00m Sand 24.00m-50.00m Clay 50.00m-56.00m Sand 56.00m-75.00m Clay 75.00m-95.00m Clay 95.00m-100.00m Sand 100.00m-114.00m Clay 114.00m-122.00m Sand 122.00m-132.00m Sand 132.00m-142.00m Sand 142.00m-156.00m Sand 156.00m-164.00m Sand 164.00m-178.00m Clay 178.00m-186.00m Sand	1696m	South East

Geology

21541 Riverina Highway, Deniliquin, NSW 2710



Legend

Linear Geological Structures and Boundaries

- Site Boundary
- Report Buffer
- Property Boundary
- Trendline
- Fold Axis
- Geological Boundary
- Marker Bed
- Faulted Boundary
- Shear Zone or Schist Zone Boundary
- Miscellaneous Boundary
- Water/Coastline Boundary
- State/Territory Border

Scale: 0 100 200 400 600 800 1,000 1,200 Meters

Data Sources: Property Boundaries & Topographic Data: © Department Finance, Services & Innovation 2025

Coordinate System: GDA 1994 MGA Zone 56

Date: 03 April 2025

Geology

21541 Riverina Highway, Deniliquin, NSW 2710

Geological Units

Geological units within the dataset buffer:

Code	Unit Name	Description	Stratigraphy	Age Range	Dominant Lithology	Dist	Dir
CZ_af	Alluvial floodplain deposits	Silt, very fine- to medium-grained lithic to quartz-rich sand, clay.	/Alluvium//Alluvial floodplain deposits//	Cenozoic (base) to Now (top)	Silt	0m	On-site
Q_acm	Alluvial channel deposits - meander-plain facies	Unconsolidated grey humic, clayey very fine-grained sand, typically overlying light brown clayey silt.	/Alluvium//Alluvial channel deposits/Alluvial channel deposits - meander-plain facies/	Quaternary (base) to Now (top)	Clastic sediment	1000 m	West

Geology

21541 Riverina Highway, Deniliquin, NSW 2710

Linear Geological Structures

Fault and shear or schist zone boundaries within the dataset buffer:

Map ID	Boundary Type	Feature Description	Fault Dip Angle	Fault Dip Direction	Dist	Dir
NA	No records in buffer					

Trendlines within the dataset buffer:

Map ID	Feature Description	Observation Method	Structure Name	Dist	Dir
NA	No records in buffer				

Fold axes within the dataset buffer:

Map ID	Feature Description	Observation Method	Structure Name	Dist	Dir
NA	No records in buffer				

Marker beds within the dataset buffer:

Map ID	Feature Description	Rock Unit Description	Dist	Dir
NA	No records in buffer			

Naturally Occurring Asbestos Potential

21541 Riverina Highway, Deniliquin, NSW 2710

Naturally Occurring Asbestos Potential

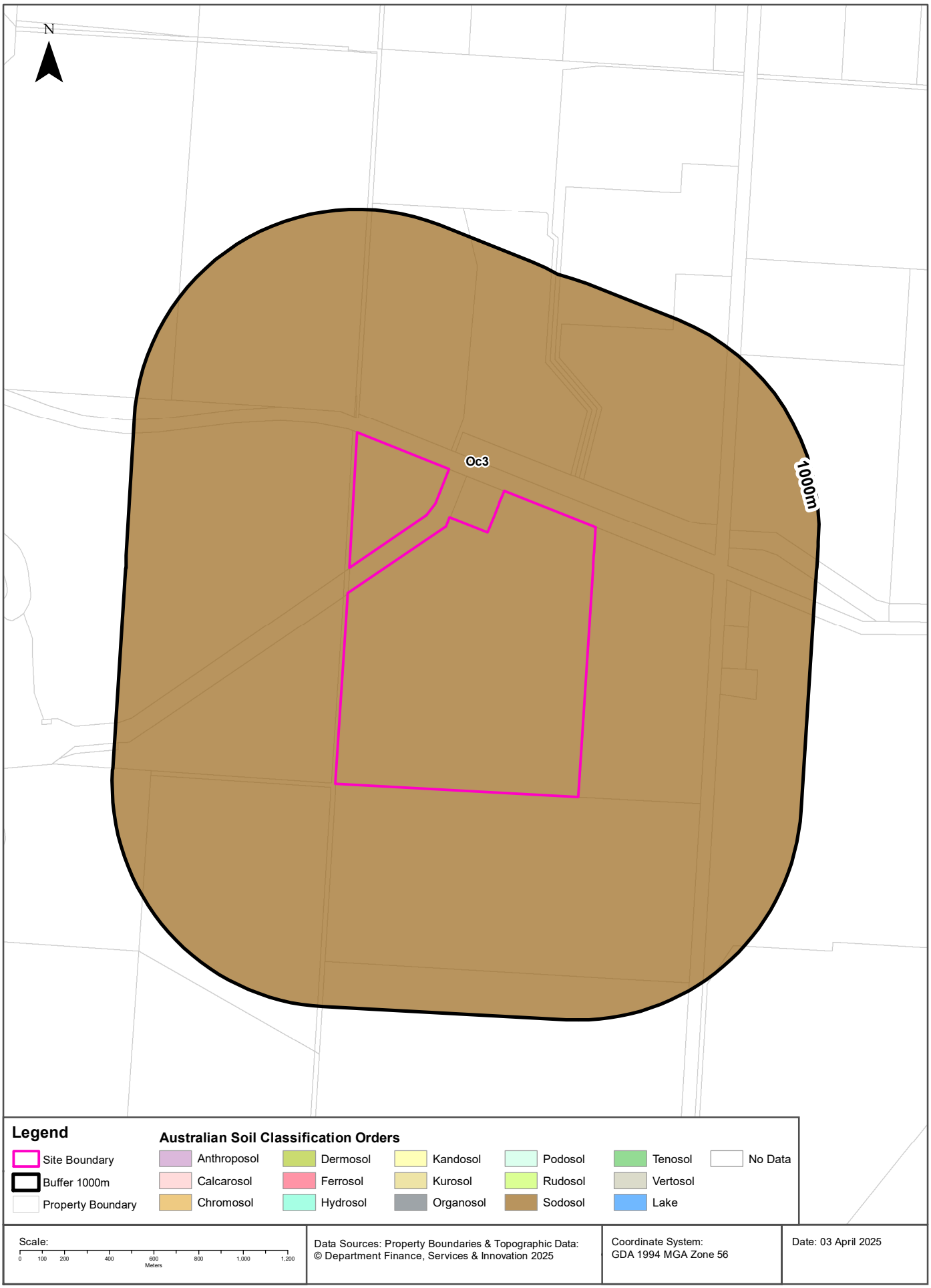
Naturally Occurring Asbestos Potential within the dataset buffer:

Potential	Sym	Strat Name	Group	Formation	Scale	Min Age	Max Age	Rock Type	Dom Lith	Description	Dist	Dir
No records in buffer												

Naturally Occurring Asbestos Potential Data Source: Statewide Seamless Geology v2.4, NSW Department of Primary Industries and Regional Development

Atlas of Australian Soils

21541 Riverina Highway, Deniliquin, NSW 2710



Soils

21541 Riverina Highway, Deniliquin, NSW 2710

Atlas of Australian Soils

Soil mapping units and Australian Soil Classification orders within the dataset buffer:

Map Unit Code	Soil Order	Map Unit Description	Distance	Direction
Oc3	Sodosol	Plains with domes, lunettes, and swampy depressions, and divided by continuous or discontinuous low river ridges associated with prior stream systems--the whole traversed by present stream valleys; layered soil or sedimentary materials common at fairly shallow depths: chief soils are hard alkaline red soils (Dr2.33), grey and brown cracking clays, commonly (Ug5.24) and (Ug5.35), and other (D) soils in a complex soil pattern with the following general features: (i) well-drained to moderately drained plains of (Dr2.33) with (Db1.33 and Db1.43), often with thin A horizons (<4 in. thick); (ii) moderately to poorly drained gilgai plains subject to some seasonal flooding of (Ug5.3), (Dr2.33), (Db1.43), (Dy2.33 and Dy2.43), and (Ug5.2) soils; (iii) poorly drained gilgai plains subject to frequent seasonal flooding of (Ug5.2), (Ug5.3), (Db1.43), (Dy2.43), (Dd1.33 and Dd1.43), and (Ug5.4) soils; (iv) swampy depressions of (Dd1.33 and Dd1.43), (Db1.43), (Dy2.43), (Dy3.43), and (Ug5) soils; (v) domes and/or lunettes on the plains of (Dr2.33), (Gn2.13), (Dy5.33), or (DrS.33) soils; (vi) river ridges of moderate relief have (Dr2.33), (Dr2.43), ?(Dr2.23), and in some places (Gn2.13) soils; (vii) sandy river ridges and sand-hills have (Uc1.2), (Dy5.33), and (DrS.33) soils; (viii) prior stream beds have various "welldrained" soils; (ix) present stream valleys have flood-plains and terraces of (Dy3.4), (Gn), and (Um) soils. As mapped, areas of unit CC3 may be included.	0m	On-site

Acid Sulfate Soils

21541 Riverina Highway, Deniliquin, NSW 2710

Environmental Planning Instrument - Acid Sulfate Soils

What is the on-site Acid Sulfate Soil Plan Class that presents the largest environmental risk?

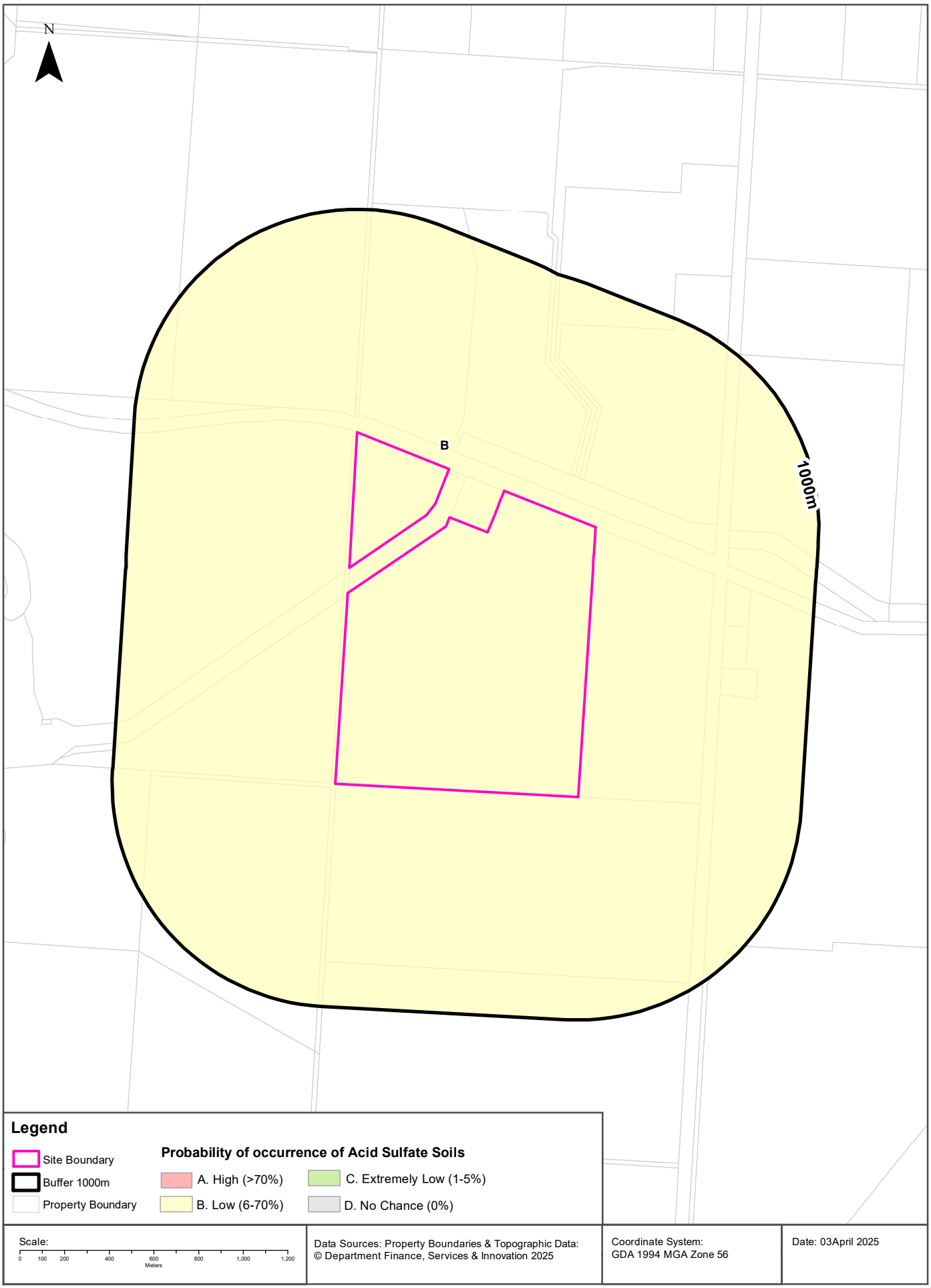
Soil Class	Description	EPI Name
N/A		

If the on-site Soil Class is 5, what other soil classes exist within 500m?

Soil Class	Description	EPI Name	Distance	Direction
N/A				

Atlas of Australian Acid Sulfate Soils

21541 Riverina Highway, Deniliquin, NSW 2710



Acid Sulfate Soils

21541 Riverina Highway, Deniliquin, NSW 2710

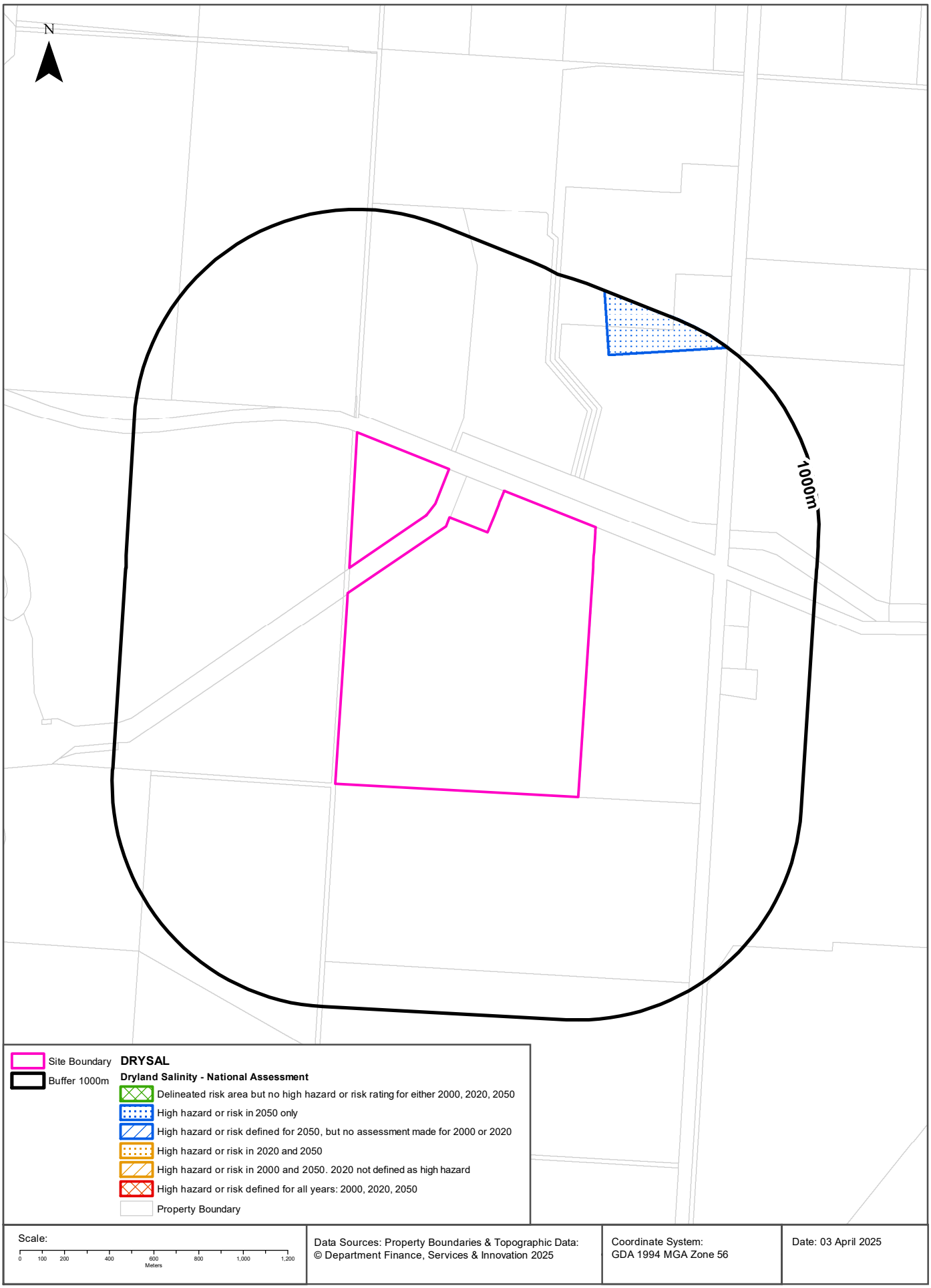
Atlas of Australian Acid Sulfate Soils

Atlas of Australian Acid Sulfate Soil categories within the dataset buffer:

Class	Description	Distance	Direction
B	Low Probability of occurrence. 6-70% chance of occurrence.	0m	On-site

Dryland Salinity

21541 Riverina Highway, Deniliquin, NSW 2710



Dryland Salinity

21541 Riverina Highway, Deniliquin, NSW 2710

Dryland Salinity - National Assessment

Is there Dryland Salinity - National Assessment data onsite?

No

Is there Dryland Salinity - National Assessment data within the dataset buffer?

Yes

What Dryland Salinity assessments are given?

Assessment 2000	Assessment 2020	Assessment 2050	Distance	Direction
-	-	High hazard or risk	738m	North East

Dryland Salinity Data Source : National Land and Water Resources Audit
The Commonwealth and all suppliers of source data used to derive the maps of "Australia, Forecast Areas Containing Land of High Hazard or Risk of Dryland Salinity from 2000 to 2050" do not warrant the accuracy or completeness of information in this product. Any person using or relying upon such information does so on the basis that the Commonwealth and data suppliers shall bear no responsibility or liability whatsoever for any errors, faults, defects or omissions in the information. Any persons using this information do so at their own risk.
In many cases where a high risk is indicated, less than 100% of the area will have a high hazard or risk.

Mining

21541 Riverina Highway, Deniliquin, NSW 2710

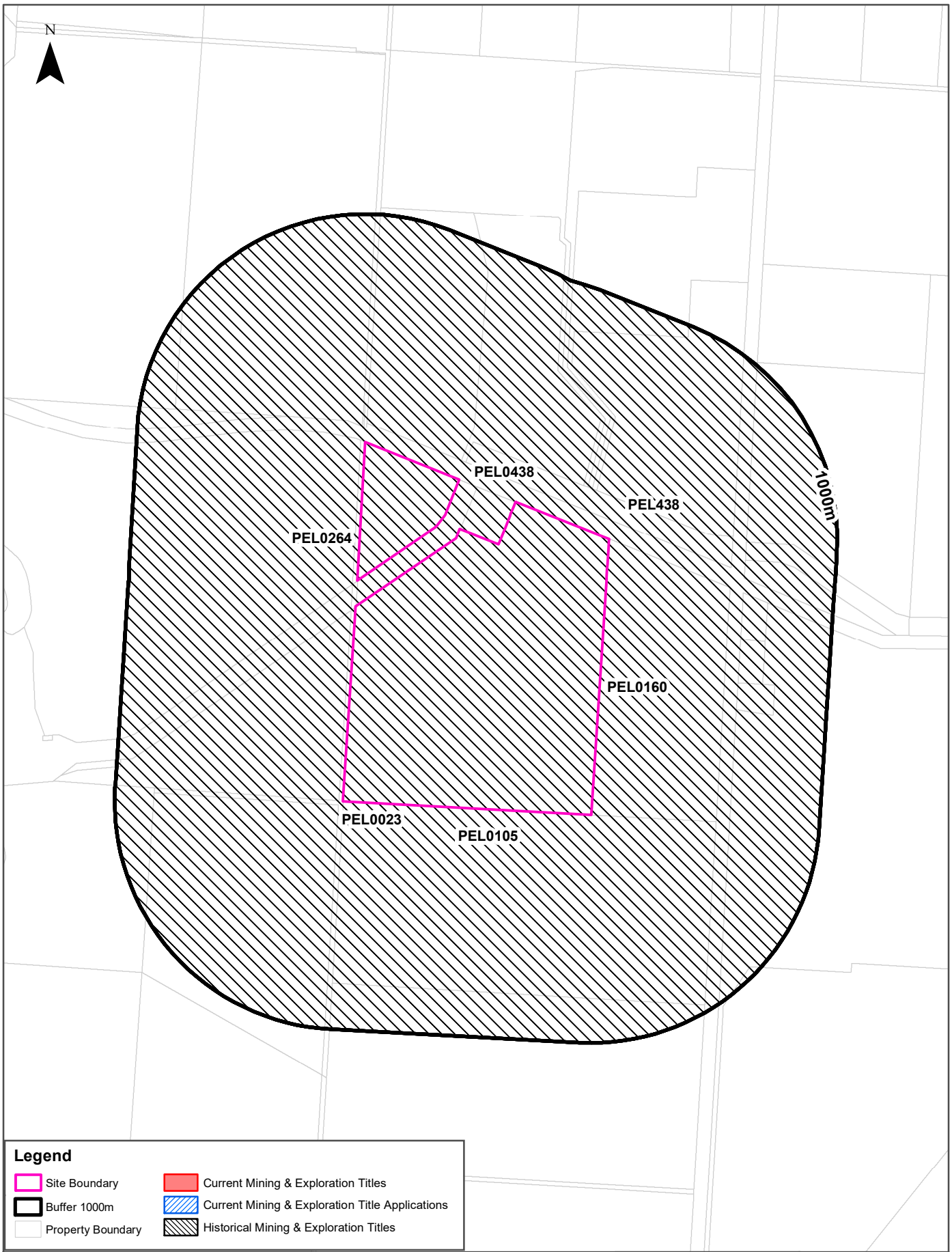
Mining Subsidence Districts

Mining Subsidence Districts within the dataset buffer:

District	Distance	Direction
There are no Mining Subsidence Districts within the report buffer		

Mining & Exploration Titles

21541 Riverina Highway, Deniliquin, NSW 2710



Mining

21541 Riverina Highway, Deniliquin, NSW 2710

Current Mining & Exploration Titles

Current Mining & Exploration Titles within the dataset buffer:

Title Ref	Holder	Grant Date	Expiry Date	Last Renewed	Operation	Resource	Minerals	Dist	Dir
N/A	No records in buffer								

Current Mining & Exploration Title Applications

Current Mining & Exploration Title Applications within the dataset buffer:

Application Ref	Applicant	Application Date	Operation	Resource	Minerals	Dist	Dir
N/A	No records in buffer						

Mining

21541 Riverina Highway, Deniliquin, NSW 2710

Historical Mining & Exploration Titles

Historical Mining & Exploration Titles within the dataset buffer:

Title Ref	Holder	Start Date	End Date	Resource	Minerals	Dist	Dir
PEL438	APPLEGATE EXPLORATION, LLC,PANNONIAN INTERNATIONAL LTD	20010821	30000101	MINERALS		0m	On-site
PEL0023	AUSTRALIAN OIL AND GAS CORPORATION LTD			PETROLEUM	Petroleum	0m	On-site
PEL0105	AUSTRALIAN OIL AND GAS CORPORATION LTD			PETROLEUM	Petroleum	0m	On-site
PEL0264	BALHOIL NOMINEES PTY LTD		19831010	PETROLEUM	Petroleum	0m	On-site
PEL0438	PANNONIAN INTERNATIONAL LTD	20020908	20060410	PETROLEUM	Petroleum	0m	On-site
PEL0160	PLANET EXPLORATION COMPANY PTY LTD			PETROLEUM	Petroleum	0m	On-site

Historical Mining & Exploration Titles Data Source: Statewide Seamless Geology v2.4, NSW Department of Primary Industries and Regional Development

State Environmental Planning Policy

21541 Riverina Highway, Deniliquin, NSW 2710

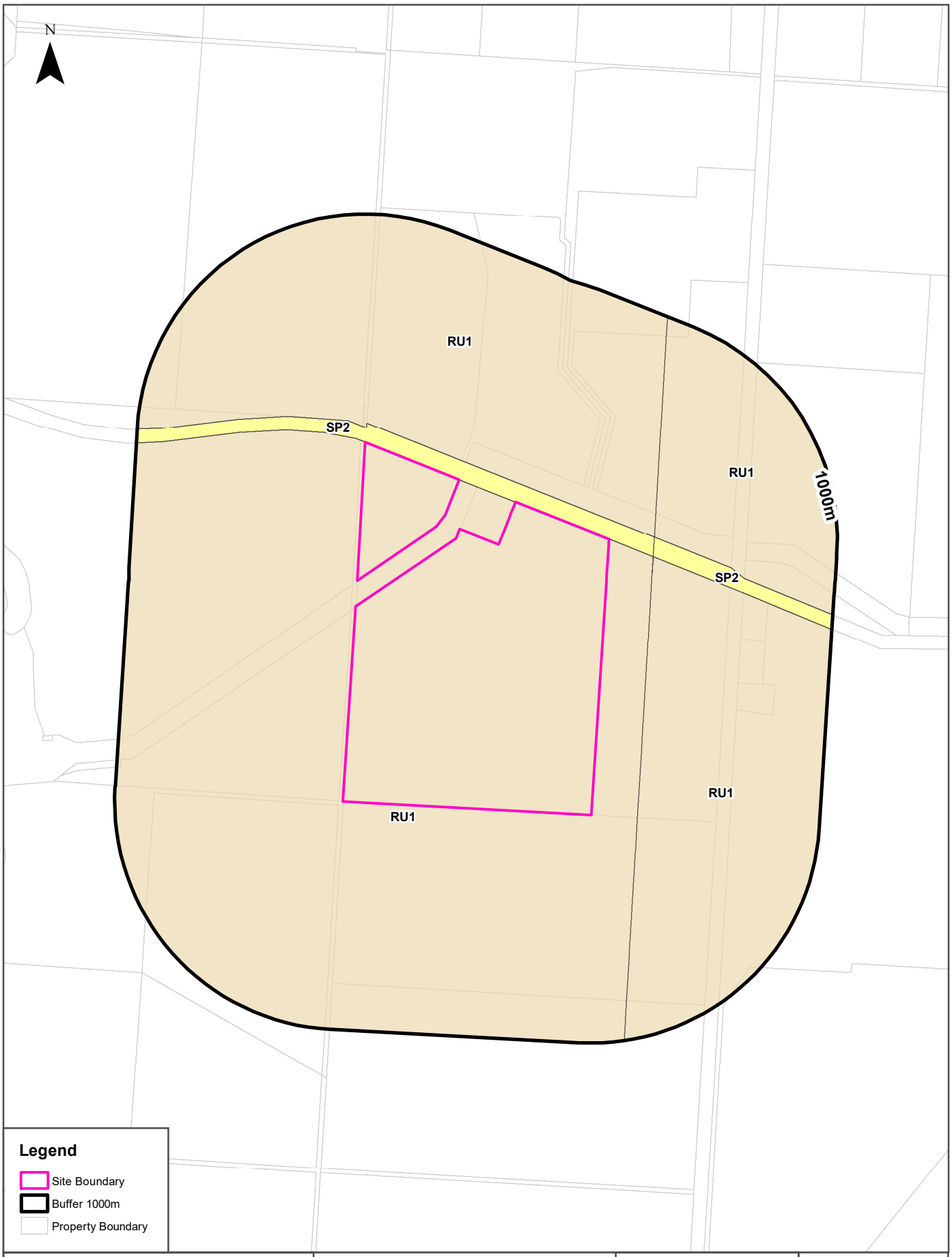
State Significant Precincts

What SEPP State Significant Precincts exist within the dataset buffer?

Map Id	Precinct	EPI Name	Published Date	Commenced Date	Currency Date	Amendment	Distance	Direction
N/A	No records in buffer							

EPI Planning Zones

21541 Riverina Highway, Deniliquin, NSW 2710



Environmental Planning Instrument

21541 Riverina Highway, Deniliquin, NSW 2710

Land Zoning

What EPI Land Zones exist within the dataset buffer?

Zone	Description	Purpose	EPI Name	Published Date	Commenced Date	Currency Date	Amendment	Distance	Direction
RU1	Primary Production		Deniliquin Local Environmental Plan 2013	15/03/2024	15/03/2024	15/03/2024	Map Amendment No 1	0m	On-site
SP2	Infrastructure	Classified Road	Deniliquin Local Environmental Plan 2013	15/03/2024	15/03/2024	15/03/2024	Map Amendment No 1	0m	North
RU1	Primary Production		Deniliquin Local Environmental Plan 2013	15/03/2024	15/03/2024	15/03/2024	Map Amendment No 1	64m	North
SP2	Infrastructure	Classified Road	Conargo Local Environmental Plan 2013	15/03/2024	15/03/2024	15/03/2024	Map Amendment No 1	194m	East
RU1	Primary Production		Conargo Local Environmental Plan 2013	15/03/2024	15/03/2024	15/03/2024	Map Amendment No 1	195m	North East
RU1	Primary Production		Conargo Local Environmental Plan 2013	15/03/2024	15/03/2024	15/03/2024	Map Amendment No 1	195m	South East

Heritage

21541 Riverina Highway, Deniliquin, NSW 2710

Commonwealth Heritage List

What are the Commonwealth Heritage List Items located within the dataset buffer?

Place Id	Name	Address	Place File No	Class	Status	Register Date	Distance	Direction
N/A	No records in buffer							

Heritage Data Source: Australian Government Department of the Environment and Energy - Heritage Branch

National Heritage List

What are the National Heritage List Items located within the dataset buffer?
Note. Please click on Place Id to activate a hyperlink to online website.

Place Id	Name	Address	Place File No	Class	Status	Register Date	Distance	Direction
N/A	No records in buffer							

Heritage Data Source: Australian Government Department of the Environment and Energy - Heritage Branch

State Heritage Register - Curtilages

What are the State Heritage Register Items located within the dataset buffer?

Map Id	Name	Address	LGA	Listing Date	Listing No	Plan No	Distance	Direction
N/A	No records in buffer							

Heritage Data Source: NSW Crown Copyright - Office of Environment & Heritage

Environmental Planning Instrument - Heritage

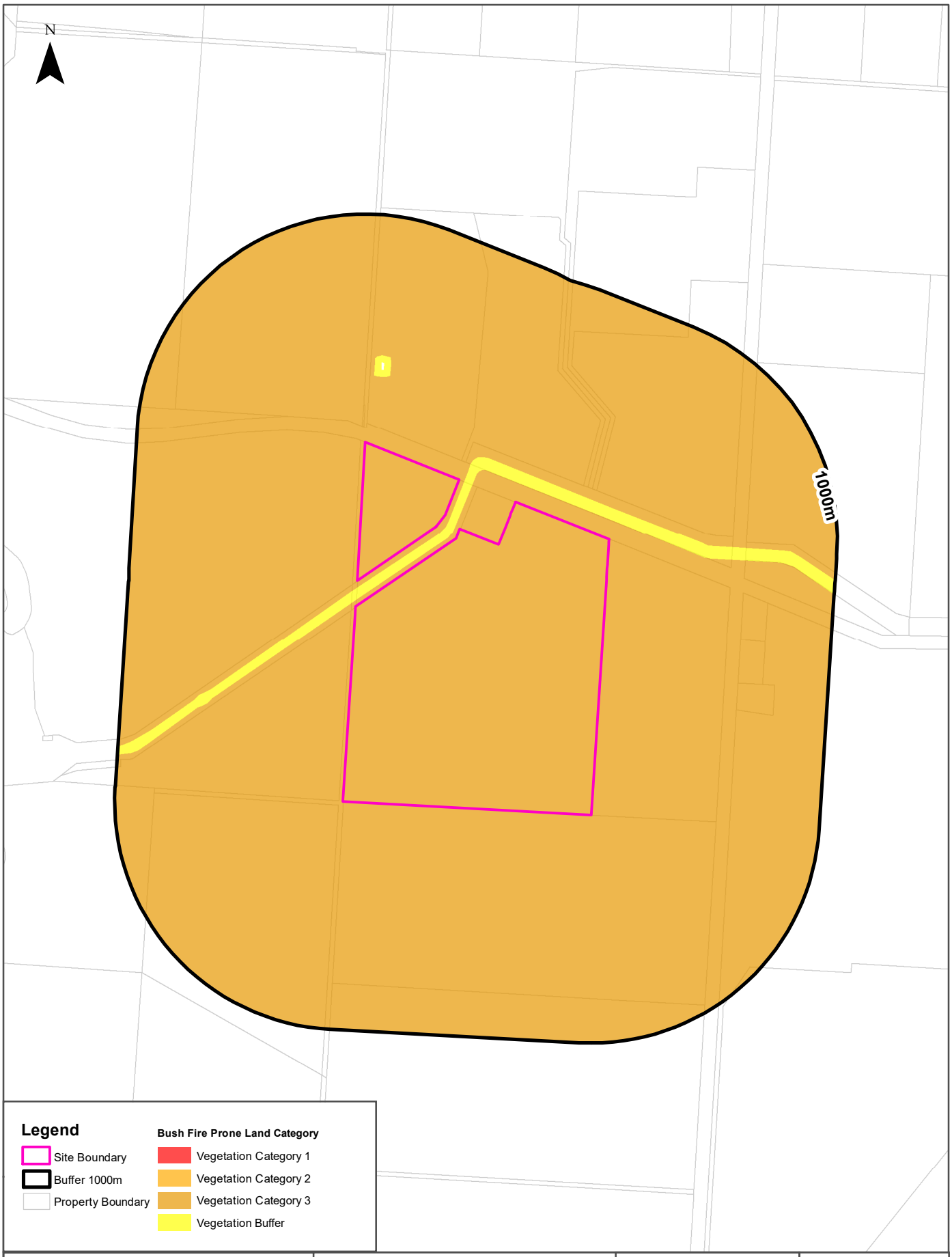
What are the EPI Heritage Items located within the dataset buffer?

Map Id	Name	Classification	Significance	EPI Name	Published Date	Commenced Date	Currency Date	Distance	Direction
N/A	No records in buffer								

Heritage Data Source: NSW Crown Copyright - Planning & Environment

Natural Hazards - Bush Fire Prone Land

21541 Riverina Highway, Deniliquin, NSW 2710



Data Sources: Bush Fire Prone Land: © NSW Rural Fire Service 2025. Property Boundaries: © Department Finance, Services & Innovation 2025

Coordinate System: GDA 1994 MGA Zone 56

Date: 03 April 2025

Natural Hazards

21541 Riverina Highway, Deniliquin, NSW 2710

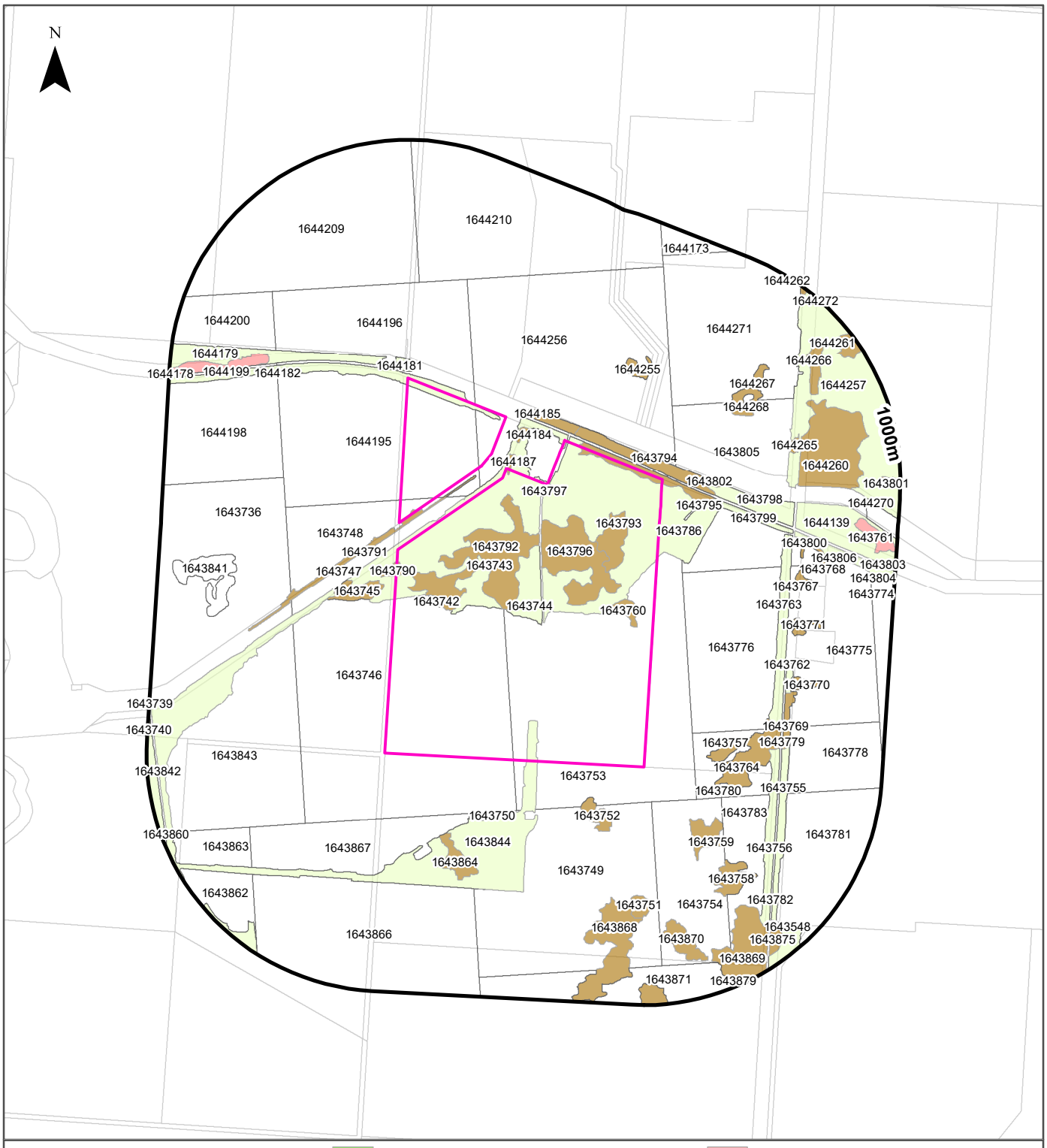
Bush Fire Prone Land

What are the nearest Bush Fire Prone Land Categories that exist within the dataset buffer?

Bush Fire Prone Land Category	Distance	Direction
Vegetation Category 3	0m	On-site
Vegetation Buffer	20m	North

Ecological Constraints - Vegetation & Ramsar Wetlands

21541 Riverina Highway, Deniliquin, NSW 2710



Site Boundary
ReportBuffer
Property Boundary
Ramsar Wetland

Native Vegetation

Alpine Complex
Arid Shrublands (Acacia sub-formation)
Arid Shrublands (Chenopod sub-formation)
Dry Sclerophyll Forests (Shrub/grass sub-formation)
Dry Sclerophyll Forests (Shrubby sub-formation)
Forested Wetlands
Freshwater Wetlands
Grasslands
Grassy Woodlands
Heathlands
Rainforests
Saline Wetlands
Semi-arid Woodlands (Grassy sub-formation)
Semi-arid Woodlands (Shrubby sub-formation)
Wet Sclerophyll Forests (Grassy sub-formation)
Wet Sclerophyll Forests (Shrubby sub-formation)
Non vegetated
Unattributed
Not classified
Other

Scale: 0 100 200 400 600 800 1,000 1,200 Meters

Data Sources: Property Boundaries & Topographic Data: © Department Finance, Services & Innovation 2025

Coordinate System: GDA 1994 MGA Zone 56

Date: 03 April 2025

Ecological Constraints

21541 Riverina Highway, Deniliquin, NSW 2710

Native Vegetation

What native vegetation exists within the dataset buffer?

Map ID	Vegetation Formation	Plant Community Type and Vegetation Formation	Vegetation Class	Dist	Dir
1643742	Grasslands	(Grasslands) Forb-rich Speargrass - Windmill Grass - White Top grassland of the Riverina Bioregion	Riverine Plain Grasslands	0m	On-site
1643743	Grasslands	(Grasslands) Forb-rich Speargrass - Windmill Grass - White Top grassland of the Riverina Bioregion	Riverine Plain Grasslands	0m	On-site
1643744	Grasslands	(Grasslands) Forb-rich Speargrass - Windmill Grass - White Top grassland of the Riverina Bioregion	Riverine Plain Grasslands	0m	On-site
1643746	Not classified	(Not classified) Not classified	Not classified	0m	On-site
1643748	Not classified	(Not classified) Not classified	Not classified	0m	On-site
1643753	Not classified	(Not classified) Not classified	Not classified	0m	On-site
1643760	Grassy Woodlands	(Grassy Woodlands) Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions	Floodplain Transition Woodlands	0m	On-site
1643786	Grasslands	(Grasslands) Forb-rich Speargrass - Windmill Grass - White Top grassland of the Riverina Bioregion	Riverine Plain Grasslands	0m	On-site
1643790	Grassy Woodlands	(Grassy Woodlands) Riverine Western Grey Box grassy woodland of the semi-arid (warm) climate zone	Floodplain Transition Woodlands	0m	On-site
1643791	Grassy Woodlands	(Grassy Woodlands) Riverine Western Grey Box grassy woodland of the semi-arid (warm) climate zone	Floodplain Transition Woodlands	0m	On-site
1643792	Grassy Woodlands	(Grassy Woodlands) Riverine Western Grey Box grassy woodland of the semi-arid (warm) climate zone	Floodplain Transition Woodlands	0m	On-site
1643793	Grassy Woodlands	(Grassy Woodlands) Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions	Floodplain Transition Woodlands	0m	On-site
1643795	Grassy Woodlands	(Grassy Woodlands) Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions	Floodplain Transition Woodlands	0m	On-site
1643796	Grassy Woodlands	(Grassy Woodlands) Riverine Western Grey Box grassy woodland of the semi-arid (warm) climate zone	Floodplain Transition Woodlands	0m	On-site
1643797	Not classified	(Not classified) Not classified	Not classified	0m	On-site
1643844	Grasslands	(Grasslands) Forb-rich Speargrass - Windmill Grass - White Top grassland of the Riverina Bioregion	Riverine Plain Grasslands	0m	On-site
1644182	Grasslands	(Grasslands) Forb-rich Speargrass - Windmill Grass - White Top grassland of the Riverina Bioregion	Riverine Plain Grasslands	0m	On-site
1644187	Grassy Woodlands	(Grassy Woodlands) Riverine Western Grey Box grassy woodland of the semi-arid (warm) climate zone	Floodplain Transition Woodlands	0m	On-site
1644195	Not classified	(Not classified) Not classified	Not classified	0m	On-site
1644256	Not classified	(Not classified) Not classified	Not classified	0m	On-site
1644196	Not classified	(Not classified) Not classified	Not classified	0m	North West
1643747	Not classified	(Not classified) Not classified	Not classified	10m	West
1643794	Grassy Woodlands	(Grassy Woodlands) Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions	Floodplain Transition Woodlands	23m	North East
1644181	Grasslands	(Grasslands) Forb-rich Speargrass - Windmill Grass - White Top grassland of the Riverina Bioregion	Riverine Plain Grasslands	26m	North West
1644185	Grassy Woodlands	(Grassy Woodlands) Riverine Western Grey Box grassy woodland of the semi-arid (warm) climate zone	Floodplain Transition Woodlands	36m	North
1643745	Grassy Woodlands	(Grassy Woodlands) Riverine Western Grey Box grassy woodland of the semi-arid (warm) climate zone	Floodplain Transition Woodlands	49m	West
1643805	Not classified	(Not classified) Not classified	Not classified	57m	North East
1644184	Grassy Woodlands	(Grassy Woodlands) Riverine Western Grey Box grassy woodland of the semi-arid (warm) climate zone	Floodplain Transition Woodlands	69m	North

Map ID	Vegetation Formation	Plant Community Type and Vegetation Formation	Vegetation Class	Dist	Dir
1643776	Not classified	(Not classified) Not classified	Not classified	106m	East
1644179	Grasslands	(Grasslands) Forb-rich Speargrass - Windmill Grass - White Top grassland of the Riverina Bioregion	Riverine Plain Grasslands	118m	North West
1643752	Grassy Woodlands	(Grassy Woodlands) Riverine Western Grey Box grassy woodland of the semi-arid (warm) climate zone	Floodplain Transition Woodlands	138m	South
1643749	Not classified	(Not classified) Not classified	Not classified	148m	South
1643754	Not classified	(Not classified) Not classified	Not classified	150m	South East
1643798	Grasslands	(Grasslands) Forb-rich Speargrass - Windmill Grass - White Top grassland of the Riverina Bioregion	Riverine Plain Grasslands	179m	East
1643780	Not classified	(Not classified) Not classified	Not classified	192m	South East
1643802	Grassy Woodlands	(Grassy Woodlands) Riverine Western Grey Box grassy woodland of the semi-arid (warm) climate zone	Floodplain Transition Woodlands	195m	North East
1643799	Grasslands	(Grasslands) Forb-rich Speargrass - Windmill Grass - White Top grassland of the Riverina Bioregion	Riverine Plain Grasslands	201m	East
1643750	Not classified	(Not classified) Not classified	Not classified	208m	South
1643867	Not classified	(Not classified) Not classified	Not classified	233m	South West
1643757	Grassy Woodlands	(Grassy Woodlands) Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions	Floodplain Transition Woodlands	258m	South East
1643759	Grassy Woodlands	(Grassy Woodlands) Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions	Floodplain Transition Woodlands	290m	South East
1644271	Not classified	(Not classified) Not classified	Not classified	301m	North East
1643764	Grassy Woodlands	(Grassy Woodlands) Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions	Floodplain Transition Woodlands	303m	South East
1643864	Grassy Woodlands	(Grassy Woodlands) Riverine Western Grey Box grassy woodland of the semi-arid (warm) climate zone	Floodplain Transition Woodlands	319m	South
1643783	Not classified	(Not classified) Not classified	Not classified	346m	South East
1643843	Not classified	(Not classified) Not classified	Not classified	352m	South West
1644255	Grassy Woodlands	(Grassy Woodlands) Riverine Western Grey Box grassy woodland of the semi-arid (warm) climate zone	Floodplain Transition Woodlands	354m	North East
1644209	Not classified	(Not classified) Not classified	Not classified	399m	North West
1644267	Grassy Woodlands	(Grassy Woodlands) Riverine Western Grey Box grassy woodland of the semi-arid (warm) climate zone	Floodplain Transition Woodlands	402m	North East
1644210	Not classified	(Not classified) Not classified	Not classified	405m	North
1643736	Not classified	(Not classified) Not classified	Not classified	426m	West
1644268	Not classified	(Not classified) Not classified	Not classified	453m	North East
1644198	Not classified	(Not classified) Not classified	Not classified	497m	North West
1643763	Grasslands	(Grasslands) Forb-rich Speargrass - Windmill Grass - White Top grassland of the Riverina Bioregion	Riverine Plain Grasslands	506m	East
1643758	Grassy Woodlands	(Grassy Woodlands) Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions	Floodplain Transition Woodlands	516m	South East
1643756	Grasslands	(Grasslands) Forb-rich Speargrass - Windmill Grass - White Top grassland of the Riverina Bioregion	Riverine Plain Grasslands	518m	South East
1644257	Grasslands	(Grasslands) Forb-rich Speargrass - Windmill Grass - White Top grassland of the Riverina Bioregion	Riverine Plain Grasslands	518m	North East
1643751	Grassy Woodlands	(Grassy Woodlands) Riverine Western Grey Box grassy woodland of the semi-arid (warm) climate zone	Floodplain Transition Woodlands	539m	South
1643866	Not classified	(Not classified) Not classified	Not classified	543m	South West
1644265	Grassy Woodlands	(Grassy Woodlands) Riverine Western Grey Box grassy woodland of the semi-arid (warm) climate zone	Floodplain Transition Woodlands	543m	North East

Map ID	Vegetation Formation	Plant Community Type and Vegetation Formation	Vegetation Class	Dist	Dir
1643868	Grassy Woodlands	(Grassy Woodlands) Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions	Floodplain Transition Woodlands	552m	South
1644199	Not classified	(Not classified) Not classified	Not classified	553m	North West
1643775	Not classified	(Not classified) Not classified	Not classified	558m	East
1643779	Not classified	(Not classified) Not classified	Not classified	562m	South East
1644139	Grasslands	(Grasslands) Forb-rich Speargrass - Windmill Grass - White Top grassland of the Riverina Bioregion	Riverine Plain Grasslands	565m	East
1644200	Not classified	(Not classified) Not classified	Not classified	567m	North West
1644260	Grassy Woodlands	(Grassy Woodlands) Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions	Floodplain Transition Woodlands	567m	North East
1643762	Grasslands	(Grasslands) Forb-rich Speargrass - Windmill Grass - White Top grassland of the Riverina Bioregion	Riverine Plain Grasslands	569m	East
1643782	Not classified	(Not classified) Not classified	Not classified	569m	South East
1643755	Grasslands	(Grasslands) Forb-rich Speargrass - Windmill Grass - White Top grassland of the Riverina Bioregion	Riverine Plain Grasslands	570m	South East
1643769	Grassy Woodlands	(Grassy Woodlands) Riverine Western Grey Box grassy woodland of the semi-arid (warm) climate zone	Floodplain Transition Woodlands	570m	South East
1643767	Grassy Woodlands	(Grassy Woodlands) Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions	Floodplain Transition Woodlands	578m	East
1643771	Grassy Woodlands	(Grassy Woodlands) Riverine Western Grey Box grassy woodland of the semi-arid (warm) climate zone	Floodplain Transition Woodlands	581m	East
1644178	Semi-arid Woodlands (Grassy sub-formation)	(Semi-arid Woodlands (Grassy sub-formation)) Weeping Myall open woodland of the Riverina Bioregion and NSW South Western Slopes Bioregion	Riverine Plain Woodlands	588m	North West
1643800	Grassy Woodlands	(Grassy Woodlands) Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions	Floodplain Transition Woodlands	595m	East
1643770	Grassy Woodlands	(Grassy Woodlands) Riverine Western Grey Box grassy woodland of the semi-arid (warm) climate zone	Floodplain Transition Woodlands	600m	East
1643778	Not classified	(Not classified) Not classified	Not classified	601m	South East
1643781	Not classified	(Not classified) Not classified	Not classified	609m	South East
1643768	Grassy Woodlands	(Grassy Woodlands) Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions	Floodplain Transition Woodlands	642m	East
1643863	Not classified	(Not classified) Not classified	Not classified	648m	South West
1643870	Grassy Woodlands	(Grassy Woodlands) Riverine Western Grey Box grassy woodland of the semi-arid (warm) climate zone	Floodplain Transition Woodlands	649m	South East
1643841	Not classified	(Not classified) Not classified	Not classified	671m	West
1643806	Not classified	(Not classified) Not classified	Not classified	700m	East
1643869	Grassy Woodlands	(Grassy Woodlands) Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions	Floodplain Transition Woodlands	706m	South East
1644266	Grassy Woodlands	(Grassy Woodlands) Riverine Western Grey Box grassy woodland of the semi-arid (warm) climate zone	Floodplain Transition Woodlands	716m	North East
1643862	Not classified	(Not classified) Not classified	Not classified	754m	South West
1643761	Semi-arid Woodlands (Grassy sub-formation)	(Semi-arid Woodlands (Grassy sub-formation)) Weeping Myall open woodland of the Riverina Bioregion and NSW South Western Slopes Bioregion	Riverine Plain Woodlands	814m	East
1643875	Grassy Woodlands	(Grassy Woodlands) Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions	Floodplain Transition Woodlands	832m	South East
1643871	Not classified	(Not classified) Not classified	Not classified	838m	South
1644270	Not classified	(Not classified) Not classified	Not classified	853m	East
1644173	Not classified	(Not classified) Not classified	Not classified	870m	North East

Map ID	Vegetation Formation	Plant Community Type and Vegetation Formation	Vegetation Class	Dist	Dir
1643548	Grasslands	(Grasslands) Forb-rich Speargrass - Windmill Grass - White Top grassland of the Riverina Bioregion	Riverine Plain Grasslands	876m	South East
1643777	Not classified	(Not classified) Not classified	Not classified	882m	East
1643803	Not classified	(Not classified) Not classified	Not classified	886m	East
1643804	Not classified	(Not classified) Not classified	Not classified	893m	East
1643774	Not classified	(Not classified) Not classified	Not classified	898m	East
1644261	Grassy Woodlands	(Grassy Woodlands) Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions	Floodplain Transition Woodlands	900m	North East
1643801	Grassy Woodlands	(Grassy Woodlands) Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions	Floodplain Transition Woodlands	916m	East
1643842	Not classified	(Not classified) Not classified	Not classified	951m	South West
1643740	Grasslands	(Grasslands) Forb-rich Speargrass - Windmill Grass - White Top grassland of the Riverina Bioregion	Riverine Plain Grasslands	959m	South West
1643876	Not classified	(Not classified) Not classified	Not classified	961m	South East
1644272	Not classified	(Not classified) Not classified	Not classified	961m	North East
1643879	Not classified	(Not classified) Not classified	Not classified	964m	South East
1644262	Grassy Woodlands	(Grassy Woodlands) Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions	Floodplain Transition Woodlands	969m	North East
1643860	Not classified	(Not classified) Not classified	Not classified	976m	South West
1643739	Forested Wetlands	(Forested Wetlands) River Red Gum - Black Box woodland wetland of the semi-arid (warm) climatic zone (mainly Riverina Bioregion and Murray Darling Depression Bioregion)	Inland Riverine Forests	996m	West

Ecological Constraints

21541 Riverina Highway, Deniliquin, NSW 2710

Ramsar Wetlands

What Ramsar Wetland areas exist within the dataset buffer?

Map ID	Ramsar Name	Wetland Name	Designation Date	Source	Distance	Direction
N/A	No records in buffer					

Ecological Constraints

21541 Riverina Highway, Deniliquin, NSW 2710

Collaborative Australian Protected Areas Database - Terrestrial

Protected areas in terrestrial environments identified by the CAPAD within the dataset buffer:

Map ID	Area Name	Area Details	Management Category	Authority	Jurisdiction	Dist	Dir
N/A	No records in buffer						

Collaborative Australian Protected Areas Database - Marine

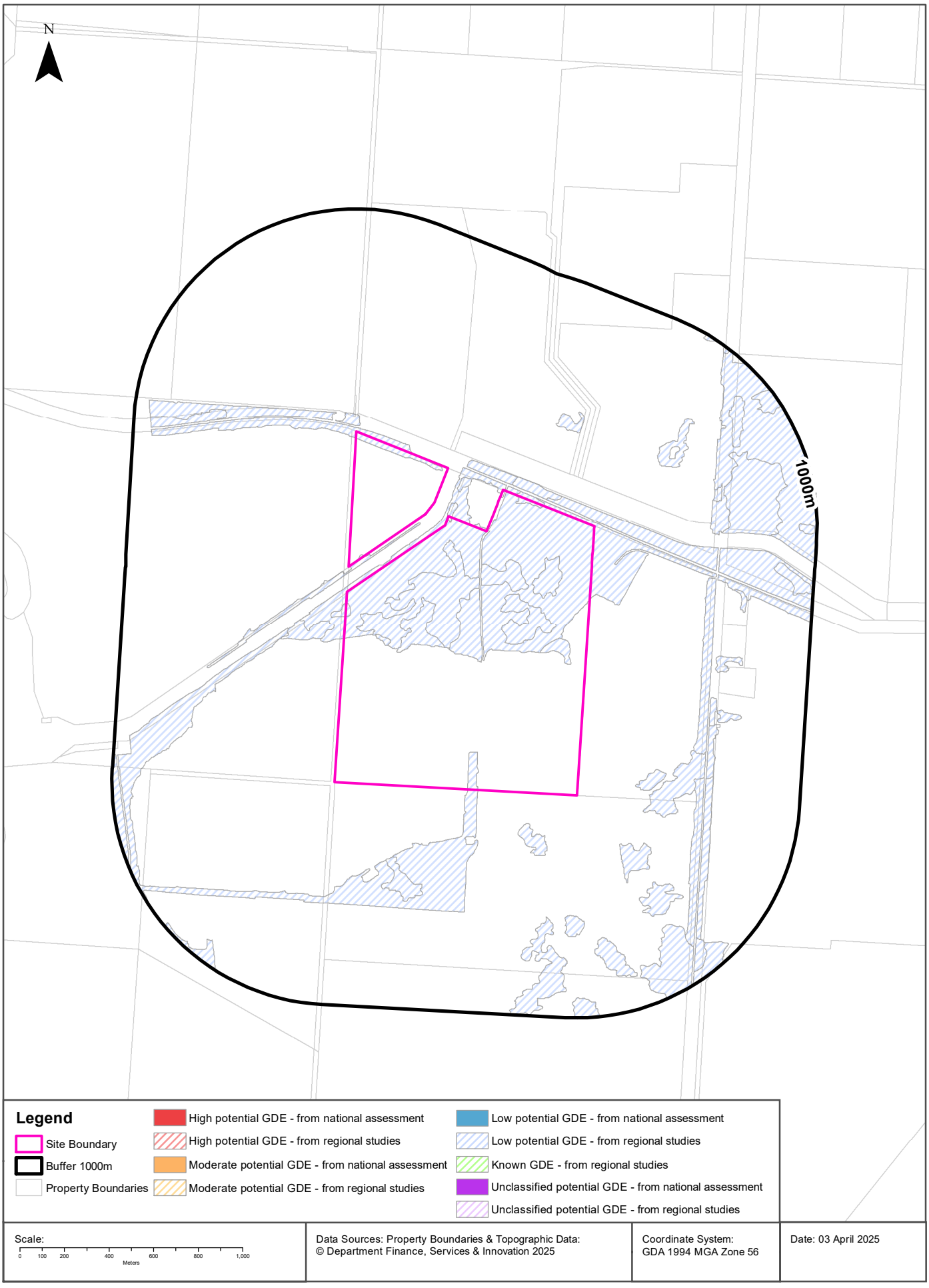
Protected areas in marine environments identified by the CAPAD within the dataset buffer:

Map ID	Area Name	Area Details	Management Category	Authority	Jurisdiction	Dist	Dir
N/A	No records in buffer						

Source: Collaborative Australian Protected Areas Database (CAPAD) 2022

Ecological Constraints - Groundwater Dependent Ecosystems Atlas

21541 Riverina Highway, Deniliquin, NSW 2710



Ecological Constraints

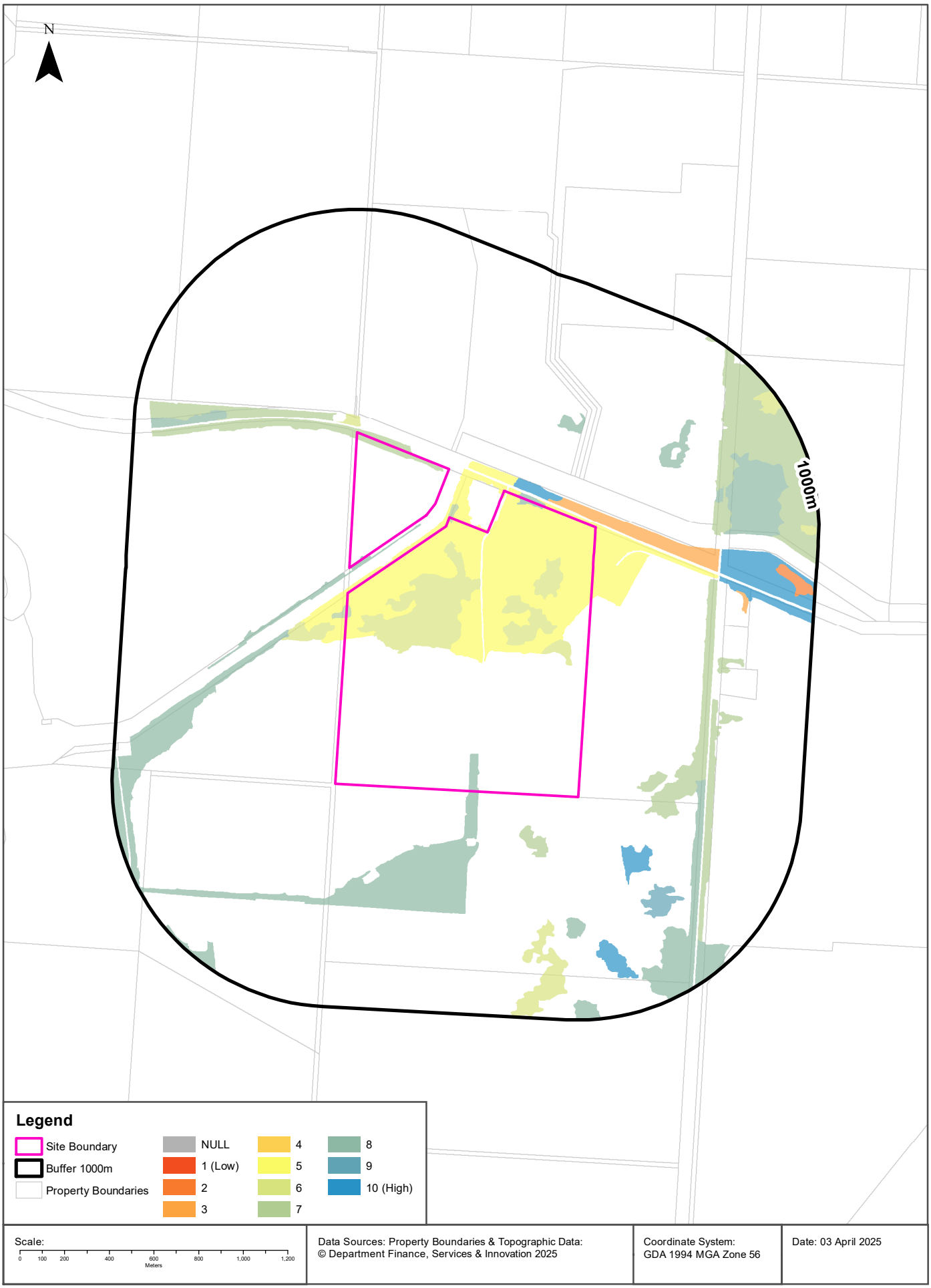
21541 Riverina Highway, Deniliquin, NSW 2710

Groundwater Dependent Ecosystems Atlas

Type	GDE Potential	Geomorphology	Ecosystem Type	Aquifer Geology	Distance	Direction
Terrestrial	Low potential GDE - from regional studies	Alluvial plain.	Vegetation		0m	On-site
Terrestrial	High potential GDE - from regional studies	Alluvial plain.	Vegetation		996m	West

Ecological Constraints - Inflow Dependent Ecosystems Likelihood

21541 Riverina Highway, Deniliquin, NSW 2710



Ecological Constraints

21541 Riverina Highway, Deniliquin, NSW 2710

Inflow Dependent Ecosystems Likelihood

Type	IDE Likelihood	Geomorphology	Ecosystem Type	Aquifer Geology	Distance	Direction
Terrestrial	5	Alluvial plain.	Vegetation		0m	On-site
Terrestrial	6	Alluvial plain.	Vegetation		0m	On-site
Terrestrial	8	Alluvial plain.	Vegetation		0m	On-site
Terrestrial	7	Alluvial plain.	Vegetation		0m	On-site
Terrestrial	3	Alluvial plain.	Vegetation		23m	North East
Terrestrial	10	Alluvial plain.	Vegetation		34m	North East
Terrestrial	9	Alluvial plain.	Vegetation		516m	South East
Terrestrial	2	Alluvial plain.	Vegetation		814m	East

Inflow Dependent Ecosystems Likelihood Data Source: The Bureau of Meteorology

Ecological Constraints

21541 Riverina Highway, Deniliquin, NSW 2710

NSW BioNet Species Sightings

Species sightings from the NSW BioNet Repository that have either a state or federal conservation status, or a sensitivity status, and are within 10 km of the site:
Note: This data does not include NSW Category 1 sensitive species.

Kingdom	Class	Scientific	Common	Sensitivity Class	State Conservation Status	Federal Conservation Status	Migratory Species Agreements
Animalia	Aves	Anthochaera phrygia	Regent Honeyeater	Category 2	Critically Endangered	Critically Endangered	
Animalia	Aves	Antigone rubicunda	Brolga	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Aphelocephala leucopsis	Southern Whiteface	Not Sensitive	Vulnerable	Vulnerable	
Animalia	Aves	Apus pacificus	Fork-tailed Swift	Not Sensitive	Not Listed	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Ardeotis australis	Australian Bustard	Not Sensitive	Endangered	Not Listed	
Animalia	Aves	Artamus cyanopterus cyanopterus	Dusky Woodswallow	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Botaurus poiciloptilus	Australasian Bittern	Not Sensitive	Endangered	Endangered	
Animalia	Aves	Burhinus grallarius	Bush Stone-curlew	Not Sensitive	Endangered	Not Listed	
Animalia	Aves	Calidris acuminata	Sharp-tailed Sandpiper	Not Sensitive	Not Listed	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Certhionyx variegatus	Pied Honeyeater	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Circus assimilis	Spotted Harrier	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Climacteris picumnus victoriae	Brown Treecreeper (eastern subspecies)	Not Sensitive	Vulnerable	Vulnerable	
Animalia	Aves	Daphoenositta chrysoptera	Varied Sittella	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Epthianura albifrons	White-fronted Chat	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Falco hypoleucos	Grey Falcon	Category 2	Vulnerable	Vulnerable	
Animalia	Aves	Falco subniger	Black Falcon	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Gallinago hardwickii	Latham's Snipe	Not Sensitive	Vulnerable	Vulnerable	ROKAMBA;JAMBA
Animalia	Aves	Grantiella picta	Painted Honeyeater	Not Sensitive	Vulnerable	Vulnerable	
Animalia	Aves	Haliaeetus leucogaster	White-bellied Sea-Eagle	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Hieraaetus morphnoides	Little Eagle	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Lophochroa leadbeateri	Pink Cockatoo	Category 2	Vulnerable	Endangered	
Animalia	Aves	Lophoictinia isura	Square-tailed Kite	Category 3	Vulnerable	Not Listed	
Animalia	Aves	Melanodryas cucullata cucullata	South-eastern Hooded Robin	Not Sensitive	Endangered	Endangered	
Animalia	Aves	Neophema pulchella	Turquoise Parrot	Category 3	Vulnerable	Not Listed	
Animalia	Aves	Ninox connivens	Barking Owl	Category 3	Vulnerable	Not Listed	
Animalia	Aves	Numenius phaeopus	Whimbrel	Not Sensitive	Not Listed	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Oxyura australis	Blue-billed Duck	Not Sensitive	Vulnerable	Not Listed	

Kingdom	Class	Scientific	Common	Sensitivity Class	State Conservation Status	Federal Conservation Status	Migratory Species Agreements
Animalia	Aves	Parvipsitta porphyrocephala	Purple-crowned Lorikeet	Category 3	Vulnerable	Not Listed	
Animalia	Aves	Pedionomus torquatus	Plains-wanderer	Category 3	Endangered	Critically Endangered	
Animalia	Aves	Petroica boodang	Scarlet Robin	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Petroica phoenicea	Flame Robin	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Polytelis swainsonii	Superb Parrot	Category 3	Vulnerable	Vulnerable	
Animalia	Aves	Pomatostomus temporalis temporalis	Grey-crowned Babbler (eastern subspecies)	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Rostratula australis	Australian Painted Snipe	Not Sensitive	Endangered	Endangered	
Animalia	Aves	Stagonopleura guttata	Diamond Firetail	Not Sensitive	Vulnerable	Vulnerable	
Animalia	Aves	Stictonetta naevosa	Freckled Duck	Not Sensitive	Vulnerable	Not Listed	
Animalia	Aves	Tyto novaehollandiae	Masked Owl	Category 3	Vulnerable	Not Listed	
Animalia	Mammalia	Antechinomys laniger	Kultarr	Not Sensitive	Endangered	Not Listed	
Animalia	Mammalia	Lasiorhinus krefftii	Northern Hairy-nosed Wombat	Not Sensitive	Extinct	Critically Endangered	
Animalia	Mammalia	Nyctophilus corbeni	Corben's Long-eared Bat	Not Sensitive	Vulnerable	Vulnerable	
Animalia	Mammalia	Petrogale penicillata	Brush-tailed Rock-wallaby	Not Sensitive	Endangered	Vulnerable	
Animalia	Mammalia	Phascogale tapoatafa	Brush-tailed Phascogale	Not Sensitive	Vulnerable	Not Listed	
Animalia	Mammalia	Phascolarctos cinereus	Koala	Not Sensitive	Endangered	Endangered	
Plantae	Flora	Amphibromus fluitans	Floating Swamp Wallaby-grass	Not Sensitive	Vulnerable	Vulnerable	
Plantae	Flora	Austrostipa wakoolica	A spear-grass	Not Sensitive	Endangered	Endangered	
Plantae	Flora	Cullen parvum	Small Scurf-pea	Not Sensitive	Endangered	Not Listed	
Plantae	Flora	Maireana cheelii	Chariot Wheels	Not Sensitive	Vulnerable	Vulnerable	
Plantae	Flora	Swainsona murrayana	Slender Darling Pea	Not Sensitive	Vulnerable	Vulnerable	
Plantae	Flora	Swainsona sericea	Silky Swainson-pea	Not Sensitive	Vulnerable	Not Listed	

Source: NSW BioNet Species Sightings

Location Confidences

Where Lotsearch has had to georeference features from supplied addresses, a location confidence has been assigned to the data record. This indicates a confidence to the positional accuracy of the feature. Where applicable, a code is given under the field heading “LC” or “LocConf”. These codes lookup to the following location confidences:

LC Code	Location Confidence
Premise Match	Georeferenced to the site location / premise or part of site
Area Match	Georeferenced to an approximate or general area
Road Match	Georeferenced to a road or rail corridor
Road Intersection	Georeferenced to a road intersection
Buffered Point	A point feature buffered to x metres
Adjacent Match	Land adjacent to a georeferenced feature
Network of Features	Georeferenced to a network of features
Suburb Match	Georeferenced to a suburb boundary
As Supplied	Spatial data supplied by provider

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Appendix B Title Search

NEW SOUTH WALES LAND REGISTRY SERVICES - TITLE SEARCH

FOLIO: AUTO CONSOL 14165-147

SEARCH DATE	TIME	EDITION NO	DATE
26/6/2025	1:16 PM	9	23/12/2024

LAND

LAND DESCRIBED IN SCHEDULE OF PARCELS
AT DENILIQUIN
LOCAL GOVERNMENT AREA EDWARD RIVER
PARISH OF NORTH DENILIQUIN COUNTY OF TOWNSEND
TITLE DIAGRAM SEE SCHEDULE OF PARCELS

FIRST SCHEDULE

CLIVE ALEXANDER LANDALE (T AK324650)

SECOND SCHEDULE (12 NOTIFICATIONS)

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
2 LAND EXCLUDES THE ROAD(S) AS REGARDS LOT 2 IN DP536901
3 LAND EXCLUDES LOT 2 IN DP598648 AS REGARDS LOT 2 IN DP536901
4 J48605 EASEMENT FOR TRANSMISSION LINE 30 & 45 METRES WIDE & VARIABLE WIDTH AFFECTING THE PART(S) SHOWN SO BURDENED IN PLAN (PAGE 24) WITH J48605 AS REGARDS LOT(S) 2 IN DP536901 & 19 IN DP756310
5 Q808253 EASEMENT FOR TRANSMISSION LINE VARIABLE WIDTH(S) AFFECTING THE PART(S) SHOWN SO BURDENED IN DP451613 AS REGARDS LOT 1 IN DP563000,LOT 2 IN DP563000, LOT 2 IN DP536901& LOT 19 IN DP756310
6 W843685 EASEMENT FOR TRANSMISSION LINE 15 METRE(S) WIDE AFFECTING THE PART(S) SHOWN SO BURDENED IN DP117979 AS REGARDS LOT 2 IN DP563000 & LOT 2 IN DP536901
7 U960369 EASEMENT FOR TRANSMISSION LINE 45 METRE(S) WIDE AND VARIABLE AFFECTING THE PART(S) SHOWN SO BURDENED IN DP645064 AS REGARDS LOT 2 IN DP536901 & LOT 19 IN DP756310
2025019 EASEMENT NOW VESTED IN THE NEW SOUTH WALES ELECTRICITY TRANSMISSION AUTHORITY
8 AF250920 EASEMENT FOR OVERHEAD POWER LINE(S) AFFECTING THE PART OF LOT 2 IN DP536901 AND LOT 2 IN DP563000 SHOWN IN DP1144127
9 AF365129 PROPERTY VEGETATION PLAN AFFECTING LOT 2 IN DP536901
10 AT463403 LEASE TO MUNDIWA PASTORAL CO PTY LTD EXPIRES: 18/9/2073.
* 11 AT466946 CAVEAT BY AE BESS 4 PTY LTD
* AU542466 CAVEATOR CONSENTED
12 AU542466 MORTGAGE TO NATIONAL AUSTRALIA BANK LIMITED

END OF PAGE 1 - CONTINUED OVER

NEW SOUTH WALES LAND REGISTRY SERVICES - TITLE SEARCH

FOLIO: AUTO CONSOL 14165-147 PAGE 2

NOTATIONS

UNREGISTERED DEALINGS: NIL

SCHEDULE OF PARCELS	TITLE DIAGRAM
LOT 2 IN DP536901	DP536901
LOTS 1-2 IN DP563000	DP563000
LOT 6 IN DP756310	CROWN PLAN 20.1803
LOT 19 IN DP756310	CROWN PLAN 18.1803.

*** END OF SEARCH ***

ddavenis PRINTED ON 26/6/2025

Appendix C Property Report

Property Report

RIVERINA HIGHWAY DENILIQUIN 2710

Property Details

Address:	RIVERINA HIGHWAY DENILIQUIN 2710
Lot/Section /Plan No:	1/-/DP536901
Council:	EDWARD RIVER COUNCIL

Summary of planning controls

Planning controls held within the Planning Database are summarised below. The property may be affected by additional planning controls not outlined in this report. Please contact your council for more information.

Local Environmental Plans	Deniliquin Local Environmental Plan 2013 (pub. 15-3-2024)
Land Zoning	RU1 - Primary Production: (pub. 15-3-2024)
Height Of Building	NA
Floor Space Ratio	NA
Minimum Lot Size	40 ha
Heritage	NA
Land Reservation Acquisition	NA
Foreshore Building Line	NA

Detailed planning information

State Environmental Planning Policies which apply to this property

State Environmental Planning Policies can specify planning controls for certain areas and/or types of development. They can also identify the development assessment system that applies and the type of environmental assessment that is required.

- State Environmental Planning Policy (Biodiversity and Conservation) 2021: Allowable Clearing Area (pub. 21-10-2022)
- State Environmental Planning Policy (Biodiversity and Conservation) 2021: Land Application (pub. 2-12-2021)
- State Environmental Planning Policy (Exempt and Complying Development Codes) 2008: Land Application (pub. 12-12-2008)
- State Environmental Planning Policy (Housing) 2021: Land Application (pub. 26-11-2021)
- State Environmental Planning Policy (Industry and Employment) 2021: Land Application (pub. 2-12-2021)
- State Environmental Planning Policy (Planning Systems) 2021: Land Application (pub. 2-12-2021)
- State Environmental Planning Policy (Primary Production) 2021: Land Application (pub. 2-12-2021)
- State Environmental Planning Policy (Resilience and Hazards) 2021: Land Application (pub. 2 -12-2021)
- State Environmental Planning Policy (Resources and Energy) 2021: Land Application (pub. 2-12-2021)
- State Environmental Planning Policy (Sustainable Buildings) 2022: Land Application (pub. 29-8-2022)
- State Environmental Planning Policy (Transport and Infrastructure) 2021: Land Application (pub. 2-12-2021)

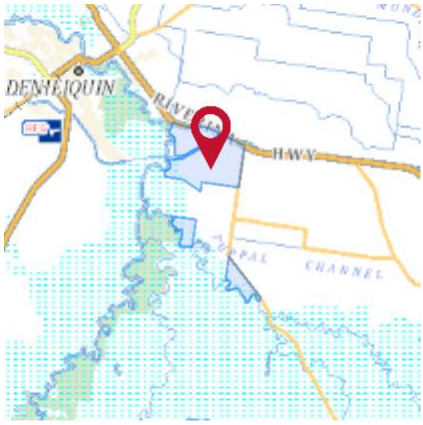
Other matters affecting the property

Information held in the Planning Database about other matters affecting the property appears below. The property may also be affected by additional planning controls not outlined in this report. Please speak to your council for more information

1.5 m Buffer around Classified Roads	Classified Road Adjacent
Bushfire Prone Land	Vegetation Category
Land near Electrical Infrastructure	This property may be located near electrical infrastructure and could be subject to requirements listed under Transport and Infrastructure SEPP 2021 Clause 2.48. Please contact Essential Energy for more information.
Local Aboriginal Land Council	DENILIQUIN
Regional Plan Boundary	Riverina Murray

Property Report

21541 RIVERINA HIGHWAY DENILIQUIN 2710



Property Details

Address:	21541 RIVERINA HIGHWAY DENILIQUIN 2710		
Lot/Section /Plan No:	1/-/DP1281336	1/-/DP510347	1/-/DP563000
	1/-/DP598648	1/-/DP598711	12/-/DP756310
	19/-/DP756310	2/-/DP510347	2/-/DP536901
	2/-/DP563000	3/-/DP1278159	5/-/DP756310
	6/-/DP756310		
Council:	EDWARD RIVER COUNCIL		

Summary of planning controls

Planning controls held within the Planning Database are summarised below. The property may be affected by additional planning controls not outlined in this report. Please contact your council for more information.

Local Environmental Plans	Conargo Local Environmental Plan 2013 (pub. 15-3-2024)
	Deniliquin Local Environmental Plan 2013 (pub. 15-3-2024)
Land Zoning	RU1 - Primary Production: (pub. 15-3-2024)
Height Of Building	NA
Floor Space Ratio	NA
Minimum Lot Size	40 ha
Heritage	NA
Land Reservation Acquisition	NA
Foreshore Building Line	NA
Local Provisions	Refer to Clause 4.2B
Riparian Lands and Watercourses	Watercourses
Terrestrial Biodiversity	Biodiversity
Wetlands	Wetland

Detailed planning information

State Environmental Planning Policies which apply to this property

State Environmental Planning Policies can specify planning controls for certain areas and/or types of development. They can also identify the development assessment system that applies and the type of environmental assessment that is required.

- State Environmental Planning Policy (Biodiversity and Conservation) 2021: Allowable Clearing Area (pub. 21-10-2022)
- State Environmental Planning Policy (Biodiversity and Conservation) 2021: Land Application (pub. 2-12-2021)
- State Environmental Planning Policy (Exempt and Complying Development Codes) 2008: Land Application (pub. 12-12-2008)
- State Environmental Planning Policy (Housing) 2021: Land Application (pub. 26-11-2021)
- State Environmental Planning Policy (Industry and Employment) 2021: Land Application (pub. 2-12-2021)
- State Environmental Planning Policy (Planning Systems) 2021: Land Application (pub. 2-12-2021)
- State Environmental Planning Policy (Primary Production) 2021: Land Application (pub. 2-12-2021)
- State Environmental Planning Policy (Resilience and Hazards) 2021: Land Application (pub. 2 -12-2021)
- State Environmental Planning Policy (Resources and Energy) 2021: Land Application (pub. 2-12-2021)
- State Environmental Planning Policy (Sustainable Buildings) 2022: Land Application (pub. 29-8-2022)
- State Environmental Planning Policy (Transport and Infrastructure) 2021: Land Application (pub. 2-12-2021)

Other matters affecting the property

Information held in the Planning Database about other matters affecting the property appears below. The property may also be affected by additional planning controls not outlined in this report. Please speak to your council for more information

1.5 m Buffer around Classified Roads	Classified Road Adjacent
Biodiversity Value (BV) Map	Clearing native vegetation for a development on an area on the BV Map may require a Biodiversity Development Assessment Report. Consult your local council.
Bushfire Prone Land	Vegetation Category
Land near Electrical Infrastructure	This property may be located near electrical infrastructure and could be subject to requirements listed under Transport and Infrastructure SEPP 2021 Clause 2.48. Please contact Essential Energy for more information.
Local Aboriginal Land Council	DENILIQUIN
Regional Plan Boundary	Riverina Murray

Appendix D Soil logs

ENVIRONMENTAL TESTPIT TP01

PROJECT NUMBER 250155	**DRILLING DATE** 01/07/2025	**COORDINATES**
PROJECT NAME Deniliquin BESS PSI	**METHOD** Excavator	**COORD SYS**
CLIENT Avenis	**TOTAL DEPTH** 0.5m	**LOGGED BY** MW
ADDRESS 21541 Riverina Highway, Deniliquin, New South Wales	**SURFACE COVERAGE** Grassland	**CHECKED BY**

COMMENTS Weather: Sunny, Partly Cloudy, no wind. Groundcover predominantly grassland, even coverage. Predominantly flat land, no standing vegetation present.

Depth (m)	Sample ID	Sample Type	Moisture	Graphic Log	Material Description - (texture, coarse fragments, mottling, nodules etc)	Additional Observations
	DTP01 _0.0-0.1m	Soil	SM		Dark reddish brown Sandy Clay No coarse fragments No mottling No nodules Common fine roots	
0.1	DTP01_0.5m	Soil	SM		Light brown Medium clay No coarse fragments Some black and orange mottling No nodules Few fine roots	
0.2						
0.3						
0.4						
0.5					Termination Depth at: 0.5m	

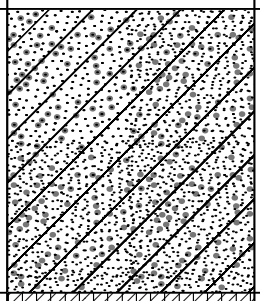
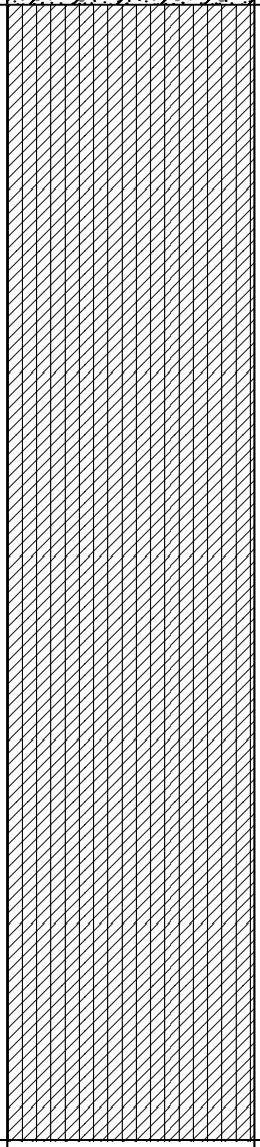
ENVIRONMENTAL TESTPIT TP02

PROJECT NUMBER 250155
PROJECT NAME Deniliquin BESS PSI
CLIENT Avenis
ADDRESS 21541 Riverina Highway, Deniliquin, New South Wales

DRILLING DATE 01/07/2025
METHOD Excavator
TOTAL DEPTH 0.5m
SURFACE COVERAGE Grassland

COORDINATES
COORD SYS
LOGGED BY MW
CHECKED BY

COMMENTS Weather: Sunny, Partly Cloudy, no wind. No groundcover, Bare soil with gravel on surface. Predominantly flat land, no standing vegetation present.

Depth (m)	Sample ID	Sample Type	Moisture	Graphic Log	Material Description - (texture, coarse fragments, mottling, nodules etc)	Additional Observations
	DTP02 _0.0-0.1m	Soil	D		Brown Sandy Clay Small <1mm common coarse fragments No mottling No nodules Few fine roots	
0.1	DTP02_0.5m	Soil	SM		Dark brown Medium clay Few coarse fragments <5mm Some black and orange mottling White calcification marks No nodules No roots	DUP01 taken here
0.2						
0.3						
0.4						
0.5					Termination Depth at: 0.5m	

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ENVIRONMENTAL TESTPIT TP03

PROJECT NUMBER 250155	**DRILLING DATE** 01/07/2025	**COORDINATES**
PROJECT NAME Deniliquin BESS PSI	**METHOD** Excavator	**COORD SYS**
CLIENT Avenis	**TOTAL DEPTH** 0.5m	**LOGGED BY** MW
ADDRESS 21541 Riverina Highway, Deniliquin, New South Wales	**SURFACE COVERAGE** Grassland	**CHECKED BY**

COMMENTS Weather: Sunny, Partly Cloudy, no wind. Groundcover predominantly grassland, even coverage. Predominantly flat land, no standing vegetation present.

Depth (m)	Sample ID	Sample Type	Moisture	Graphic Log	Material Description - (texture, coarse fragments, mottling, nodules etc)	Additional Observations
	DTP03 _0.0-0.1m	Soil	SM		Dark brown Sandy Clay No coarse fragments No mottling No nodules Common fine roots	
0.1	DTP03_0.5m	Soil	SM		Light brown Medium clay No coarse fragments Some black and orange mottling No nodules Few fine roots	
0.2						
0.3						
0.4						
0.5					Termination Depth at: 0.5m	

ENVIRONMENTAL TESTPIT TP04

PROJECT NUMBER 250155
PROJECT NAME Deniliquin BESS PSI
CLIENT Avenis
ADDRESS 21541 Riverina Highway, Deniliquin, New South Wales

DRILLING DATE 01/07/2025
METHOD Excavator
TOTAL DEPTH 0.5m
SURFACE COVERAGE Grassland

COORDINATES
COORD SYS
LOGGED BY MW
CHECKED BY

COMMENTS Weather: Sunny, Partly Cloudy, no wind. Groundcover predominantly grassland, even coverage. Within slight depression (old gravel pit), no standing vegetation present.

Depth (m)	Sample ID	Sample Type	Moisture	Graphic Log	Material Description - (texture, coarse fragments, mottling, nodules etc)	Additional Observations
	DTP04 _0.0-0.1m	Soil	M		Light grey Light clay No coarse fragments Some orange mottling No nodules Few fine roots Holds moisture well	
0.1	DTP04_0.5m	Soil	SM		Light grey Medium clay No coarse fragments Some black and orange mottling No nodules No roots Some white calcium carbonate	
0.5					Termination Depth at: 0.5m	

Appendix E Laboratory results

E.1 Certificate of analysis

CERTIFICATE OF ANALYSIS

Work Order	: **ES2520499**	Page	: 1 of 12
Client	: **NGH PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MARTIN WYBURN	Contact	: Customer Services ES
Address	: Wagga Wagga	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: 240334	Date Samples Received	: 07-Jul-2025 10:50
Order number	: ----	Date Analysis Commenced	: 08-Jul-2025
C-O-C number	: ----	Issue Date	: 10-Jul-2025 14:04
Sampler	: MARTIN WYBURN		
Site	: ----		
Quote number	: EN/222		
No. of samples received	: 9		
No. of samples analysed	: 9		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
Alex Rossi	Organic Chemist	Sydney Inorganics, Smithfield, NSW
Alex Rossi	Organic Chemist	Sydney Organics, Smithfield, NSW
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General Comments

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

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

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

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

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

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

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

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	DTP01_0.0-0.1m	DTP01_0.5m	DTP02_0.0-0.1m	DTP02_0.5m	DTP03_0.0-0.1m
			Sampling date / time	01-Jul-2025 00:00	01-Jul-2025 00:00	01-Jul-2025 00:00	01-Jul-2025 00:00	01-Jul-2025 00:00
Compound	CAS Number	LOR	Unit	ES2520499-001	ES2520499-002	ES2520499-003	ES2520499-004	ES2520499-005
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	7.6	8.0	8.2	11.7	8.1
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	6	<5	8	<5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	12	23	16	27	14
Copper	7440-50-8	5	mg/kg	7	15	11	19	7
Lead	7439-92-1	5	mg/kg	7	12	10	16	8
Nickel	7440-02-0	2	mg/kg	6	17	8	18	6
Zinc	7440-66-6	5	mg/kg	15	34	18	36	16
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	----	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	DTP01_0.0-0.1m	DTP01_0.5m	DTP02_0.0-0.1m	DTP02_0.5m	DTP03_0.0-0.1m
				Sampling date / time	01-Jul-2025 00:00	01-Jul-2025 00:00	01-Jul-2025 00:00	01-Jul-2025 00:00	01-Jul-2025 00:00
Compound	CAS Number	LOR	Unit		ES2520499-001	ES2520499-002	ES2520499-003	ES2520499-004	ES2520499-005
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ **Endosulfan (sum)**	115-29-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Dimethoate	60-51-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Diazinon	333-41-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	121-75-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Fenthion	55-38-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Parathion	56-38-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	DTP01_0.0-0.1m	DTP01_0.5m	DTP02_0.0-0.1m	DTP02_0.5m	DTP03_0.0-0.1m
			Sampling date / time	01-Jul-2025 00:00	01-Jul-2025 00:00	01-Jul-2025 00:00	01-Jul-2025 00:00	01-Jul-2025 00:00
Compound	CAS Number	LOR	Unit	ES2520499-001	ES2520499-002	ES2520499-003	ES2520499-004	ES2520499-005
				Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued								
Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	0.5	mg/kg	<0.5	<0.5	----	----	----
2-Chlorophenol	95-57-8	0.5	mg/kg	<0.5	<0.5	----	----	----
2-Methylphenol	95-48-7	0.5	mg/kg	<0.5	<0.5	----	----	----
3- & 4-Methylphenol	1319-77-3	1	mg/kg	<1	<1	----	----	----
2-Nitrophenol	88-75-5	0.5	mg/kg	<0.5	<0.5	----	----	----
2.4-Dimethylphenol	105-67-9	0.5	mg/kg	<0.5	<0.5	----	----	----
2.4-Dichlorophenol	120-83-2	0.5	mg/kg	<0.5	<0.5	----	----	----
2.6-Dichlorophenol	87-65-0	0.5	mg/kg	<0.5	<0.5	----	----	----
4-Chloro-3-methylphenol	59-50-7	0.5	mg/kg	<0.5	<0.5	----	----	----
2.4.6-Trichlorophenol	88-06-2	0.5	mg/kg	<0.5	<0.5	----	----	----
2.4.5-Trichlorophenol	95-95-4	0.5	mg/kg	<0.5	<0.5	----	----	----
Pentachlorophenol	87-86-5	2	mg/kg	<2	<2	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	----	----	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	----	----	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	DTP01_0.0-0.1m	DTP01_0.5m	DTP02_0.0-0.1m	DTP02_0.5m	DTP03_0.0-0.1m
			Sampling date / time	01-Jul-2025 00:00	01-Jul-2025 00:00	01-Jul-2025 00:00	01-Jul-2025 00:00	01-Jul-2025 00:00
Compound	CAS Number	LOR	Unit	ES2520499-001	ES2520499-002	ES2520499-003	ES2520499-004	ES2520499-005
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	mg/kg	<0.5	<0.5	----	----	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	mg/kg	<0.5	<0.5	----	----	----
^ **Benzo(a)pyrene TEQ (half LOR)**	----	0.5	mg/kg	**0.6**	**0.6**	----	----	----
^ **Benzo(a)pyrene TEQ (LOR)**	----	0.5	mg/kg	**1.2**	**1.2**	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	----	----	----
C10 - C14 Fraction	----	50	mg/kg	<50	<50	----	----	----
C15 - C28 Fraction	----	100	mg/kg	<100	<100	----	----	----
C29 - C36 Fraction	----	100	mg/kg	<100	<100	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg	<50	<50	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg	<10	<10	----	----	----
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	----	----	----
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	----	----	----
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg	<50	<50	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	DTP01_0.0-0.1m	DTP01_0.5m	DTP02_0.0-0.1m	DTP02_0.5m	DTP03_0.0-0.1m
				Sampling date / time	01-Jul-2025 00:00	01-Jul-2025 00:00	01-Jul-2025 00:00	01-Jul-2025 00:00	01-Jul-2025 00:00
Compound	CAS Number	LOR	Unit		ES2520499-001	ES2520499-002	ES2520499-003	ES2520499-004	ES2520499-005
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	----	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	----	----	----
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	----	----	----
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	----	----	----
Naphthalene	91-20-3	1	mg/kg		<1	<1	----	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		126	127	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		92.5	89.1	75.6	76.1	94.4
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		89.0	84.1	70.4	68.6	91.8
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		79.5	85.3	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		79.2	84.5	----	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		78.8	78.4	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		97.4	100	----	----	----
Anthracene-d10	1719-06-8	0.5	%		95.6	96.0	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		89.2	90.7	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		93.3	96.1	----	----	----
Toluene-D8	2037-26-5	0.2	%		86.1	89.3	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	DTP01_0.0-0.1m	DTP01_0.5m	DTP02_0.0-0.1m	DTP02_0.5m	DTP03_0.0-0.1m
			Sampling date / time	01-Jul-2025 00:00	01-Jul-2025 00:00	01-Jul-2025 00:00	01-Jul-2025 00:00	01-Jul-2025 00:00
Compound	CAS Number	LOR	Unit	ES2520499-001	ES2520499-002	ES2520499-003	ES2520499-004	ES2520499-005
				Result	Result	Result	Result	Result
EP080S: TPH(V)/BTEX Surrogates - Continued								
4-Bromofluorobenzene	460-00-4	0.2	%	**86.7**	**89.0**	**----**	**----**	**----**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	DTP03_0.5m	DTP04_0.0-0.1m	DTP04_0.5m	DUP01	----
			Sampling date / time	01-Jul-2025 00:00	01-Jul-2025 00:00	01-Jul-2025 00:00	01-Jul-2025 00:00	----
Compound	CAS Number	LOR	Unit	ES2520499-006	ES2520499-007	ES2520499-008	ES2520499-009	--------
				Result	Result	Result	Result	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**7.9**	**17.8**	**13.7**	**11.0**	**----**
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	**7**	<5	**8**	**9**	**----**
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	**----**
Chromium	7440-47-3	2	mg/kg	**20**	**13**	**16**	**27**	**----**
Copper	7440-50-8	5	mg/kg	**13**	**10**	**14**	**19**	**----**
Lead	7439-92-1	5	mg/kg	**10**	**12**	**18**	**16**	**----**
Nickel	7440-02-0	2	mg/kg	**15**	**10**	**12**	**17**	**----**
Zinc	7440-66-6	5	mg/kg	**25**	**16**	**20**	**35**	**----**
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	**----**
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	<0.05	**----**	**----**
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	<0.05	**----**	**----**
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	<0.05	**----**	**----**
gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	<0.05	<0.05	**----**	**----**
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	**----**	**----**
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	<0.05	**----**	**----**
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	<0.05	**----**	**----**
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	<0.05	**----**	**----**
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	<0.05	<0.05	**----**	**----**
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	<0.05	**----**	**----**
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	<0.05	**----**	**----**
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	<0.05	**----**	**----**
Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	**----**	**----**
4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	<0.05	**----**	**----**
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	<0.05	**----**	**----**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	DTP03_0.5m	DTP04_0.0-0.1m	DTP04_0.5m	DUP01	----
				Sampling date / time	01-Jul-2025 00:00	01-Jul-2025 00:00	01-Jul-2025 00:00	01-Jul-2025 00:00	----
Compound	CAS Number	LOR	Unit		ES2520499-006	ES2520499-007	ES2520499-008	ES2520499-009	--------
					Result	Result	Result	Result	----
EP068A: Organochlorine Pesticides (OC) - Continued									
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
Dimethoate	60-51-5	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Diazinon	333-41-5	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
Malathion	121-75-5	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Fenthion	55-38-9	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Parathion	56-38-2	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	<0.05	<0.05	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	DTP03_0.5m	DTP04_0.0-0.1m	DTP04_0.5m	DUP01	----
				Sampling date / time	01-Jul-2025 00:00	01-Jul-2025 00:00	01-Jul-2025 00:00	01-Jul-2025 00:00	----
Compound	CAS Number	LOR	Unit		ES2520499-006	ES2520499-007	ES2520499-008	ES2520499-009	--------
					Result	Result	Result	Result	----
EP068B: Organophosphorus Pesticides (OP) - Continued									
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Ethion	563-12-2	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		**72.7**	**84.8**	**77.4**	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		**67.3**	**81.2**	**70.8**	----	----

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	39	149
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	147
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	35	143
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	63	125
Toluene-D8	2037-26-5	67	124
4-Bromofluorobenzene	460-00-4	66	131

E.2 Chain of custody forms

CHAIN OF CUSTODY

ALS Laboratory: please tick →

☐ADELAIDE 3/1 Burma Road Pooraka SA 5095 Ph: 08 8162 5130 E: adelaide@alsglobal.com
☐BRISBANE 2 Byth Street Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com
☐GLADSTONE 48 Callemondah Drive Gladstone QLD 4680 Ph: 07 4976 7944 E: ALSEnviro.Gladstone@alsglobal.com
☐MACKAY Unit 2/20 Caterpillar Drive Paget QLD 4740 Ph: 07 4952 5795 E: ALSEnviro.Mackay@alsglobal.com
☐MELBOURNE 2-4 Westall Road Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsglobal.com
☐MUDGEE 1/29 Sydney Road Mudgee NSW 2850 Ph: 02 6372 6735 E: mudgee.mail@alsglobal.com
☐NEWCASTLE 5/585 Maitland Road Mayfield West NSW 2304 Ph: 02 4014 2500 E: samples.newcastle@alsglobal.com
☐NOWRA 4/13 Geary Place North Nowra NSW 2541 Ph: 02 4423 2063 E: nowra@alsglobal.com
☐PERTH 26 Rigali Way Wangara WA 6065 Ph: 08 9406 1301 E: samples.perth@alsglobal.com
☐SYDNEY 277-289 Woodpark Road Smithfield NSW 2164 Ph: 02 8784 8555 E: samples.sydney@alsglobal.com
☐TOWNSVILLE 13 Carlton Street Kirwan QLD 4817 Ph: 07 4773 0000 E: ALSEnviro.Townsville@alsglobal.com
☐WOLLONGONG 1/19-21 Ralph Black Drive, Nth Wollongong NSW 2500 Ph: 02 4225 3125 E: wollongong@alsglobal.com

CLIENT: NGH Pty Ltd

OFFICE: 35 Kincaid Street Wagga Wagga NSW 2650

TURNAROUND REQUIREMENTS : ☐ Standard TAT (List due date):

(Standard TAT may be longer for some tests e.g., Ultra Trace Organics) ✠ Non Standard or urgent TAT (List due date): Three day turnaroud please

FOR LABORATORY USE ONLY (Circle)

Custody Seal Intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comment:			

Deniliquin BESS PSI	PROJECT NO. 240334	ALS QUOTE NO.:	
ORDER NUMBER:	PURCHASE ORDER NO.:	COUNTRY OF ORIGIN: australia	
PROJECT Controller: Madison Batchelor		CONTACT PH: 0431 842 388	
SAMPLER: Martin Wyburn		SAMPLER MOBILE: 0431 842 388	
COC Emailed to ALS? (YES)		EDD FORMAT (or default): YES (ESDAT)	

COC SEQUENCE NUMBER (Circle)

COC: 1 2 3 4 5 6 7

OF: 1 2 3 4 5 6 7

Email Reports to (will default to PM if no other addresses are listed) martin.wyburn@nghconsulting.com.au

Email Invoice to (will default to PM if no other addresses are listed): accounts@nghconsulting.com.au

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE/TIME:	DATE/TIME: Fri 8 7/7/25 10:45am	DATE/TIME:	DATE/TIME:

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE ONLY	SAMPLE DETAILS			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price)												Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL BOTTLES	S-2 (8 Metals - As, Cd, Cr, Cu, Ni, Pb, Zn, Hg)	S-19 (TRH/BTEXN/PAH/Phenols/OC/OP/PCB, 8 Metals)	S-12 (OC/OP Pesticides)									HOLD	Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
1	DTP01_0.0-0.1m	01/07/2025	Soil	Unpreserved glass jar	1		x											
2	DTP01_0.5m	01/07/2025	Soil	Unpreserved glass jar	1		x											
3	DTP02_0.0-0.1m	01/07/2025	Soil	Unpreserved glass jar	1	x		x										
4	DTP02_0.5m	01/07/2025	Soil	Unpreserved glass jar	1	x		x										
5	DTP03_0.0-0.1m	01/07/2025	Soil	Unpreserved glass jar	1	x		x										
6	DTP03_0.5m	01/07/2025	Soil	Unpreserved glass jar	1	x		x										
7	DTP04_0.0-0.1m	01/07/2025	Soil	Unpreserved glass jar	1	x		x										
8	DTP04_0.5m	01/07/2025	Soil	Unpreserved glass jar	1	x		x										
9	DUP01	01/07/2025	Soil	Unpreserved glass jar	1	x												
				TOTAL	9	7	2	6	0	0	0	0	0	0	0	0	0	

TAT

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

Environmental Division
Sydney
Work Order Reference
ES2520499

Telephone : +61-2-8784 8555

ES2520499

E.3 Laboratory QA/QC certificates

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2520499**	Page	: 1 of 5
Client	: **NGH PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MARTIN WYBURN	Telephone	: +61-2-8784 8555
Project	: 240334	Date Samples Received	: 07-Jul-2025
Site	: ----	Issue Date	: 10-Jul-2025
Sampler	: MARTIN WYBURN	No. of samples received	: 9
Order number	: ----	No. of samples analysed	: 9

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

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

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

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

Analysis Holding Time Compliance

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

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

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

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

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)		Sample Date	Extraction / Preparation			Analysis		
			Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)								
Soil Glass Jar - Unpreserved (EA055)								
DTP01_0.0-0.1m,	DTP01_0.5m,	**01-Jul-2025**	**----**	----	----	**08-Jul-2025**	15-Jul-2025	✓
DTP02_0.0-0.1m,	DTP02_0.5m,							
DTP03_0.0-0.1m,	DTP03_0.5m,							
DTP04_0.0-0.1m,	DTP04_0.5m,							
DUP01								
EG005(ED093)T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T)								
DTP01_0.0-0.1m,	DTP01_0.5m,	**01-Jul-2025**	**08-Jul-2025**	28-Dec-2025	✓	**08-Jul-2025**	28-Dec-2025	✓
DTP02_0.0-0.1m,	DTP02_0.5m,							
DTP03_0.0-0.1m,	DTP03_0.5m,							
DTP04_0.0-0.1m,	DTP04_0.5m,							
DUP01								
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T)								
DTP01_0.0-0.1m,	DTP01_0.5m,	**01-Jul-2025**	**08-Jul-2025**	29-Jul-2025	✓	**09-Jul-2025**	29-Jul-2025	✓
DTP02_0.0-0.1m,	DTP02_0.5m,							
DTP03_0.0-0.1m,	DTP03_0.5m,							
DTP04_0.0-0.1m,	DTP04_0.5m,							
DUP01								
EP066: Polychlorinated Biphenyls (PCB)								
Soil Glass Jar - Unpreserved (EP066)								
DTP01_0.0-0.1m,	DTP01_0.5m	**01-Jul-2025**	**08-Jul-2025**	15-Jul-2025	✓	**09-Jul-2025**	17-Aug-2025	✓
EP068A: Organochlorine Pesticides (OC)								
Soil Glass Jar - Unpreserved (EP068)								
DTP01_0.0-0.1m,	DTP01_0.5m,	**01-Jul-2025**	**08-Jul-2025**	15-Jul-2025	✓	**09-Jul-2025**	17-Aug-2025	✓
DTP02_0.0-0.1m,	DTP02_0.5m,							
DTP03_0.0-0.1m,	DTP03_0.5m,							
DTP04_0.0-0.1m,	DTP04_0.5m							

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP068B: Organophosphorus Pesticides (OP)							
Soil Glass Jar - Unpreserved (EP068)							
DTP01_0.0-0.1m, DTP01_0.5m, DTP02_0.0-0.1m, DTP02_0.5m, DTP03_0.0-0.1m, DTP03_0.5m, DTP04_0.0-0.1m, DTP04_0.5m	**01-Jul-2025**	**08-Jul-2025**	15-Jul-2025	✓	**09-Jul-2025**	17-Aug-2025	✓
EP075(SIM)A: Phenolic Compounds							
Soil Glass Jar - Unpreserved (EP075(SIM))							
DTP01_0.0-0.1m, DTP01_0.5m	**01-Jul-2025**	**08-Jul-2025**	15-Jul-2025	✓	**09-Jul-2025**	17-Aug-2025	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM))							
DTP01_0.0-0.1m, DTP01_0.5m	**01-Jul-2025**	**08-Jul-2025**	15-Jul-2025	✓	**09-Jul-2025**	17-Aug-2025	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080)							
DTP01_0.0-0.1m, DTP01_0.5m	**01-Jul-2025**	**08-Jul-2025**	15-Jul-2025	✓	**08-Jul-2025**	15-Jul-2025	✓
Soil Glass Jar - Unpreserved (EP071)							
DTP01_0.0-0.1m, DTP01_0.5m	**01-Jul-2025**	**08-Jul-2025**	15-Jul-2025	✓	**09-Jul-2025**	17-Aug-2025	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP080)							
DTP01_0.0-0.1m, DTP01_0.5m	**01-Jul-2025**	**08-Jul-2025**	15-Jul-2025	✓	**08-Jul-2025**	15-Jul-2025	✓
Soil Glass Jar - Unpreserved (EP071)							
DTP01_0.0-0.1m, DTP01_0.5m	**01-Jul-2025**	**08-Jul-2025**	15-Jul-2025	✓	**09-Jul-2025**	17-Aug-2025	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080)							
DTP01_0.0-0.1m, DTP01_0.5m	**01-Jul-2025**	**08-Jul-2025**	15-Jul-2025	✓	**08-Jul-2025**	15-Jul-2025	✓

Quality Control Parameter Frequency Compliance

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

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	3	18	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	4	34	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	3	22	**13.64**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	2	**50.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	6	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	3	34	**8.82**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	22	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	3	34	**8.82**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	22	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	3	34	**8.82**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	22	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3).
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015 Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM Schedule B(3).
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM Schedule B(3) amended.

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

Appendix F Chemical summary tables

Location										DTP01	DTP01	DTP02	DTP02	DTP02	DTP03	DTP03	DTP04	DTP04
Sample ID										DTP01_0.0-0.1m	DTP01_0.5m	DTP02_0.0-0.1m	DTP02_0.5m	DUP01	DTP03_0.0-0.1m	DTP03_0.5m	DTP04_0.0-0.1m	DTP04_0.5m
Date Sampled										01/07/2025	01/07/2025	01/07/2025	01/07/2025	01/07/2025	01/07/2025	01/07/2025	01/07/2025	01/07/2025
Sample Type										Primary Sample	Primary Sample	Primary Sample	Primary Sample	Duplicate Sample	Primary Sample	Primary Sample	Primary Sample	Primary Sample
Primary Sample ID										DTP01_0.0-0.1m	DTP01_0.5m	DTP02_0.0-0.1m	DTP02_0.5m	DTP02_0.5m	DTP03_0.0-0.1m	DTP03_0.5m	DTP04_0.0-0.1m	DTP04_0.5m
Lab Sample ID										ES2520499001	ES2520499002	ES2520499003	ES2520499004	ES2520499009	ES2520499005	ES2520499006	ES2520499007	ES2520499008
Batch No.										ES2520499	ES2520499	ES2520499	ES2520499	ES2520499	ES2520499	ES2520499	ES2520499	ES2520499
PID Readings (ppm)										-	-	-	-	-	-	-	-	-
Analyte	**LOR**	**Units**	**HIL 'A'**	**HSL-A/B, 0 to <1m, Sand**	**HSL-A Residential (Low Density), Direct Contact**	**HIL 'D'**	**HSL-D, 0 to <1m, Sand**	**HSL-D Commercial/Industrial, Direct Contact**	**HSL-D Intrusive Maintenance Worker, Direct Contact**									
Physico-Chemical Parameters																		
Moisture Content	1	%	ne	ne	ne	ne	ne	ne	ne	**7.6**	**8**	**8.2**	**11.7**	**11**	**8.1**	**7.9**	**17.8**	**13.7**
Metals (total)																		
Arsenic	5	mg/kg	100	ne	ne	3000	ne	ne	ne	<5	**6**	<5	**8**	**9**	<5	**7**	<5	**8**
Cadmium	1	mg/kg	20	ne	ne	900	ne	ne	ne	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chromium	2	mg/kg	100	ne	ne	3600	ne	ne	ne	**12**	**23**	**16**	**27**	**27**	**14**	**20**	**13**	**16**
Copper	5	mg/kg	6000	ne	ne	240000	ne	ne	ne	**7**	**15**	**11**	**19**	**19**	**7**	**13**	**10**	**14**
Lead	5	mg/kg	300	ne	ne	1500	ne	ne	ne	**7**	**12**	**10**	**16**	**16**	**8**	**10**	**12**	**18**
Mercury	0.1	mg/kg	40	ne	ne	730	ne	ne	ne	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	2	mg/kg	400	ne	ne	6000	ne	ne	ne	**6**	**17**	**8**	**18**	**17**	**6**	**15**	**10**	**12**
Zinc	5	mg/kg	7400	ne	ne	400000	ne	ne	ne	**15**	**34**	**18**	**36**	**35**	**16**	**25**	**16**	**20**
Total Petroleum Hydrocarbons																		
C10 - C14 Fraction	50	mg/kg	ne	ne	ne	ne	ne	ne	ne	<50	<50	-	-	-	-	-	-	-
C10 - C36 Fraction (sum)	50	mg/kg	ne	ne	ne	ne	ne	ne	ne	<50	<50	-	-	-	-	-	-	-
C15 - C28 Fraction	100	mg/kg	ne	ne	ne	ne	ne	ne	ne	<100	<100	-	-	-	-	-	-	-
C29 - C36 Fraction	100	mg/kg	ne	ne	ne	ne	ne	ne	ne	<100	<100	-	-	-	-	-	-	-
C6 - C9 Fraction	10	mg/kg	ne	ne	ne	ne	ne	ne	ne	<10	<10	-	-	-	-	-	-	-
Total Recoverable Hydrocarbons																		
>C10 - C16 Fraction	50	mg/kg	ne	ne	3300	ne	ne	20000	62000	<50	<50	-	-	-	-	-	-	-
>C10 - C16 Fraction minus Naphthalene (F2)	50	mg/kg	ne	110	ne	ne	NL	ne	ne	<50	<50	-	-	-	-	-	-	-
>C10 - C40 Fraction (sum)	50	mg/kg	ne	ne	ne	ne	ne	ne	ne	<50	<50	-	-	-	-	-	-	-
>C16 - C34 Fraction	100	mg/kg	ne	ne	4500	ne	ne	27000	85000	<100	<100	-	-	-	-	-	-	-
>C34 - C40 Fraction	100	mg/kg	ne	ne	6300	ne	ne	38000	120000	<100	<100	-	-	-	-	-	-	-
C6 - C10 Fraction	10	mg/kg	ne	ne	4400	ne	ne	26000	82000	<10	<10	-	-	-	-	-	-	-
C6 - C10 Fraction minus BTEX (F1)	10	mg/kg	ne	45	ne	ne	260	ne	ne	<10	<10	-	-	-	-	-	-	-
BTEXN																		
Benzene	0.2	mg/kg	ne	0.5	100	ne	3	430	1100	<0.2	<0.2	-	-	-	-	-	-	-
Ethylbenzene	0.5	mg/kg	ne	55	45000	ne	NL	27000	85000	<0.5	<0.5	-	-	-	-	-	-	-
meta- & para-Xylene	0.5	mg/kg	ne	ne	ne	ne	ne	ne	ne	<0.5	<0.5	-	-	-	-	-	-	-
Naphthalene	1	mg/kg	ne	3	1400	ne	NL	11000	29000	<1	<1	-	-	-	-	-	-	-
ortho-Xylene	0.5	mg/kg	ne	ne	ne	ne	ne	ne	ne	<0.5	<0.5	-	-	-	-	-	-	-
Sum of BTEX	0.2	m/kg	ne	ne	ne	ne	ne	ne	ne	<0.2	<0.2	-	-	-	-	-	-	-
Toluene	0.5	mg/kg	ne	160	14000	ne	NL	99000	120000	<0.5	<0.5	-	-	-	-	-	-	-
Total Xylenes	0.5	mg/kg	ne	40	12000	ne	230	81000	130000	<0.5	<0.5	-	-	-	-	-	-	-
Polycyclic Aromatic Hydrocarbons																		
Acenaphthene	0.5	mg/kg	ne	ne	ne	ne	ne	ne	ne	<0.5	<0.5	-	-	-	-	-	-	-
Acenaphthylene	0.5	mg/kg	ne	ne	ne	ne	ne	ne	ne	<0.5	<0.5	-	-	-	-	-	-	-
Anthracene	0.5	mg/kg	ne	ne	ne	ne	ne	ne	ne	<0.5	<0.5	-	-	-	-	-	-	-
Benz(a)anthracene	0.5	mg/kg	ne	ne	ne	ne	ne	ne	ne	<0.5	<0.5	-	-	-	-	-	-	-
Benzo(a)pyrene	0.5	mg/kg	ne	ne	ne	ne	ne	ne	ne	<0.5	<0.5	-	-	-	-	-	-	-
Benzo(a)pyrene TEQ (half LOR)	0.5	mg/kg	3	ne	ne	40	ne	ne	ne	**0.6**	**0.6**	-	-	-	-	-	-	-
Benzo(a)pyrene TEQ (LOR)	0.5	mg/kg	3	ne	ne	40	ne	ne	ne	**1.2**	**1.2**	-	-	-	-	-	-	-
Benzo(a)pyrene TEQ (zero)	0.5	mg/kg	3	ne	ne	40	ne	ne	ne	<0.5	<0.5	-	-	-	-	-	-	-
Benzo(b+j)fluoranthene	0.5	mg/kg	ne	ne	ne	ne	ne	ne	ne	<0.5	<0.5	-	-	-	-	-	-	-
Benzo(g,h,i)perylene	0.5	mg/kg	ne	ne	ne	ne	ne	ne	ne	<0.5	<0.5	-	-	-	-	-	-	-
Benzo(k)fluoranthene	0.5	mg/kg	ne	ne	ne	ne	ne	ne	ne	<0.5	<0.5	-	-	-	-	-	-	-
Chrysene	0.5	mg/kg	ne	ne	ne	ne	ne	ne	ne	<0.5	<0.5	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	0.5	mg/kg	ne	ne	ne	ne	ne	ne	ne	<0.5	<0.5	-	-	-	-	-	-	-
Fluoranthene	0.5	mg/kg	ne	ne	ne	ne	ne	ne	ne	<0.5	<0.5	-	-	-	-	-	-	-
Fluorene	0.5	mg/kg	ne	ne	ne	ne	ne	ne	ne	<0.5	<0.5	-	-	-	-	-	-	-

Indeno(1,2,3,cd)pyrene	0.5	mg/kg	ne	ne	ne	ne	ne	ne	ne	<0.5	<0.5	-	-	-	-	-	-	-
Naphthalene (Ex SVOC)	0.5	mg/kg	ne	ne	ne	ne	ne	ne	ne	<0.5	<0.5	-	-	-	-	-	-	-
Phenanthrene	0.5	mg/kg	ne	ne	ne	ne	ne	ne	ne	<0.5	<0.5	-	-	-	-	-	-	-
Pyrene	0.5	mg/kg	ne	ne	ne	ne	ne	ne	ne	<0.5	<0.5	-	-	-	-	-	-	-
Total PAHs	0.5	mg/kg	300	ne	ne	4000	ne	ne	ne	<0.5	<0.5	-	-	-	-	-	-	-
Phenols																		
2,4,5-Trichlorophenol	0.5	mg/kg	ne	ne	ne	ne	ne	ne	ne	<0.5	<0.5	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	0.5	mg/kg	ne	ne	ne	ne	ne	ne	ne	<0.5	<0.5	-	-	-	-	-	-	-
2,4-Dichlorophenol	0.5	mg/kg	ne	ne	ne	ne	ne	ne	ne	<0.5	<0.5	-	-	-	-	-	-	-
2,4-Dimethylphenol	0.5	mg/kg	ne	ne	ne	ne	ne	ne	ne	<0.5	<0.5	-	-	-	-	-	-	-
2,6-Dichlorophenol	0.5	mg/kg	ne	ne	ne	ne	ne	ne	ne	<0.5	<0.5	-	-	-	-	-	-	-
2-Chlorophenol	0.5	mg/kg	ne	ne	ne	ne	ne	ne	ne	<0.5	<0.5	-	-	-	-	-	-	-
2-Methylphenol	0.5	mg/kg	400	ne	ne	25000	ne	ne	ne	<0.5	<0.5	-	-	-	-	-	-	-
2-Nitrophenol	0.5	mg/kg	ne	ne	ne	ne	ne	ne	ne	<0.5	<0.5	-	-	-	-	-	-	-
3- & 4-Methylphenol	1	mg/kg	400	ne	ne	25000	ne	ne	ne	<1	<1	-	-	-	-	-	-	-
4-Chloro-3-methylphenol	0.5	mg/kg	ne	ne	ne	ne	ne	ne	ne	<0.5	<0.5	-	-	-	-	-	-	-
Pentachlorophenol	2	mg/kg	100	ne	ne	660	ne	ne	ne	<2	<2	-	-	-	-	-	-	-
Phenol	0.5	mg/kg	3000	ne	ne	240000	ne	ne	ne	<0.5	<0.5	-	-	-	-	-	-	-
Polychlorinated Biphenyls																		
Total PCBs	0.1	mg/kg	1	ne	ne	7	ne	ne	ne	<0.1	<0.1	-	-	-	-	-	-	-
Organochlorine Pesticides																		
Aldrin	0.05	mg/kg	ne	ne	ne	ne	ne	ne	ne	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Aldrin + Dieldrin	0.05	mg/kg	6	ne	ne	45	ne	ne	ne	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
alpha-BHC	0.05	mg/kg	ne	ne	ne	ne	ne	ne	ne	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	0.05	mg/kg	ne	ne	ne	ne	ne	ne	ne	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
beta-BHC	0.05	mg/kg	ne	ne	ne	ne	ne	ne	ne	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	0.05	mg/kg	ne	ne	ne	ne	ne	ne	ne	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	0.05	mg/kg	ne	ne	ne	ne	ne	ne	ne	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
DDD	0.05	mg/kg	ne	ne	ne	ne	ne	ne	ne	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
DDD+DDE+DDT	0.05	mg/kg	240	ne	ne	3600	ne	ne	ne	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
DDE	0.05	mg/kg	ne	ne	ne	ne	ne	ne	ne	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
DDT	0.2	mg/kg	ne	ne	ne	ne	ne	ne	ne	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2
delta-BHC	0.05	mg/kg	ne	ne	ne	ne	ne	ne	ne	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Dieldrin	0.05	mg/kg	ne	ne	ne	ne	ne	ne	ne	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Endosulfan (sum)	0.05	mg/kg	270	ne	ne	2000	ne	ne	ne	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	0.05	mg/kg	ne	ne	ne	ne	ne	ne	ne	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Endrin	0.05	mg/kg	10	ne	ne	100	ne	ne	ne	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	0.05	mg/kg	ne	ne	ne	ne	ne	ne	ne	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Endrin ketone	0.05	mg/kg	ne	ne	ne	ne	ne	ne	ne	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
gamma-BHC	0.05	mg/kg	ne	ne	ne	ne	ne	ne	ne	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Heptachlor	0.05	mg/kg	6	ne	ne	50	ne	ne	ne	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	0.05	mg/kg	ne	ne	ne	ne	ne	ne	ne	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	0.05	mg/kg	10	ne	ne	80	ne	ne	ne	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Methoxychlor	0.2	mg/kg	300	ne	ne	2500	ne	ne	ne	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2
Total Chlordane (sum)	0.05	mg/kg	ne	ne	ne	ne	ne	ne	ne	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	0.05	mg/kg	ne	ne	ne	ne	ne	ne	ne	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Organophosphorus Pesticides																		
Methyl Parathion	0.2	mg/kg	ne	ne	ne	ne	ne	ne	ne	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2
Azinphos Methyl	0.05	mg/kg	ne	ne	ne	ne	ne	ne	ne	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Bromophos-ethyl	0.05	mg/kg	ne	ne	ne	ne	ne	ne	ne	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Carbophenothion	0.05	mg/kg	ne	ne	ne	ne	ne	ne	ne	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Chlorfenvinphos	0.05	mg/kg	ne	ne	ne	ne	ne	ne	ne	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos	0.05	mg/kg	160	ne	ne	2000	ne	ne	ne	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos-methyl	0.05	mg/kg	ne	ne	ne	ne	ne	ne	ne	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Demeton-S-methyl	0.05	mg/kg	ne	ne	ne	ne	ne	ne	ne	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Diazinon	0.05	mg/kg	ne	ne	ne	ne	ne	ne	ne	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Dichlorvos	0.05	mg/kg	ne	ne	ne	ne	ne	ne	ne	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Dimethoate	0.05	mg/kg	ne	ne	ne	ne	ne	ne	ne	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Ethion	0.05	mg/kg	ne	ne	ne	ne	ne	ne	ne	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Fenamiphos	0.05	mg/kg	ne	ne	ne	ne	ne	ne	ne	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Fenthion	0.05	mg/kg	ne	ne	ne	ne	ne	ne	ne	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Malathion	0.05	mg/kg	ne	ne	ne	ne	ne	ne	ne	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Monocrotophos	0.2	mg/kg	ne	ne	ne	ne	ne	ne	ne	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2
Parathion	0.2	mg/kg	ne	ne	ne	ne	ne	ne	ne	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2
Pirimiphos-ethyl	0.05	mg/kg	ne	ne	ne	ne	ne	ne	ne	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Prothiofos	0.05	mg/kg	ne	ne	ne	ne	ne	ne	ne	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05

Exceeds the NEPC - 2013 Health-based investigation levels for low-density residential land use

Exceeds the NEPC - 2013 HSL-A/B, 0 to <1m, Sand Soils for Vapour Intrusion
Exceeds the CRC Care HSL-A Residential (Low Density), Direct Contact
Exceeds the NEPC - 2013 Health-based investigation levels for commercial/industrial land use
Exceeds the NEPC - 2013 HSL-D, 0 to <1m, Sand Soils for Vapour Intrusion
Exceeds the CRC Care HSL-D Commercial/Industrial, Direct Contact
Exceeds the CRC Care HSL-D Intrusive Maintenance Worker

Appendix G RPD table

G.1 Intra-laboratory duplicate

	Metals							
	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
DTP02_0.5m (primary)	8	< 1	27	19	16	< 0.1	18	36
DUP01	9	< 1	27	19	16	< 0.1	17	35
RPD (%)	11.76	0.00	0.00	0.00	0.00	0.00	5.71	2.82

Appendix H Site photos

Figure 14-1 Development site access road (view from the Riverina Highway)

Figure 14-2 Substation access road

Figure 14-3 Culvert observed intersecting the Development site access road

Figure 14-4 View of the Development site, from the Riverina Highway

Figure 14-5 Decommissioned power poles

Figure 14-6 Powerlines intersecting the Development site

Figure 14-7 Scrap metal observed within proximity to existing powerline infrastructure

Figure 14-8 Construction works observed within the Deniliquin substation

Figure 14-9 Stag tree and coarse woody debris observed within the Development site

Figure 14-10 Historic gravel pit

Figure 14-11 Location of TP01

Figure 14-12 TP01 soil profile

Figure 14-13 TP01 soil samples

Figure 14-14 TP01 post-sampling

Figure 14-15 Location of TP02

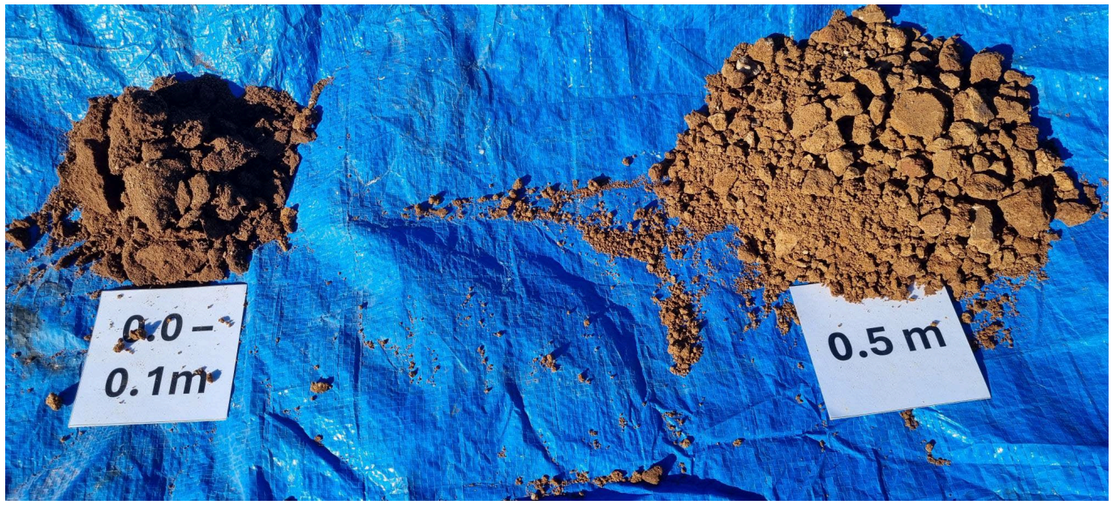

Figure 14-17 TP02 soil samples

Figure 14-18 TP02 post-sampling

Figure 14-16 TP02 soil profile

Figure 14-19 Location of TP03

Figure 14-21 TP03 soil samples

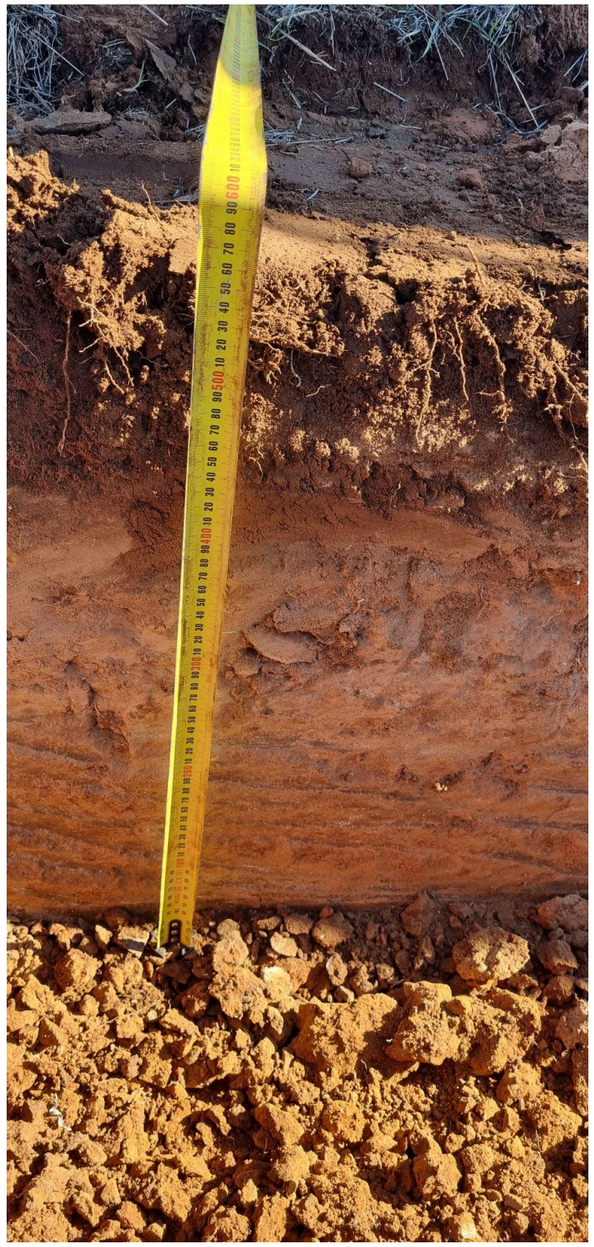

Figure 14-20 TP03 soil profile

Figure 14-22 TP03 post-sampling

Figure 14-24 Location of TP04

Figure 14-23 TP04 soil profile

Figure 14-25 TP04 soil samples

Figure 14-26 TP04 post-sampling

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