
Report on Preliminary Site Investigation for Contamination

**Bromelton Energy and Resource Centre,
Lot 1 Beaudesert Boonah Rd**

Lot 1 Beaudesert-Boonah Road, Bromelton

**Prepared for Cleanaway Operations Pty
Ltd**

Project 219361.01

19 December 2025

Document History

Details

Project No.	219361.01
Document Title	Report on Preliminary Site Investigation for Contamination
Site Address	Lot 1 Beaudesert-Boonah Road, Bromelton
Report Prepared For	Cleanaway Operations Pty Ltd
Filename	219361.01.R.001.Rev2

Status and Review

Status	Prepared by	Reviewed by	Date issued
Draft	Sarah McKay and Chloe Jones	Glyn Eade	4 August 2023
Rev0	Sarah McKay and Chloe Jones	Glyn Eade	7 September 2023
Rev1	Rob Muller	Glyn Eade	6 October 2023
Rev2	Rob Muller	Tim Wright	19 December 2025

Distribution of Copies

Status	Issued to
Draft	Cleanaway Operations Pty Ltd
Rev0	Cleanaway Operations Pty Ltd
Rev1	Cleanaway Operations Pty Ltd
Rev2	Cleanaway Operations Pty Ltd

The undersigned, on behalf of Douglas Partners Pty Ltd, confirm that this document and all attached drawings, logs and test results have been checked and reviewed for errors, omissions and inaccuracies.

Signature

Date

Author

19 December 2025

Reviewer

19 December 2025

Glossary of Terms

ABC	ambient background concentration
ACL	added contaminant limit
ACM	asbestos-containing materials
ADWG	Australia Drinking Water Guidelines
AEC	area of environmental concern
AF	asbestos fines
ALS	Australian Laboratory Services
AST	above ground storage tank
AHD	Australian Height Datum
ANZECC	Australian and New Zealand Environmental & Conservation Council
ANZG	Australian and New Zealand Guidelines
As	arsenic
ASS	acid sulphate soil
BaP	benzo(a)pyrene (a polycyclic aromatic hydrocarbon compound)
BaP TEQ	benzo(a)pyrene toxic equivalence quotient
bgl	below ground level
BTEX	benzene, toluene, ethylbenzene, total xylenes (monocyclic aromatic hydrocarbons)
BTEXN	benzene, toluene, ethylbenzene, xylenes, naphthalene
Cd	cadmium
CEC	cation exchange capacity
CLR	Contaminated Land Register
CoC	chain of custody
CoPC	contaminants of potential concern
Cr	chromium (total)
CSM	conceptual site model
Cu	copper
Cx	equivalent carbon atoms in TRH groups
DA	development application
DCE	dichloroethene
DDD	dichlorodiphenyldichloroethane
DDE	dichlorodiphenyldichloroethylene
DDT	dichlorodiphenyltrichloroethane
DES	Queensland Government Department of Environment and Science
DETSI	Queensland Government Department of the Environment, Tourism, Science and Innovation
DILGP	Queensland Department of Infrastructure, Local Government and Planning
DP	Douglas Partners Pty Ltd
D.P.	deposited plan
DNAPL	dense non-aqueous phase liquid
DSI	Detailed Site Investigation

DQI	data quality indicators
DQO	data quality objectives
EIL	Ecological Investigation levels
EMP	environmental management plan
EMR	Environmental Management Register
EPA	Environmental Protection Authority
ESA	Environmentally Sensitive Areas
ESL	Ecological Screening levels
F1	TPH Fraction C ₆ -C ₁₀
F2	TPH Fraction >C ₁₀ -C ₁₆
F3	TPH Fraction >C ₁₆ -C ₃₄
F4	TPH Fraction >C ₃₄ -C ₄₀
FA	fibrous asbestos
Fe	iron
GAC	groundwater assessment criteria
GDE	groundwater dependant ecosystems
GW	groundwater
GIL	groundwater investigation level
ha	hectares
HIL	Health Investigation Levels
Hg	mercury
HSL	Health Screening Levels
kL	kilolitre (1,000 litres).
km	kilometre
L	litre
LNAPL	light non-aqueous phase liquid
LOP	level of protection
LOR	laboratories limit of reporting
m	metre
mm	millimetre
m ²	square metre
mg/kg	milligrams per kilogram (or parts per million)
mg/L	milligrams per litre (or parts per million)
MSES	Matters of State Environmental Significance
MTBE	methyl tertiary butyl ether
NATA	National Association of Testing Authorities
NEPC	National Environment Protection Council
NEPM	National Environment Protection Measure
Ni	nickel
NSW	New South Wales
ND(nd)	not detected
NHMRC	National Health and Medical Research Council

NRMMC	National Resource Management Ministerial Council
OCP	organochlorine pesticides
OEH	Office of Environment and Heritage
OPP	organophosphorus pesticides
PACM	Potential asbestos-containing materials
PAH	polycyclic aromatic hydrocarbon
Pb	lead
PCB	polychlorinated biphenyls
PCE	tetrachloroethene
PFAS	per- and polyfluoroalkyl substances
pH	unit measure of acidity/ alkalinity
PID	photoionisation detector
ppb	Parts per billion
ppm	Parts per million
PPE	personal protective equipment
PR	principal's representative
PSH	phase separated hydrocarbons
PSI	Preliminary Site Investigation
PQL	practical quantitation limit
QA	quality assurance
QC	quality control
OCP	organochlorine pesticides
QLD	Queensland
EfW	Energy from Waste
OPP	organophosphorus pesticides
RP	remediation plan
RL	relative level
RPD	relative percentage difference
SAC	site assessment criteria
SEQ	South East Queensland
SRRC	Scenic Rim Regional Council
SWL	standing water level
SWMS	safe work method statement
TCE	trichloroethene
TCLP	toxicity characteristic leaching procedure
TDS	total dissolved solids
TKN	total Kjeldahl nitrogen
TRH	total recoverable hydrocarbons
TOC	total organic carbon
TOPIC	total photoionisable compounds
TSS	total suspended solids
µg/L	microgram per litre (or parts per billion)

UCL	upper confidence limit of data set
UPSS	underground petroleum storage system (usually includes a UST)
UST	underground storage tank
VC	vinyl chloride
VCH	volatile chlorinated hydrocarbon
VHC	volatile halogenated compound
VOC	volatile organic compound
WHS	work health and safety
WQO	water quality objectives
Zn	zinc
µS/cm	Micro Siemens per centimetre a measure of conductivity and salinity.
%	percent
<	less than
≤	equal to or less than
>	greater than
≥	equal to or greater than

Note: Not all acronyms, initialisations and symbols listed above were used in the report

Executive Summary

Douglas Partners Pty Ltd (DP) was engaged by Cleanaway Operations Pty Ltd ('Cleanaway') to conduct this preliminary site investigation for contamination (PSI) for the proposed Bromelton Energy and Resource Centre (BERC), to be located on the northern third of Lot 1 on RP45234, Beaudesert Boonah Road, Bromelton (hereinafter referred to as 'the site'). The site boundary is shown on Drawing 1 provided in Appendix B.

The site covers the entire proposed development footprint area of approximately 21 ha and will be located within the northern third of the greater Lot 1, which covers a total area of approximately 63 ha. The proposed development is understood to include:

- Cut to fill earthworks to provide a terraced building area of approximately 21 ha;
- Construction of an energy from waste (EfW) facility, with a below ground bunker that could be up to 15 m below finished ground levels;
- Construction of administration and control buildings; and
- Formation of access road and car parking pavements, areas of landscaping and waste storage areas.

The objective of the PSI was to identify potential sources of contamination, evaluate the associated contaminants of potential concern (CoPC), identify areas and activities of potential contamination, identify potential human and ecological receptors and identify potentially affected media (e.g., soil and/or groundwater). This was achieved by conducting a desktop assessment of the site's history and other relevant environmental information, a site walkover inspection, a limited programme of soil and groundwater sampling within the footprint of the development area and surface water sampling of dams located to the south of the site. The results were used to establish whether further investigation and/or management controls are required before proceeding with the proposed development.

Based on the findings of the desktop review and site walkover, together with the results of the intrusive field works, the following conclusions have been made for the site:

- The site has been used for agricultural purposes since at least 1944;
- A 'dip', Douglas presumes to be a cattle/livestock dip, was marked within the central-northern area of the site on the 1927 historical map, contained within the Lotsearch report provided in Appendix E. The exact location of this dip is unknown, however it appears to be in a similar location on-site to the current spray race;
- A former cattle spray race is currently located on the site. The aerial photographs, provided within the Lotsearch report, indicate that the surrounding cattle pens were constructed sometime between 1965 and 1974. However, it is unknown when the spray race was used at the site;
- The intrusive soil investigation indicated that, when compared against the adopted SAC for commercial/industrial site use, contamination has not been detected at the locations and depths tested at concentrations that are considered to present a risk of harm to potential human and ecological receptors. However, it should be noted that as this was a preliminary site investigation only, the sampling density was significantly less than the recommended minimum sampling density for site characterisation (NSW EPA, 2022), and the potential exists for contaminated soil to be present across parts of the site that have not been

investigated by soil sampling and laboratory analysis (e.g., in the area of the former spray race);

- Exceedances were detected above the adopted SAC for pH, EC, turbidity and metals in the groundwater samples collected from both groundwater monitoring wells; and
- Exceedances were detected above the adopted SAC for pH, turbidity, metals and nutrients in the surface water samples collected from the dams.

Based on the above conclusions, the following recommendations have been made:

- A potential for contamination was identified in the vicinity of the spray race. Additional soil and groundwater sampling in the vicinity of the spray race was conducted by Douglas in January 2024. Based on the additional investigation it was concluded that the spray race area is suitable for the proposed development. It was recommended that if discharge of groundwater is proposed, then treatment would be required due to the reported exceedances of the SAC. Douglas recommends that the owner or occupier of the land provide formal notification to the administering authority (DETSI) that a notifiable activity, i.e. operating a livestock dip or spray race facility appears to have been conducted on the land.
- The remainder of the site is considered to have a lower risk of contamination. Some potential for contamination still exists due to the site's history of agricultural use. If a detailed site investigation (DSI) over the larger site area is required, sampling should be conducted at sufficient density to meet the recommended minimum density detailed in NSW EPA (2022); and
- If discharge of groundwater or dam water to a watercourse is proposed, then treatment would be required due to the reported exceedances of the SAC.

Table of Contents

	Page No
1. Introduction.....	1
1.1 Regulatory context.....	2
1.2 Scope of work	2
2. Project description	3
2.1 Project Overview.....	3
2.2 Proponent	4
2.3 Policy Alignment	5
2.4 Key Components.....	5
3. Site information.....	7
4. Environmental setting	8
4.1 Listing on contamination registers	8
4.2 Proximity to environmentally sensitive areas.....	8
4.3 Topography	8
4.4 Site geology	9
4.5 Acid sulfate soils.....	9
4.6 Surface water and groundwater	9
5. Site history	10
5.1 Historical aerial photography.....	10
5.2 Historic titles.....	13
5.3 Historical maps	14
5.4 Site history integrity assessment.....	14
5.5 Summary of site history	15
6. Site walkover	15
7. Preliminary conceptual site model	16
8. Sampling and analysis quality plan.....	17
8.1 Data quality objectives	17
8.2 Summary of field methodologies.....	19
8.3 Soil sampling.....	19
8.4 Groundwater sampling	21
8.5 Surface water sampling	21
8.6 Rationale for selection of samples for laboratory analysis	22

9.	Site assessment criteria	22
9.1	Soil investigation levels	22
9.2	Groundwater and surface water investigation levels.....	23
10.	Ground conditions.....	24
11.	Discussion of results	24
11.1	Soil investigation results.....	24
11.2	Groundwater investigation results	25
11.3	Surface water investigation results	26
12.	Conclusions.....	27
13.	Recommendations.....	28
13.1	Recommendations relating to the spray race	28
14.	References	29
15.	Limitations.....	30

Appendix A:	About this Report
Appendix B:	Drawing 1
Appendix C:	EMR/CLR Listing
Appendix D:	ESA Map
Appendix E:	Lotsearch Report
Appendix F:	Current and Historical Title Records
Appendix G:	Site Photographs
Appendix H:	Data Quality Assessment
Appendix I:	Borehole Logs and Explanatory Notes
Appendix J:	Laboratory Notes and Chain of Custody Documentation
Appendix K:	Summary of Results

Report on Preliminary Site Investigation for Contamination Bromelton Energy and Resource Centre, Lot 1 Beaudesert Boonah Rd Lot 1 Beaudesert-Boonah Road, Bromelton

1. Introduction

Douglas Partners Pty Ltd (Douglas) was engaged by Cleanaway Operations Pty Ltd ('Cleanaway') to conduct this preliminary site investigation for contamination (PSI) for the proposed Bromelton Energy and Resource Centre (BERC), to be located on the northern third of Lot 1 on RP45234, Beaudesert Boonah Road, Bromelton (hereinafter referred to as 'the site'). The site boundary is shown on Drawing 1 provided in Appendix B.

The site covers the entire proposed development footprint area of approximately 21 ha and will be located within the northern third of the greater Lot 1, which covers a total area of approximately 63 ha. The proposed development is understood to include:

- cut to fill earthworks to provide a terraced building area of approximately 21 ha;
- construction of an energy from waste facility (EfW), with a below ground bunker that could be up to 15 m below finished ground levels;
- construction of administration and control buildings; and
- formation of access road and carparking pavements, areas of landscaping and waste storage areas.

The objective of the PSI was to identify potential sources of contamination, evaluate the associated contaminants of potential concern (CoPC), identify areas and activities of potential contamination, identify potential human and ecological receptors and identify potentially affected media (e.g., soil and/or groundwater). This was achieved by conducting a desktop assessment of the site's history and other relevant environmental information, a site walkover inspection, a limited programme of soil and groundwater sampling within the footprint of the development area, and surface water sampling of dams located to the south of the site. The results were used to establish whether further investigation and/or management controls are required before proceeding with the proposed development.

A preliminary geotechnical investigation conducted by Douglas for the project indicated that the subsurface conditions generally consist of topsoil, over stiff, grading very stiff then hard, residual clays over the upper 3 m depth.

This report must be read in conjunction with the notes entitled About this Report provided in Appendix A and all other explanatory information provided. It should also be kept in its entirety without the separation of individual sections and pages.

1.1 Regulatory context

The following key guidelines were consulted in the preparation of this report:

- National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [the 'NEPM'] (NEPC, 2013);
- The Environmental Protection Act 1994 (the 'EP Act 1994'); and
- Bromelton State Development Area Development Scheme December 2017 (State of Queensland, Department of State Development).

The Bromelton State Development Area (SDA) Development Scheme December 2017 details SDA wide assessment criteria, which includes the following criteria relating to contaminated land:

"2.5.7 Contaminated land

(1) Development on land likely to be contaminated or recorded on the Environmental Management Register or Contaminated Land Register does not adversely impact on human health or the environment by exposure, management, or movement of contaminants.

(2) Where required, develop a strategy to manage any existing contamination and the potential for additional contamination such that human health and the environment are not adversely affected."

1.2 Scope of work

The investigation comprised the following:

- A search for Lot 1 on RP45234 on the Environmental Management Register (EMR) and Contaminated Land Register (CLR) administered by the Queensland Government Department of the Environment, Technology, Science and Innovation (DETSI);
- A review of current and historical land title records and registered plans;
- A review of current and historical site information and aerial photographs contained in a commissioned independent Lotsearch Pty Ltd environmental report (the 'Lotsearch report');
- A review of site information including regional geology, acid sulfate soil risk, registered groundwater bores, historical business activities, ecological constraints and other planning-related information relevant to the assessment;
- A site inspection, noting indicators of potential contamination sources, receptors and pathways;
- Collection of soil samples from fourteen boreholes (Boreholes 7 to 20) which were drilled using a utility-mounted drilling rig equipped with solid flight augers for a concurrent geotechnical investigation (reported under separate cover). Soil samples were collected from the boreholes at a variety of depths based on site observations;
- Collection of groundwater samples from two groundwater monitoring wells which were installed as part of the concurrent geotechnical investigation. It should be noted that three wells were installed during the geotechnical works (MW7, MW8 and MW9), and it was originally proposed that all three wells would be sampled, however, at the time of sampling

one of the groundwater wells (MW7) was close to dry and therefore no sample could be collected;

- Collection of surface water samples from two offsite dams located to the south of the site;
- Analysis of selected soil samples, groundwater samples, surface water samples and quality control (QC) samples for a range of identified CoPC at a National Association of Testing Authorities (NATA) accredited laboratory;
- Collection of three soil samples from undisturbed natural soil and analysis for % iron, cation exchange capacity (CEC), pH, total organic carbon (TOC), % clay content and metals/metalloids to establish site-specific ecological investigation levels (EILs); and
- Preparation of this report.

2. Project description

The project description presented below was provided by Cleanaway.

2.1 Project Overview

Cleanaway Operations Pty Ltd (Cleanaway) is developing an Energy from Waste (EfW) facility in Queensland known as the Bromelton Energy and Resource Centre (BERC / the Project). The Project will be located within the Special Industry Precinct of the Bromelton State Development Area (SDA), west of Beaudesert within the Scenic Rim Regional Council local government area.

The Project has been designed to thermally treat approximately 760,000 tonnes per annum (tpa) of waste feedstock, consisting of residual Municipal Solid Waste (MSW) and residual Commercial and Industrial (C&I) waste. Residual waste is waste that is not technically, environmentally and economically practical (TEEP) to reuse or recycle, which would otherwise be sent to landfill for disposal. The facility's actual annual throughput will vary depending on the calorific value of the feedstock and plant availability. To account for variability in feedstock energy content, the facility will be designed for a maximum processing capacity of up to 10% above the nominal figure (836,000 tpa). The EfW process is summarised in Figure 1.

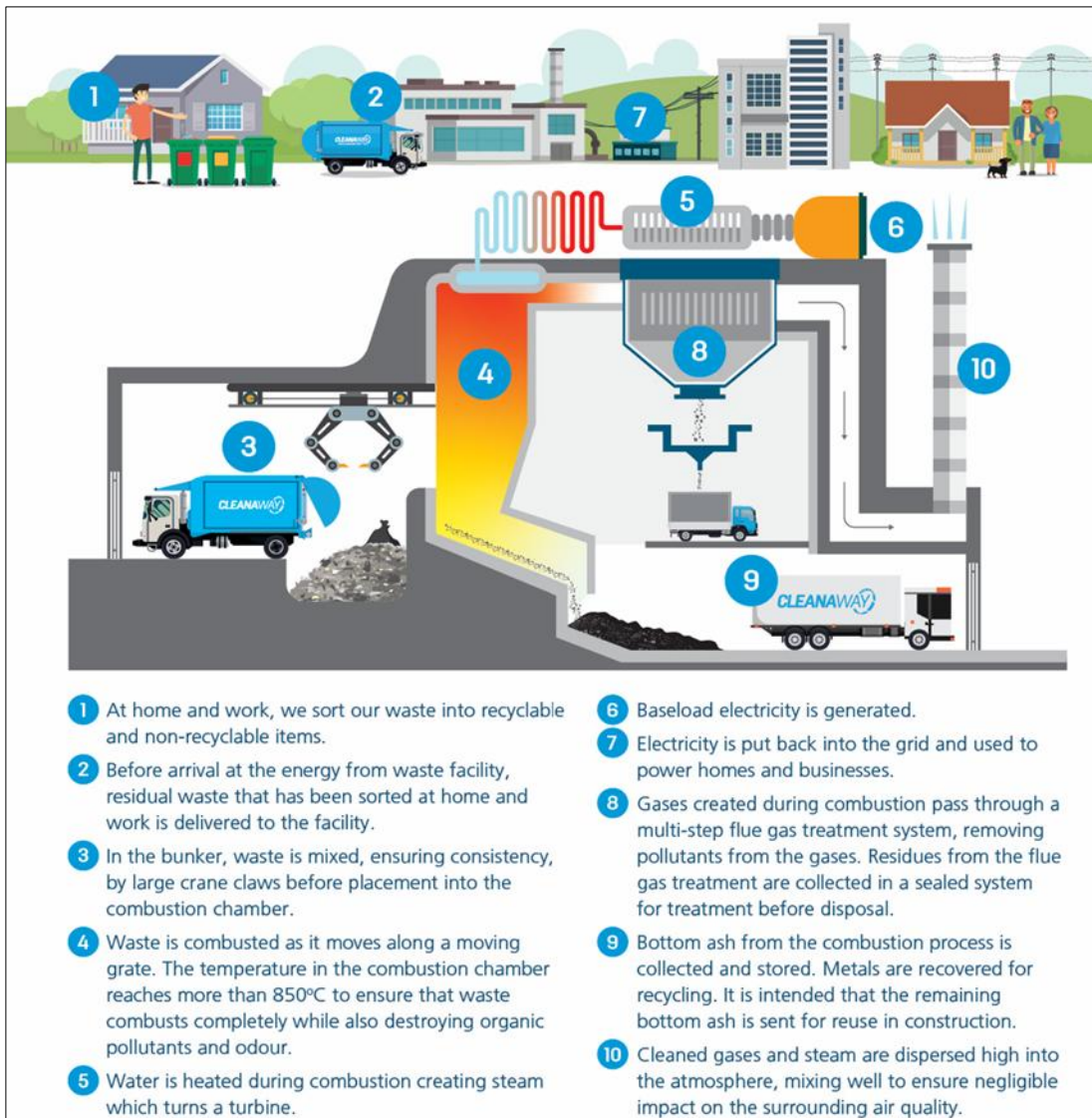


Figure 1: Energy from Waste Process

2.2 Proponent

Cleanaway, an Australian owned company, has operated for more than 50 years, supporting industry, government, communities and households across Australia. Its mission is to make a sustainable future possible, achieved through action across all levels of the waste hierarchy. Waste generation is minimised through extensive education programs, with Cleanaway's 50 education officers reaching over 120 businesses, 30 councils, and almost 33,000 school participants in the last financial year.

Cleanaway invests heavily in recycling, operating several Material Recovery Facilities nationwide and has partnered with Pact Group, Asahi Beverages and Coca-Cola to deliver two large-scale PET (polyethylene terephthalate) recycling facilities and a HDPE (high density polyethylene) recycling facility with Pact Group. In addition, in collaboration with Viva Energy, Cleanaway is developing a soft plastics recycling plant. EfW is recognised by Cleanaway as an important part

of the future waste management framework, enabling recovery of energy and other resources from residual waste that cannot otherwise be recycled.

2.3 Policy Alignment

The BERC aligns with the Queensland EfW Policy and the Queensland EfW Guideline (2021) by diverting residual waste from landfill and delivering economic and social benefits through employment and local business opportunities in South East Queensland.

In accordance with Policy outcome 7 of the Queensland EfW Policy, the BERC will be designed to meet the best practice emission standards and requirements of the European Industrial Emissions Directive (IED) (2010) and the associated Best Available Techniques Reference (BREF) Document for Waste Incineration (2019), which sets the European Union environmental standards for waste incineration.

The Project also supports the Queensland Waste Strategy contributing to its 2050 targets to reduce household waste by 25%, recycle 75% of all waste, and divert 90% from landfill. In doing so, the BERC will play a key role in advancing Queensland's transition to a circular economy and reducing long-term reliance on landfill.

2.4 Key Components

The key components of the Project are summarised in Table 1.

Table 1: Key Project Components

Project Component	Detail
Address	Lot 1 Beaudesert Boonah Road, Bromelton, Queensland, 4285 (Lot 1 on RP45234). Refer Figure 2.
Total Area	63 hectares
Summary of proposed works	The Project includes the construction of a main EfW facility for waste processing, incinerator bottom ash (IBA) maturation and processing facility and an air pollution control residue (APCr) facility. It also includes all onsite infrastructure needed for the EfW facility, such as site utilities, internal roads, weighbridges, parking and hardstand areas, stormwater infrastructure, fencing and landscaping. The Project will include a visitor centre to help educate and inform the community on circular economy principles, the waste hierarchy, including waste avoidance, recycling, resource recovery, the benefits of landfill diversion and the EfW process. The intent behind this education is to drive a shift in community awareness and attitudes toward waste management and resource recovery.

Project Component	Detail
Technology Used	The proposed technology is moving grate combustion technology. This has been used globally for over 100 years and is common in many of the 500 similar operational examples across Europe.
Facility Outputs	Approximately 73.2 MW (577,600 MWh/year, corrected for ambient temperature) exported to the grid as baseload electricity. Potential to supply energy in the form of heat and/or process steam to local industrial users. Residual materials include IBA and APCr. It is intended that the IBA will be mechanically processed on site to create incinerator bottom ash aggregate (IBAA). During this process, both ferrous and non-ferrous metals are recovered for recycling and sale. It is intended that the remaining material is repurposed for use as an aggregate in construction. The Project includes a facility to stabilise APCr before removal and disposal at a licensed landfill.
Key infrastructure	EfW facility including administration and visitor's centre IBA maturation and processing facility (2 x pads and 2 x sheds) APCr facility (1 x pad, 1 x shed) Transformer yard and switchyard De-coupling area for trucks Weighbridges Internal road network and carparking 2 x combined storm water treatment and detention basin 1 x lined retention basin Access from Beaudesert Boonah Road via a signalised intersection with Recycling Street
Hours of Operation	24 hours per day, seven days per week (365 days per year)
Operational Staff	Approximately 60 staff

3. Site information

The site identification details are presented in Table 2 below and the project area boundaries are outlined in Figure 2 below. The site boundaries (i.e. the investigation area for this report) are shown on Drawing 1 provided in Appendix B.



Figure 2: Site location and lot boundaries (red)

Table 2: Site identification details

Item	Details
Site address	Lot 1 Beaudesert Boonah Road, Bromelton, 4207
Legal description	Part of Lot 1 on RP45234
Site area	Site: 21 ha
SDA	Bromelton SDA
SDA development scheme	Special Industry Precinct
Local council area	Scenic Rim Regional Council (SRRC)

Item	Details
SRRC planning scheme	Special Purpose Zone
Current use	Grazing land
Surrounding uses	North – Industrial East – Railway line then grazing South – Grazing West – Grazing

4. Environmental setting

4.1 Listing on contamination registers

A search was conducted of the Queensland Government DETSI EMR and CLR on 9 December 2025. The search results indicated that the site was not listed on the EMR or CLR as at that date. The EMR and CLR search result is provided in Appendix C.

4.2 Proximity to environmentally sensitive areas

Reference to the *Queensland Globe* website indicates that the site is located within close proximity to several areas mapped as being Matters of State Environmental Significance (MSES), the closest being:

- An area comprising MSES regulated vegetation (essential habitat, and category C – endangered or of concern) and MSES wildlife habitat (SEQ koala habitat – core) – located on the adjacent lot to the south (Lot 1 on RP43189); and
- An area comprising MSES regulated vegetation (essential habitat, and category B – endangered or of concern), MSES wildlife habitat (SEQ koala habitat – core), and MSES regulated vegetation (defined watercourse), located in a corridor directly west of the north-western corner of the site.

MSES are defined by the Queensland Department of Infrastructure, Local Government and Planning (DILGP) as areas that “are valued and protected, and the health and resilience of biodiversity is maintained or enhanced to support ecological processes” (DILGP 2017). ESA mapping is provided in Appendix D.

4.3 Topography

Reference to the Lotsearch report (Appendix E) and the *Scenic Rim Planning Scheme 2020* website indicates that the site slopes from the crest of a hill in the western portion of the site, which has an approximate elevation of relative level (RL) 95 m relative to the Australian Height Datum (AHD), sloping down to the north-western and south-eastern corners of the site, with elevations of 85 m AHD and 75 m AHD respectively.

4.4 Site geology

Reference to the Lotsearch report indicates that the site is underlain by middle-Jurassic aged Walloon Coal Measures. The lithology of this unit consists of shale, siltstone, sandstone and coal seams.

4.5 Acid sulfate soils

Acid sulfate soils (ASS) are naturally occurring sediments and soils containing iron sulfides or sulfidic materials, often located over extensive low-lying coastal areas, predominately below 5 m relative to the AHD. Reference to the Lotsearch report indicates that the site is mapped as having an extremely low (1 to 5%) probability of occurrence of ASS. The southern portion of Lot 1 on RP45234 (not part of the proposed development footprint) was mapped as having a low probability of occurrence of ASS. Additionally, the site elevations are greater than 5 m above the AHD (refer to Section 4.3).

4.6 Surface water and groundwater

Reference to the *Queensland Globe* website indicated that man-made dams and a drainage channel are present close to the southern site boundary. This then appears to drain into Lake Brabazon located 3.7 km north-east of the site. Swan Creek is also located approximately 220 m south of Lot 1 on RP45234, and is part of a separate catchment to the drainage channel located on the site.

Reference to the Lotsearch report indicates that the aquifers located on the site were described as “porous, extensive highly productive aquifers”.

A search of the publicly available registered groundwater bore database provided in the Lotsearch report indicates that there are seven registered groundwater bores within an approximate 500 m radius of Lot 1 on RP45234 and these have been summarised in Table 3 below.

Table 3: Summary of available information from nearby registered groundwater bores

Bore ID Authorised purpose Completion year Status	Location relative to Lot 1	Final depth (m)	Standing water level (m bgl)
RN194297 Sub-Artesian Monitoring 2021 Existing	103 m south-east	N/A	Not recorded
RN142889 Sub-Artesian Water Supply 2011 Existing	157 m north	64	8
RN138923 Sub-Artesian Facility 2009 Abandoned and Destroyed	162 m north	55	Not recorded

Bore ID Authorised purpose Completion year Status	Location relative to Lot 1	Final depth (m)	Standing water level (m bgl)
RN169359 Sub-Artesian Monitoring 2015 Existing	167 m south	14	Not recorded
RN169358 Sub-Artesian Monitoring 2015 Existing	308 m south	14	Not recorded
RN138924 Sub-Artesian Water Supply 2009 Existing	488 m north-west	31	6
RN169360 Sub-Artesian Monitoring 2015 Existing	491 m south-west	14	Not recorded

Notes:

m bgl – metres below ground level

Based on the regional topography and the inferred flow direction of nearby water courses, the anticipated flow direction of groundwater beneath the site is to the south-east towards the dams and drainage channel which drains into Lake Brabazon.

5. Site history

5.1 Historical aerial photography

Several historical aerial photographs were obtained from the Lotsearch report. Extracts of the aerial photographs are provided in Appendix E. A summary of the key features observed for Lot 1 on RP45234 which includes the site and surrounding land is presented in Table 4 below.

Table 4: Summary of historical aerial photographs

Year	Lot 1 on RP45234	Surrounding land use
1944	The lot appeared to be predominantly cleared, with sparse vegetation. The lot is considered to have been used for grazing purposes. A small dam was observed near the centre-eastern boundary and the south-western corner. A creek line was observed running from the centre-east of the lot through the dams and towards the south-western corner of the lot.	The surrounding areas appeared to have been predominantly cleared for grazing. Some vegetation was observed east of the lot. A railway line was observed along the eastern boundary of the lot. A creek was observed approximately 150 m south of the lot. A road was observed along the northern boundary of the site, west to east before diverting north to cross the train tracks. A small train station was observed north of the site along the railway line.
1958	An additional dam had been constructed approximately 150 m west of the eastern boundary. Soil disturbance was observed around this dam.	A possible cattle yard/crush with a rectangular structure (potential cattle dip) was observed approximately 450 m north-west of the site
1965	A small structure/object appeared to have been constructed in the centre of the north-western section of the lot.	Construction works for Beaudesert Boonah road were apparent north of the site. A small dam appeared to have been excavated approximately 150m north of the site. A small building (potentially residential) appeared to have been constructed approximately 320 m west of the site.
1974	Fencing and small agricultural structures (possibly a cattle yard) appeared to have been constructed in the north-western section of the lot (and within the site boundary).	Several structures appeared to have been constructed approximately 200 m north of the site and 150 m west of the site. Additional smaller structures and potential tanks were observed around the original small building to the west of the site. A large retention basin/dam and earthworks were observed south-east of the lot. The possible cattle yard/cattle dip previously observed located approximately 450 m north-west of the site appeared to have been removed.

Year	Lot 1 on RP45234	Surrounding land use
1982	The lot appeared similar to the 1974 image.	Extensive earthworks were observed approximately 450 m north-west of the site. A fenced area was observed near the structures located 320 m west of the site. An additional retention basin appeared to have been constructed south-east of the lot. Several smaller structures to the north of the site appeared to have been removed.
1993	A dam near the centre of the lot had increased in size. A track was observed leading from the northern boundary to the north-western structures. Increased vegetation was observed in the south-western corner of the lot.	Possible stockpiles and soil disturbance were observed to the west and north-west of the site. A possible cattle yard was observed directly east of the site. Earthworks were observed west of the retention pond/dams located south of the lot.
2004	The lot appeared similar to the 1993 image.	A road had been constructed north of the northern boundary of the site, connecting previous roads. A triangular-shaped block of land directly north of the site appeared to have been developed for industrial purposes. Additional structures were also observed approximately 300 m north-west of the site. The possible cattle yards located directly east of the site appeared to have ceased activities and a small structure was located south of it. A large dam was observed approximately 150 m west of the site.
2012	The lot appeared similar to the 2004 image.	Industrial structures appeared to have been constructed north of the site, within the triangular-shaped block across Beaudesert Boonah Road. Earthworks were observed approximately 400 m north-east of the site.
2016	The lot appeared similar to the 2012 image.	The surrounding areas appeared similar to the 2012 image.
2020	The lot appeared similar to the 2016 image.	Additional roads had been constructed north of the site.
2022	The lot appeared similar to the 2020 image.	The surrounding areas appeared similar to the 2020 image.

5.2 Historic titles

A historical title deeds search was used to obtain ownership and occupancy information including company names and the occupations of individuals. The title information can assist in the identification of previous land uses by the company names or the site owners and can, therefore, assist in establishing whether there were potentially contaminating activities occurring at the site. A summary of the title deeds and possible land use is presented in Table 5 overleaf and provided in Appendix F.

Table 5: Historical title deeds

Date of Acquisition and Term Held	Registered Proprietor(s) & Occupations	Inferred Land Use
28.09.1917 (1917 to 1921)	Thomas Hutcheson Todd	Agricultural
16.12.1921 (1921 to 1956)	Jane Isabel Todd (widow) William Todd George Alexander Todd	Agricultural
02.08.1956 (1956 to 1958)	Stephen James Murray Thomas William Murray	Agricultural
12.12.1958 (1958 to 1960)	Stephen James Murray	Agricultural
26.09.1960 (1960 to 1964)	Edward Joseph Yore	Agricultural
12.11.1964 (1964 to 1991)	Danby William Franklin	Agricultural
11.02.1991 (1991 to 1995)	Donald John Franklin Stuart Franklin	Agricultural
14.08.1995 (1995 to 2011)	Consolidated Meat Holdings Pty Ltd	Agricultural
08.11.2011 (2011 to 2022)	Teyes Investments Pty Ltd	Agricultural
20.12.2022 (2022 to Date)	Queensland Energy and Resource Centre Pty (As Trustee)	Agricultural

5.3 Historical maps

Historical maps within the Lotsearch report indicated the following:

- 1927 Map:
 - o Two 'dips' were marked on the 1927 map. These are presumed to be livestock dips. One dip was marked within the central-northern portion of the lot, within the site boundary, and the other was marked approximately 800 m east of the site.
 - o Bromelton School was located approximately 1.0 km south-west of the site.
 - o The construction of the railway line had yet to be completed.
- 1954 Map:
 - o The railway line had been completed and the station was located approximately 370 m north of the site.
- 1972 Map:
 - o A property labelled "Tancred Bros Pty Ltd" was located directly south-east of the site. Reference to the Australia Dictionary of Biography (2002), indicates that Tancred Bros Pty Ltd was one of Australia's largest meat butchering firms and was established in 1922 and the Beaudesert site mentioned in Section 4.3 was one of their notable meat works.
- 1998 Map:
 - o Abattoirs were identified approximately 1.0 km north and south of the site.
 - o A quarry was identified approximately 1.5 km south-east of the site.
 - o Several 'ruins' were identified near the site including:
 - o 1.0 km east of the site
 - o 1.0 km west of the site
 - o 1.7 km east of the site
 - o 1.9 km north-west of the site

5.4 Site history integrity assessment

The information used to establish the history of the site was sourced from reputable and reliable reference documents, many of which were official records held by Government departments/agencies. The databases maintained by various Government agencies potentially can contain high quality information, but some of these do not contain any data.

In particular, aerial photographs can provide high quality information that is generally independent of memory or documentation. They are only available at intervals of several years, so some gaps exist in the information from this source. The observed site features are open to different interpretations and can be affected by the time of day and/or year at which they were taken, as well as specific events, such as flooding. Care has been taken to consider different possible interpretations of aerial photographs and to consider them in conjunction with other lines of evidence.

5.5 Summary of site history

The site history information suggests that the lot was acquired by the current owners in 2022. Information on historical aerial photographs, maps and historical leases suggest that the site has been used for agricultural purposes since at least 1927 and during this time several cattle yards appeared to have been constructed on the site. A number of potential cattle dips were observed within the surrounding area, including one within 150 m of the site. It should also be noted that the word 'dip', Douglas presumes to be cattle dip, was marked within the centre-north of the site on the 1927 historical map.

6. Site walkover

A site walkover was conducted by Douglas Environmental Scientist Chloe Jones on 3 July 2023. The general topography was consistent with that described in Section 4.3. The site layout appears to have remained unchanged from the 2022 aerial photograph, provided in the Lotsearch report. The following key site features pertinent to the PSI were observed (refer to photographs provided in Appendix G):

- At the time of the inspection the site was used for cattle grazing. The site surface was densely covered with groundcover (i.e., grasses) and a sparse covering of trees (photograph 1). The vegetation generally appeared healthy and in good condition.
- A cattle crush and adjoining cattle pens were observed in the north-western portion of the site (photographs 2, 3 and 4). Infrastructure and pipes, associated with a cattle spray race, were also observed attached to the cattle crush (photographs 5, 6 and 7). The cattle crush was measured to be approximately 20 m in length and 1 m in width. The spray race proportion of the cattle crush was approximately 4 m in length. Two cattle pens were observed joining the cattle crush which were each measured to be approximately 70 m² (photographs 3 and 4). Bare ground (i.e., sparse groundcover growth) appeared to surround the area of the spray race (photographs 5 and 8). A rectangular concrete pad was observed on the ground in the entrance of the cattle crush (photographs 9 and 10). The pad was noted to be in poor condition.
- A rusted tray from a ute was observed within the southern portion of the site.
- Two dams were observed directly south of the site, however, they were located within Lot 1 on RP45234 (photographs 11 and 12).
- The site surface was undulating, however, the site generally sloped downward to the south-east (photograph 1).
- No obvious potential asbestos-containing materials (PACM) were observed across the surface of the site, where visible.
- No obvious odours, soil staining or storage of bulk chemicals were encountered across the inspected areas of the site.

7. Preliminary conceptual site model

A conceptual site model (CSM) is a theoretical representation of site-related information regarding contamination sources, receptors and exposure pathways between those sources and receptors. The CSM provides the framework for identifying how the site may become contaminated and how potential receptors may be exposed to contamination either in the present or the future i.e., it enables an assessment of the potential source – pathway – receptor linkages (complete pathways).

Potential sources (S)

Based on the current investigation, the following potential sources of contamination and associated contaminants of potential concern (CoPC) have been identified.

- S1: Agricultural activities.
 - Various CoPC and could include metals/metalloids, ammonia, nitrates, phosphorus, organophosphorus pesticides (OPP), organochlorine pesticides (OCP), per- and polyfluoroalkyl substances (PFAS) and asbestos (from demolition of structures).
- S2: Spray race and potential historic cattle dip (as shown on the 1927 Historical Map).
 - Depending on age CoPC could include arsenic, carbamate pesticides, OCP including dichlorodiphenyltrichloroethane (DDT) and dieldrin, OPP, synthetic pyrethroids and herbicides.

Potential receptors (R)

The following potential human receptors have been identified:

- R1: Future construction and maintenance workers;
- R2: End users (i.e., workers and visitors to the BERC); and
- R3: Adjacent site users.

The following potential environmental receptors have been identified:

- R4: Surface water (nearby dams, watercourses and drainage channels);
- R5: Groundwater and groundwater dependent ecosystems (GDE); and
- R6: Terrestrial ecology, including nearby MSES areas.

Potential pathways (P)

The following potential pathways have been identified:

- P1: Ingestion (including via drinking water) and dermal contact;
- P2: Inhalation of dust, fibres and/or vapours;
- P3: Surface water run-off;
- P4: Leaching of contaminants and vertical migration into groundwater;
- P5: Lateral migration of groundwater providing base flow to water bodies; and
- P6: Inhalation, ingestion, and absorption by terrestrial ecology.

Summary of potentially complete exposure pathways

A 'source–pathway–receptor' approach has been used to assess the potential risks of harm being caused to human or environmental receptors from contamination sources on or in the vicinity of the site, via exposure pathways (potential complete pathways). The possible pathways (P1 to P6) between the above sources (S1 to S2) and receptors (R1 to R6) are provided below in Table 6.

Table 6: Summary of Potentially Complete Exposure Pathways

Source and CoPC	Transport Pathway	Receptor
S1: Agricultural activities – metals/metalloids, ammonia, nitrates, phosphorus, OPP, OCP, PFAS and asbestos. S2: Spray race and potential cattle dip – arsenic, carbamate pesticides, OCP, OPP, synthetic pyrethroids and herbicides.	P1: Ingestion (including via drinking water) and dermal contact P2: Inhalation of dust, fibres and/or vapours P3: Surface water run-off P4: Leaching of contaminants and vertical migration into groundwater P5: Lateral migration of groundwater providing base flow to water bodies P6: Inhalation, ingestion, and absorption by terrestrial ecology	R1: Construction and maintenance workers R2: End users R3: Adjacent site users R4: Surface water R5: Groundwater and GDE R6: Terrestrial ecology

8. Sampling and analysis quality plan

8.1 Data quality objectives

Data qualitative objectives (DQOs) are qualitative and quantitative statements that specify the data required for the assessment and have been derived from the CSM (Table 6). The DQO process is a seven-step iterative planning approach that is specified in the NEPM (Schedule B2, Appendix B) used to define the type, quantity and quality of data needed to inform decisions relating to the environmental condition of a site.

Table 7: Project data quality objectives

Problem	Uncertainty exists as to whether contamination exists at the site
Identify the decision/goal	- Does soil and/or groundwater contamination exist from previous site uses/activities? - Does the site, or is the site likely to, present a risk of harm to human health or the environment? - Does the site require further investigation, remediation and/or validation to render the site suitable for the proposed use? - Is there any contamination requiring the site to be listed on the DETSI EMR or CLR?

Information inputs	• Historical information regarding past land uses and features. • Site operations and observation details. • Soil profile information obtained through the sampling phase. • Chemical analysis data for soil and groundwater samples analysed. • Assessment of analytical data against applicable site assessment criteria (SAC).
Study boundaries	The physical site boundary is shown on Drawing 1, Appendix B . The temporal boundary of this assessment is limited to the time at which the assessment was conducted.
Decision rules	Information obtained in this investigation is to be used to make an assessment of contamination issues likely to impact on the proposed development. In assessing analytical data against investigation or screening levels for ecological and/or human health risk, site conditions can be stated to be acceptable if either: • All results are below the relevant investigation or screening level; OR • Individual concentrations of analytes (non-volatile) are less than 250% of the relevant investigation or screening level; and • The 95% upper confidence limit (UCL) of mean concentrations of a data set for samples of like material is below the relevant investigation or screening level; and • The standard deviation of the population is <50% of the investigation or relevant screening level. Statistical analysis should only be conducted where analytical results for a contaminant of concern are recorded above, but less than 250% of the relevant investigation or screening level. • Laboratory results are accepted and considered suitable for this assessment under the following conditions: ○ All laboratories are accredited by NATA for all analyses to be performed; ○ All practical quantitation limits (PQLs), or laboratory limits of reporting (LORs) set by the laboratories fall below the adopted assessment criteria; ○ Reported concentrations of analytes in the replicate and/or split sample pairs are within accepted limits; and ○ Quality assurance/quality control (QA/QC) protocols and results reported by the laboratories comply with the requirements of the NEPM (Schedule B3).

Performance criteria	Analyte selection is based on available site history information, observed site activities, site features, and field observations during sampling. The potential for contaminants to be present other than those analysed is considered to be low. Assessment criteria adopted from the guidelines stated in Section 9 incorporate risk probabilities. Acceptable limits for replicate/split comparisons are described in Appendix H. Acceptable limits for laboratory QA/QC parameters are based on those stated by the laboratory and those stated in the NEPM (Schedule B3).
Optimise design	Procedures for the collection of environmental samples, as described in Section 8.3, were developed prior to undertaking the assessment phase of works with reference to NSW EPA (2022), NEPM and current good industry practice. Use of NATA accredited analytical laboratories to conduct sample analyses.

8.2 Summary of field methodologies

Field investigations were conducted by Douglas Geotechnical Engineer Nattapong Sumonta and Environmental Scientists Shan-Ying Barr and Chloe Jones on 24, 25, 29, 30 and 31 May and 2 June 2023 and comprised the following activities:

24, 25, 29, 30 and 31 May 2023: Environmental Soil Sampling

- Collection of soil samples from 14 boreholes (Boreholes 7 to 20) at various depth intervals; and
- Collection of additional soil samples for quality control (QC) purposes (as discussed in Appendix H).

2 June 2023 November 2022: Groundwater and Surface Water Sampling

- Collection of two groundwater samples from two on-site groundwater monitoring wells; and
- Collection of surface water samples from two dams, located on the same lot, but south of the current site investigation area.

8.3 Soil sampling

8.3.1 Sampling strategy

The sampling locations were selected for the concurrent geotechnical investigation and were distributed across the site to provide geotechnical information in proposed development footprint. The sampling locations are shown on Drawing 1, Appendix B. The sampling density (i.e., 14 test locations) represents approximately 6% of the recommended minimum density presented in the NSW Environment Protection Authority (EPA) sampling design guidelines for contaminated land for characterisation of a site covering an area of 20 ha (NSW EPA, 2022). Douglas notes that the Australian Standards relating to the investigation and sampling of sites

with potentially contaminated soil, AS4482.1¹ and AS4482.2², were withdrawn in 2022 and not replaced. The NSW EPA (2022) guidelines are generally accepted as being the most current and comprehensive sampling design guidelines in Australia, and are also widely used in Queensland.

8.3.2 Sampling methodology

To obtain representative samples and to maintain their integrity soil was sampled with reference to the NEPM and the standard operating procedures described in Douglas' Field Procedures Manual.

8.3.3 Sample handling

All samples were recorded on chain of custody sheets, and the general sampling procedure comprised:

- Collection of soil samples from the drilling augers. Samples collected from the augers were obtained from the outside of the augers, i.e., from soil that had not been in direct contact with the augers;
- Sampler wearing disposable gloves that were changed prior to the collection of each sample;
- Transfer of samples for non PFAS testing into laboratory-prepared glass jars with Teflon-lined lids and sealing immediately;
- Transfer of samples for PFAS testing into laboratory-prepared HDPE plastic jars;
- Transfer of samples for asbestos testing into zip-locked plastic bags;
- Various sampling for QC purposes (refer to Appendix H);
- Labelling of sample containers with individual and unique identification details, including project number and sample location; and
- Placement of the glass and plastic sample jars and zip-locked plastic bags into ice-cooled, insulated and sealed containers for transport to the laboratory.

Sample integrity was maintained by keeping all samples sealed in appropriate glass and plastic jars and in ice-cooled, insulated containers immediately after sampling. Samples were sent to the laboratory following the completion of sampling with ice present. Samples were all received by the laboratory in good condition, in the correct containers without headspace, and within the laboratory's recommended holding times outlined in the NEPM (2013). It is considered that the integrity of samples was preserved during temporary storage and transportation to the laboratory. Chain of custody and sample receipt documentation is provided in Appendix J.

¹ Standards Australia (2005) Australian Standard AS 4482.1 (2005) *Guide to the investigation and sampling of sites with potentially contaminated soil – Part 1: Non-volatile and semi-volatile compounds*

² Standards Australia (1999) Australian Standard AS 4482.2 (1999) *Guide to the investigation and sampling of sites with potentially contaminated soil – Part 2: Volatile substances*

8.4 Groundwater sampling

Douglas Environmental Scientist Chloe Jones sampled two groundwater monitoring wells (installed for the concurrent geotechnical investigation) on 2 June 2023. To ensure the samples were representative and to maintain their integrity groundwater sampling was carried out with reference to the standard operating procedures described in Douglas' Field Procedures Manual.

Samples were recorded on a chain of custody sheet, and the general sampling procedure comprised:

- Gauging of the depth to groundwater using an interface probe;
- Purging of approximately three well volumes to ensure that a representative groundwater sample was collected;
- Monitoring of groundwater field parameters until measurements were consistent;
- Collection of a representative groundwater sample from the well using a disposable bailer and transfer of the sample directly into the appropriate laboratory prepared containers;
- Labelling of sample containers with individual and unique identification details, including project number and sample location;
- Various sampling for QC purposes (refer to Appendix H); and
- Temporary storage of sample containers in an ice-cooled, insulated and sealed container for transport to the laboratory.

Sample integrity was maintained by keeping all samples in sealed glass receptacles and in ice-cooled, insulated containers immediately after sampling. Samples were sent to the laboratory following the completion of sampling with ice present. Samples were all received by the laboratory in good condition, in the correct containers without headspace, and within the laboratory's recommended holding times outlined in the NEPM (2013). It is considered that the integrity of samples was preserved during temporary storage and transportation to the laboratory. Chain of custody and sample receipt documentation is provided in Appendix J.

8.4.1 Equipment decontamination procedures

The interface probe was decontaminated between each well by brushing in a solution of Decon 90, then rinsing with distilled water and leaving to air dry. A rinsate sample was collected and analysed. The interface probe was considered to be free from contamination based on the analytical results of the rinsate sample.

8.5 Surface water sampling

To assess the current contamination status of the dams located on the Lot, sampling of surface water from two dams was conducted by Douglas Environmental Scientist, Chloe Jones, on 2 June 2023. Sampling was carried out with reference to the standard operating procedures described in Douglas' Field Procedures Manual to ensure that the samples are representative and to maintain their integrity.

Samples were recorded on a Douglas chain of custody sheet, and the general sampling procedure comprised:

- Inserting a bottle into the sampling pole and collecting water samples;
- Measuring of surface water field parameters using a calibrated multi-parameter water quality meter and calibrated turbidity meter;
- Transfer of the samples directly into appropriate laboratory prepared containers;
- Labelling of sample containers with individual and unique identification details, including project number and sample location; and
- Placement of the sample bottles into ice-cooled, insulated and sealed containers for transport to the laboratory.

Sample integrity was maintained by keeping all samples in sealed glass jars and in ice-cooled, insulated containers immediately after sampling. Samples were sent on the same day as sampling to the laboratory with ice present. Samples were all received by the laboratory in good condition, in the correct containers without headspace, and within the laboratory's recommended holding times outlined in the NEPM (2013). It is considered that the integrity of samples was preserved during temporary storage and transportation to the laboratory. Chain of custody and sample receipt documentation is provided in Appendix J.

8.6 Rationale for selection of samples for laboratory analysis

A total of 70 primary soil samples, two primary groundwater samples and two primary surface water samples were collected during the field investigation and sent to Eurofins Brisbane laboratory, located at 26 Smallwood Place, Murarrie, QLD. A total of 14 soil samples (i.e., one sample per borehole) were analysed for a broad range of CoPC comprising metals/metalloids (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc), TRH, BTEXN, PAH, OCP, OPP, PCB, phenols, PFAS and asbestos (presence/absence) identification. Both groundwater samples were analysed for CoPC comprising metals/metalloids, TRH, BTEX, PAH, OCP, OPP and PFAS. Both surface water samples were analysed for metals/metalloids, TRH, BTEXN, PAH, OCP, OPP, PFAS and nutrients (total nitrogen (N), total Kjeldahl nitrogen (TKN), NO_x, NO₂, NO₃, NH₃, total phosphorus, reactive phosphorus).

In addition, one intra-laboratory replicate soil sample (S1), one intra-laboratory replicate groundwater sample (MWR1), two trip blank samples and two trip spike samples were analysed by Eurofins for QC purposes. One inter-laboratory replicate soil sample (R1) and one inter-laboratory groundwater sample (MWS1) were also analysed by Australian Laboratory Services Pty Ltd (ALS), at 2 Blyth Street, Stafford, for QC purposes. Both laboratories are accredited by NATA for all analyses undertaken.

9. Site assessment criteria

9.1 Soil investigation levels

The site assessment criteria (SAC) applied in the current investigation are informed by the preliminary CSM which identified human and ecological receptors to potential contamination on the site. Analytical soil results were compared against the investigation and screening levels presented in Schedule B1 of NEPM (NEPC, 2013). NEPC (2013) is endorsed by the DETSI under the *National Environment Protection Council Act 1994*.

The NEPM guidelines are applicable to generic land use settings and include consideration of the soil type and depth of parameters for some analytes. They are broadly divided into two groups, health- based investigation or screening levels (HIL/HSLs) representing risks to human receptors, and ecological investigation or screening levels (EIL/ESLs) representing risks to ecological and/or environmental receptors. Screening levels are not intended to be used as clean-up levels; rather, they establish concentrations above which further investigation should be conducted. They are intentionally conservative and are based on a reasonable worst-case scenario.

Given the proposed development the following criteria were adopted for this investigation:

- HIL/HSL – D: Commercial/industrial land use scenario; and
- ESL/EIL – D: Commercial/industrial land use scenario.

EILs were adopted for selected metals and organic compounds and are applicable for assessing risk to terrestrial ecosystems (NEPC, 2013). EILs depend on specific soil physiochemical properties and land use scenarios and generally apply to the top 2 m of soil, which corresponds to the root zone and habitation zone of many species. The EIL is determined for a contaminant based on the sum of the ambient background concentration (ABC) and an added contaminant limit (ACL). The EIL is calculated using the following formula:

- $EIL = ABC + ACL$

EILs were derived using the Interactive (Excel) Calculation Spreadsheet (from the NEPM Toolbox on the NEPC website) using input parameters of Queensland (the State in which the site is located), and low traffic volumes. Two samples collected from undisturbed areas of the site were analysed for % iron, CEC, pH, TOC and % clay content. The results of these samples were averaged and used as input parameters in the Interactive (Excel) Calculation Spreadsheet. The soils have been measured to have an average pH of 6.6, CEC of 49 cmol/kg, TOC of 0.45 %, % iron of 3.45 % and % clay of 14.5 %.

PFAS assessment criteria comprised the guidelines presented in the PFAS NEMP (Version 3.0) (HEPA, 2025). The PFAS NEMP guidelines are broadly consistent with the NEPM HIL/HSL and EIL/ESL categories including consideration of site land use. We note that the previous versions of this report (i.e. draft, revision 0 and revision 1) were completed prior to the release of the PFAS NEMP (Version 3.0), and the guidelines presented in the PFAS NEMP (Version 2.0) (HEPA, 2020) were adopted. As some of the guideline values were changed, the implications for the interpretation of PFAS analytical results are discussed in Section 11.

The following NEMP criteria were adopted for this investigation:

- Human Health Investigation Level (HHIL) – commercial/industrial use;
- Ecological Guideline Value for Direct Exposure (EGV-DE) – Applicable to all land uses; and
- Ecological Guideline Value for Indirect Exposure (EGV-IE) – Applicable to all land uses.

9.2 Groundwater and surface water investigation levels

Surface water quality should meet the water quality objectives (WQOs) set for waters local to the site. WQOs for moderately disturbed, lowland freshwaters of the Western Logan River Fresh Waters in the Logan River Basin (DES 2022, Table 2) were adopted to assess water quality at the site in comparison with the expected regional conditions.

Regional guidelines were prioritised to allow for assessment against local conditions. The following guidelines were applied to assess water analytical data from the site in the following order of priority: DES (2022: Table 2), ANZG (2018: Table 3.4.1, trigger values for 95% protection of slightly-moderately disturbed freshwater ecosystems), NEPC (2013: Schedule B1, Table 1C Groundwater Investigation Levels (GILs) for freshwater aquatic ecosystems) and Table 10.6 of the 2011 Australian Drinking Water Guidelines (ADWG) (NRMCC, 2022). Guideline values for PFAS in groundwater were derived from the PFAS NEMP (HEPA, 2025: Table 5, Ecological water quality guideline values for 95% protection of freshwater ecosystems).

10. Ground conditions

Details of the subsurface conditions encountered in the boreholes are given on the borehole logs provided in Appendix I. The logs should be read in conjunction with the notes 'About this Report' and other explanatory notes presented in Appendix I, which comment on the sampling methods, soil descriptions, and symbols and abbreviations used in their preparation.

In summary, the subsurface conditions generally comprised **topsoil** over **residual clay** and **extremely weathered siltstone** then bedrock of predominant **siltstone** and **mudstone** with interbedded **sandstone**. Further details of this profile are presented below:

- Topsoil: a 0.1 m to 0.3 m (averaging 0.2 m) thick layer of sandy clay with grass roots;
- Residual clay: generally stiff then very stiff, and hard where trending to extremely weathered siltstone and mudstone, medium or high plasticity silty or sandy clay from below the topsoil to the borehole termination depth, or to depths of between 1.6 m and 9.7 m where rock was encountered; and
- Siltstone, mudstone and sandstone: generally very low strength siltstone or mudstone that graded to low strength and had interbeds of sandstone in BH7 and BH8, and very low strength sandstone in BH9 that graded to low then low to medium strength with depth, to the termination depths in all boreholes where encountered.

Inferred very low strength siltstone and mudstone that caused drilling auger refusal was also encountered in BH10 to BH14 and BH17 and BH18 at depths of 1.6 m to 5.5 m.

No groundwater was observed during auger drilling for the investigation, in any of the boreholes and to a maximum depth of approximately 7.2 m. In the deep boreholes where wash boring techniques were adopted after augering, the presence of groundwater was obscured by the use of drilling muds. Subsequent groundwater monitoring of the wells in the deep boreholes on 2 June 2023, indicated groundwater depths of about 11.7 m in BH7, 11.4 m in BH8 and 15.4 m in BH9. In relation to the groundwater depths and ground moisture condition, it must be noted that they are affected by climatic conditions, soil and rock permeability, human influences and other factors, and will therefore vary with time.

11. Discussion of results

11.1 Soil investigation results

With reference to Tables K1 to K4 provided in Appendix K, concentrations of arsenic, total chromium, copper, lead, mercury, nickel, zinc and TRH (Fraction F3 and F4) above the laboratory

limits of reporting (LOR) were present in some soil samples. However, all concentrations were below the adopted SAC. No other potential contaminants were present in concentrations above the LOR. No asbestos was detected in the soil samples analysed.

Table K4 has been revised since the previous versions of this report to update the SAC with the HEPA (2025) ecological guideline values for ecological indirect exposure, which were revised from the values detailed in HEPA (2020). Specifically, the guideline value for PFOS was reduced from 10 µg/kg to 3 µg/kg, and a guideline value for PFOA of 3 µg/kg was adopted, where there had previously been no guideline value. This resulted in the LOR for both PFOS and PFOA of 5 µg/kg exceeding the revised guideline values. Douglas does not consider that this affects the interpretation of the results, as all PFAS analytical results were below the LOR, the adopted HIL-D and the guideline values for ecological direct exposure. Douglas considers that the results do not indicate an unacceptable risk due to PFAS contamination.

11.2 Groundwater investigation results

With reference to Tables K5 to K12 provided in Appendix K, the field-measured parameters and laboratory analytical groundwater results for the CoPC were below the adopted SAC except for the following:

- The pH value of MW8, measured to be 8.4, was above the DES (2022) and ANZECC (2000) criteria upper limit of 8.0;
- The electrical conductivity (EC) values for both groundwater wells were above the DES (2022) and ANZECC (2000) criteria;
- The turbidity values for both groundwater wells were above the DES (2022), ADWG (2011) and ANZECC (2000) criteria;
- Total chromium in samples MW8, MW9 and MWR1 (the replicate sample of MW9) reported at concentrations of 2 µg/L, 3 µg/L, and 2 µg/L, respectively, which exceeded the adopted NEPC (2013) GIL and ANZG (2018) criteria of 1 µg/L;
- Copper in all groundwater samples, reported at concentrations ranging between 2 µg/L and 29 µg/L, which exceeded the adopted NEPC (2013) GIL and ANZG (2018) criteria of 1.4 µg/L. The highest concentration of 29 µg/L was reported in MW8;
- Lead in sample MW8 reported at a concentration of 9 µg/L, which exceeded the adopted NEPC (2013) GIL and ANZG (2018) criterion of 3.4 µg/L;
- Mercury in samples MW8 and MW9 at concentrations of 0.3 µg/L and 0.1 µg/L, respectively, which exceeded the adopted NEPC (2013) GIL criterion of 0.06 µg/L; and
- Zinc in all groundwater samples, reported at concentrations ranging between 15 µg/L and 43 µg/L, which exceeded the adopted NEPC (2013) GIL and ANZG (2018) criteria of 8 µg/L. The highest concentration of 43 µg/L was reported in MW8.

It should also be noted that concentrations of TRH were detected in both groundwater wells for several carbon fraction groups, with the concentration for the sum of TRH (>C₁₀-C₄₀) being reported as 8,500 µg/L in MW8 and 1,890 µg/L in MW9. While there are no established guideline values for some of these analytes, the concentrations detected are not considered to present a significant risk to potential human receptors at the site for the following reasons:

- The concentrations of volatile TRH detected (i.e., TRH F1 and F2) do not present a risk to potential human receptors at the site via the vapour intrusion pathway; and

- There is not expected to be any use of groundwater at the site that would expose potential human receptors via the pathways of ingestion and dermal contact.

11.3 Surface water investigation results

With reference to Tables K5 to K12 provided in Appendix K, the field-measured parameters and laboratory analytical surface water results for the CoPC were below the adopted SAC except for the following:

- The pH values for both dams were above the DES (2022) and ANZECC (2000) criteria;
- The turbidity values for both dams were above the DES (2022), ADWG (2011) and ANZECC (2000) criteria;
- Arsenic in sample SW2 was reported at a concentration of 16 µg/L which exceeded the adopted NEPC (2013) GIL criterion of 13 µg/L and ADWG (2011) criterion of 10 µg/L. However, it should be noted that the criterion of 13 µg/L is for pentavalent chromium (As(V)), while a criterion of 24 µg/L applies to trivalent arsenic (As(III)), and the concentrations reported by the laboratory are for total arsenic;
- Total chromium in sample SW2 reported at a concentration of 20 µg/L which exceeded the adopted NEPC (2013) GIL and ANZG (2018) criteria of 1 µg/L;
- Copper in both samples SW1 and SW2, reported at concentrations of 2 µg/L and 64 µg/L respectively, which exceeded the adopted NEPC (2013) GIL and ANZG (2018) criteria of 1.4 µg/L.
- Lead in sample SW2, reported at a concentration of 57 µg/L, which exceeded the adopted NEPC (2013) GIL and ANZG (2018) criteria of 3.4 µg/L;
- Mercury in sample SW2 at a concentration of 0.1 µg/L, which exceeded the adopted NEPC (2013) GIL criterion of 0.06 µg/L;
- Nickel in sample SW2 at a concentration of 29 µg/L which exceeded the NEPC (2013) GIL and ANZG (2018) criteria of 11 µg/L and the ADWG (2011) criterion of 20 µg/L;
- Zinc in both samples SW1 and SW2 reported at concentrations of 8 µg/L and 130 µg/L respectively, which exceeded the adopted NEPC (2013) GIL and ANZG (2018) criteria of 8 µg/L;
- Ammonia in both samples SW1 and SW2, reported at concentrations of 0.3 mg/L and 2.2 mg/L respectively, which exceeded the adopted DES (2022) criterion of 0.01 mg/L;
- Total nitrogen in both samples SW1 and SW2 reported at concentrations of 1.96 mg/L and 9.2 mg/L, respectively, which exceeded the adopted DES (2022) criterion of 0.45 mg/L; and
- Total phosphorus in both Sample SW1 and SW2 reported at concentrations of 0.06 mg/L and 0.7 mg/L, respectively, which exceeded the adopted DES (2022) criterion of 0.035 mg/L.

It should also be noted that relatively minor concentrations of TRH were detected in both dams for several carbon fraction groups, with the concentration for the sum of TRH (>C₁₀-C₄₀) being reported as 200 µg/L in SW1 and 700 µg/L in SW2. While there are no established guideline values for some of these analytes, the concentrations detected are not considered to present a significant risk to potential human receptors at the site as there is not expected to be any use of dam water at the site that would expose potential human receptors via the pathways of ingestion and dermal contact.

12. Conclusions

Based on the investigations described in this report, the following conclusions are made:

- The aerial photograph review indicated that the site has been used for agricultural purposes since at least 1944;
- A 'dip', Douglas presumes to be a cattle/livestock dip, was marked within the central-northern portion of the site on the 1927 Historical Map, contained within the Lotsearch report provided in Appendix E. The exact location of this dip is unknown, however it appears to be in a similar location on-site to the current spray race;
- A former cattle spray race is currently located on the site. The aerial photographs, contained within the Lotsearch report, indicate that the surrounding cattle pens were constructed sometime between 1965 and 1974. However, it is unknown when the spray race was used at the site;
- The intrusive soil investigation indicated that contamination has not been detected at the locations and depths tested at concentrations that are considered to present a risk of harm to potential human and ecological receptors when compared against the adopted SAC for commercial/industrial site use;
- However, it should be noted that as this was a preliminary site investigation only, the sampling density was significantly less than the recommended minimum sampling density for site characterisation (NSW EPA, 2022), and the potential exists for contaminated soil to be present across parts of the site that have not been investigated by soil sampling and laboratory analysis (e.g., in the area of the former spray race);
- Exceedances were detected above the adopted SAC for pH, EC, turbidity and metals in the groundwater samples collected from both groundwater monitoring wells; and
- Exceedances were detected above the adopted SAC for pH, turbidity, metals and nutrients in the surface water samples collected from the dams.

It should be noted that a cattle dip refers to the permanent concrete bath structures where cattle are dipped for saturation treatment by a tickicide to contact kill the QLD cattle tick. Construction of some of these early dips can go back to around 1910. The initial active tickicide ingredient started exclusively with the persistent contaminant arsenic and was used until around the mid-1950s when DDT, another persistent contaminant, became the replacement for arsenic as the main ingredient. Other chemicals also began appearing in the late 1950s, but these appeared to be more readily biodegradable. There is no exact date for the end of the use of DDT, but it is considered to have been phased out around the mid-1960s when quicker degrading chemicals were typically used.

As for the more "mobile" spray races, these were introduced at some point around the early 1970s and began to replace the more permanent concrete "dip bath" which are commonly associated with persistent arsenic and DDT contamination issues identified in the present day. There is no exact date for the introduction of sprays or for the end of the DDT era, but indications are that the use of DDT for cattle was phased out well before the introduction of the sprays. However, this cannot be decisively concluded as the use of DDT was not banned in Australia until 1987.

13. Recommendations

Based on the above conclusions the following recommendations have been made:

- A potential for contamination was identified in the vicinity of the spray race. This is discussed in Section 13.1 below. The remainder of the site is considered to present a lower risk of contamination. Some potential for contamination still exists due to the site's history of agricultural use. If a detailed site investigation (DSI) over the larger site area is required, sampling should be conducted at sufficient density to meet the recommended minimum density detailed in NSW EPA (2022); and
- If discharge of groundwater or dam water to a watercourse is proposed, then treatment would be required due to the reported exceedances of the SAC.

13.1 Recommendations relating to the spray race

Douglas notes that the previous versions of this PSI report (i.e. draft, revision 0 and revision 1) included the following recommendation:

- Intrusive soil sampling and analysis for the identified CoPC should be conducted in the location of the spray race, which is considered to be the area of the site with the highest risk of contamination.

Additional soil and groundwater sampling in the vicinity of the spray race was conducted by Douglas in January 2024, as detailed in Douglas (2024) *Report on Additional Contamination Investigation, Bromelton Energy and Resource Centre, Lot 1 Beaudesert Boonah Road, Bromelton QLD* (reference: 219361.02.R.001.Rev0 dated 8 March 2024). The objective of the investigation was to assess the contamination status of soil and groundwater surrounding the spray race. The scope of work included soil sampling and laboratory analysis for identified CoPC from 26 boreholes and three surface sampling locations located within the area of the spray race, installation of a new groundwater monitoring well in the vicinity of the spray race (MW101), and groundwater sampling from MW101 and two previously installed wells (MW7 and MW9).

The soil investigation of the spray race indicated that contamination was not detected at the locations and depths tested at concentrations that are considered to present a risk of harm to potential human and ecological receptors. The groundwater investigation indicated that concentrations of arsenic that exceeded the adopted SAC were present in two monitoring wells, MW101 and MW9, which was located approximately 30 m south and downgradient of the spray race. It was considered that the reported arsenic concentrations may be associated with historical site use relating to the cattle dip and/or spray race.

Based on the investigation it was concluded that the spray race area is suitable for the proposed development. It was recommended that if discharge of groundwater is proposed, then treatment would be required due to the reported exceedances of the SAC.

Schedule 3 of the EP Act 1994 provides a list of notifiable activities, which includes “*livestock dip or spray race operations – operating a livestock dip or spray race facility*”. Chapter 7 Part 1 Division 2 of the Act provides details of the duty to notify of environmental harm. A duty to notify applies if a notifiable activity under Schedule 3 of the Act is being carried or has been carried out on the land. The duty to notify lies with a person who is:

- i. The owner or occupier of land, or

- ii. An auditor performing an auditor's function under section 568(b) of the Act, or
- iii. A rehabilitation auditor conducting an audit of a Progressive Rehabilitation and Closure Plan (PRCP) Schedule under Chapter 5, Part 12 of the Act.

Douglas is not aware of any auditors performing an auditor's function as described above and therefore recommends that the owner or occupier of the land provide formal notification to the administering authority (DETSI) that a notifiable activity appears to have been conducted on the land. The administering authority may record particulars of land in the EMR if the authority is satisfied that a notifiable activity has been, or is being, carried out on the land.

14. References

ANZECC. (2000). *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*. Australia and New Zealand Environment and Conservation Council.

ANZG. (2018). *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*. Canberra, ACT: Australian and New Zealand Governments and Australian state and territory governments.

CRC CARE. (2017). *Risk-based Management and Remediation Guidance for Benzo(a)pyrene*. Technical Report no. 39: Cooperative Research Centre for Contamination Assessment and Remediation of the Environment.

DES. (2022). *Environmental Protection (Water and Wetland Biodiversity) Policy 2019 – Logan River Environmental Values and Water Quality Objectives*. State of Queensland.

Douglas Partners. (2024). *Report on Additional Contamination Investigation, Bromelton Energy and Resource Center, Lot 1 Beaudesert Boonah Road, Bromelton QLD*.

HEPA. (2020). *PFAS National Environmental Management Plan (NEMP)*. Version 2.0 : Heads of the EPA Australia and New Zealand.

HEPA. (2025). *PFAS National Environmental Management Plan (NEMP)*. Version 3.0: Heads of EPAs Australia and New Zealand.

NEPC. (2013). *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [NEPM]*. Australian Government Publishing Services Canberra: National Environment Protection Council.

NHMRC, NRMMC. (2022). *Australian Drinking Water Guidelines 2011, Version 3.8*. Canberra: National Health and Medical Research Council, National Resource Management Ministerial Council.

NSW EPA. (2022). *Sampling Design, Part 1: Application; Part 2: Interpretation*. NSW Environment Protection Authority.

QLD Government. (1994). *Environmental Protection Act, Queensland*. Office of Queensland Parliamentary Council.

State of Queensland. (2017). *Bromelton State Development Area Development Scheme December 2017*. The Department of State Development.

Waterhouse, R. (2002). *Tancred, Henry Eugene (1897–1961)*, *Australian Dictionary of Biography, National Centre of Biography*. Retrieved May 23, 2023, from Australian National University: <https://adb.anu.edu.au/biography/tancred-henry-eugene-11820/text21151>

15. Limitations

Douglas Partners Pty Ltd (Douglas) has prepared this report for this project at Lot 1 Beaudesert-Boonah Road, Bromelton in line with Douglas' proposal 219361.00.P.001.Rev0 dated 23 November 2022 and acceptance received from Cleanaway Operations Pty Ltd dated 24 November 2022, and proposal 219361.03.P.001.Rev0 dated 2 December 2025 and email acceptance received from Anna Stewart of Arup on behalf of Cleanaway Operations Pty Ltd dated 3 December 2025. The work was carried out under Douglas' Engagement Terms. This report is provided for the exclusive use of Cleanaway Operations Pty Ltd for this project only and for the purposes as described in the report. It should not be used by or relied upon for other projects or purposes on the same or other site or by a third party. Any party so relying upon this report beyond its exclusive use and purpose as stated above, and without the express written consent of Douglas, does so entirely at its own risk and without recourse to Douglas for any loss or damage. In preparing this report Douglas has necessarily relied upon information provided by the client and/or their agents.

The results provided in the report are indicative of the sub-surface conditions on the site only at the specific sampling and/or testing locations, and then only to the depths investigated and at the time the work was carried out. Sub-surface conditions can change abruptly due to variable geological processes and also as a result of human influences. Such changes may occur after Douglas' field testing has been completed.

Douglas' advice is based upon the conditions encountered during this investigation. The accuracy of the advice provided by Douglas in this report may be affected by undetected variations in ground conditions across the site between and beyond the sampling and/or testing locations. The advice may also be limited by budget constraints imposed by others or by site accessibility.

The assessment of atypical safety hazards arising from this advice is restricted to the environmental components set out in this report and based on known project conditions and stated design advice and assumptions. While some recommendations for safe controls may be provided, detailed 'safety in design' assessment is outside the current scope of this report and requires additional project data and assessment.

This report must be read in conjunction with all of the attached and should be kept in its entirety without separation of individual pages or sections. Douglas cannot be held responsible for interpretations or conclusions made by others unless they are supported by an expressed statement, interpretation, outcome or conclusion stated in this report.

This report, or sections from this report, should not be used as part of a specification for a project, without review and agreement by Douglas. This is because this report has been written as advice and opinion rather than instructions for construction.

Appendix A

About this Report

Introduction

These notes have been provided to amplify Douglas' report in regard to classification methods, field procedures and the comments section. Not all are necessarily relevant to all reports.

Douglas' reports are based on information gained from limited subsurface excavations and sampling, supplemented by knowledge of local geology and experience. For this reason, they must be regarded as interpretive rather than factual documents, limited to some extent by the scope of information on which they rely.

Copyright

This report is the property of Douglas Partners Pty Ltd. The report may only be used for the purpose for which it was commissioned and in accordance with the Engagement Terms for the commission supplied at the time of proposal. Unauthorised use of this report in any form whatsoever is prohibited.

Borehole and Test Pit Logs

The borehole and test pit logs presented in this report are an engineering and/or geological interpretation of the subsurface conditions, and their reliability will depend to some extent on frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will provide the most reliable assessment, but this is not always practicable or possible to justify on economic grounds. In any case the boreholes and test pits represent only a very small sample of the total subsurface profile.

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes or pits, the frequency of sampling, and the possibility of other than 'straight line' variations between the test locations.

Groundwater

Where groundwater levels are measured in boreholes there are several potential problems, namely:

- In low permeability soils groundwater may enter the hole very slowly or perhaps not at all during the time the hole is left open;
- A localised, perched water table may lead to an erroneous indication of the true water table;
- Water table levels will vary from time to time with seasons or recent weather

changes. They may not be the same at the time of construction as are indicated in the report; and

- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water measurements are to be made.

More reliable measurements can be made by installing standpipes which are read at intervals over several days, or perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from a perched water table.

Reports

The report has been prepared by qualified personnel, is based on the information obtained from field and laboratory testing, and has been undertaken to current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal, the information and interpretation may not be relevant if the design proposal is changed. If this happens, Douglas will be pleased to review the report and the sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of subsurface conditions, discussion of geotechnical and environmental aspects, and recommendations or suggestions for design and construction. However, Douglas cannot always anticipate or assume responsibility for:

- Unexpected variations in ground conditions. The potential for this will depend partly on borehole or pit spacing and sampling frequency;
- Changes in policy or interpretations of policy by statutory authorities; or
- The actions of contractors responding to commercial pressures.

If these occur, Douglas will be pleased to assist with investigations or advice to resolve the matter.

About this Report

Site Anomalies

In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, Douglas requests that it be immediately notified. Most problems are much more readily resolved when conditions are exposed rather than at some later stage, well after the event.

Information for Contractual Purposes

Where information obtained from this report is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. Douglas would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

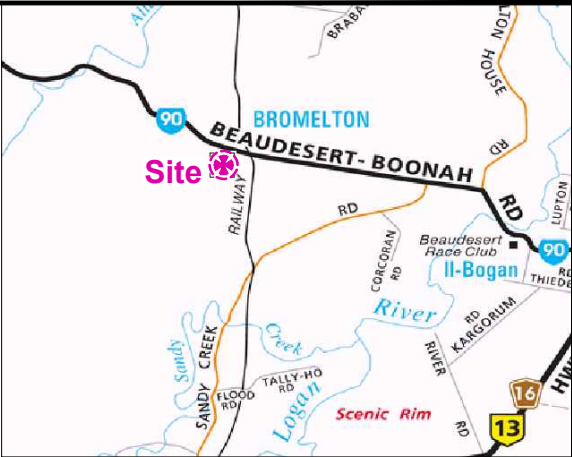
Site Inspection

The company will always be pleased to provide engineering inspection services for geotechnical and environmental aspects of work to which this report is related. This could range from a site visit to confirm that conditions exposed are as expected, to full time engineering presence on site.

intentionally blank

Appendix B

Drawings



Location Plan

LEGEND:

- Surface Water Sample Locations
- Environmental Borehole Locations (May 2023)
- Geotechnical Borehole Locations (November 2022)
- Approximate Lot Boundary
- Approximate Site Boundary
- MW Monitoring Well Location

REV	DESCRIPTION/COMMENT	DATE	DRAWN BY
0	Final for Report	04/12/2025	JST



CLIENT:	Cleanaway Operations Pty Ltd
SCALE:	0 25 50 75 100 m SCALE 1: 2,500 (A3)

NOTE:	- Base image from MetroMap (Dated 25.05.2025) - Site locality image from OpenStreetMap. Not to scale.
PROJECT NAME:	Bromelton Energy and Resource Centre (BERC)
PROJECT ADDRESS:	Lot 1 Beaudesert Boonah Road, Bromelton
COORDINATE REFERENCE SYSTEM:	GDA2020 / MGA ZONE 56

DRAWING TITLE:	Site and Test Location Plan
PROJECT No:	219361.01
DRAWING No:	1
REVISION:	1

Appendix C

EMR/CLR Listing



Department of the Environment, Tourism, Science and Innovation (DETSI)
ABN 46 640 294 485
GPO Box 2454 Brisbane QLD 4001 AUSTRALIA
www.detsi.qld.gov.au

SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 51094233 EMR Site Id: 09 December 2025
This response relates to a search request received for the site:
Lot: 1 Plan: RP45234

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

All search responses include particulars of land listed in the EMR/CLR when the search was generated.
The EMR/CLR does NOT include:-

1. land which is contaminated land (or a complete list of contamination) if DETSI has not been notified
2. land on which a notifiable activity is being or has been undertaken (or a complete list of activities) if DETSI has not been notified

If you have any queries in relation to this search please email emr.clr.registry@detsi.qld.gov.au

Administering Authority

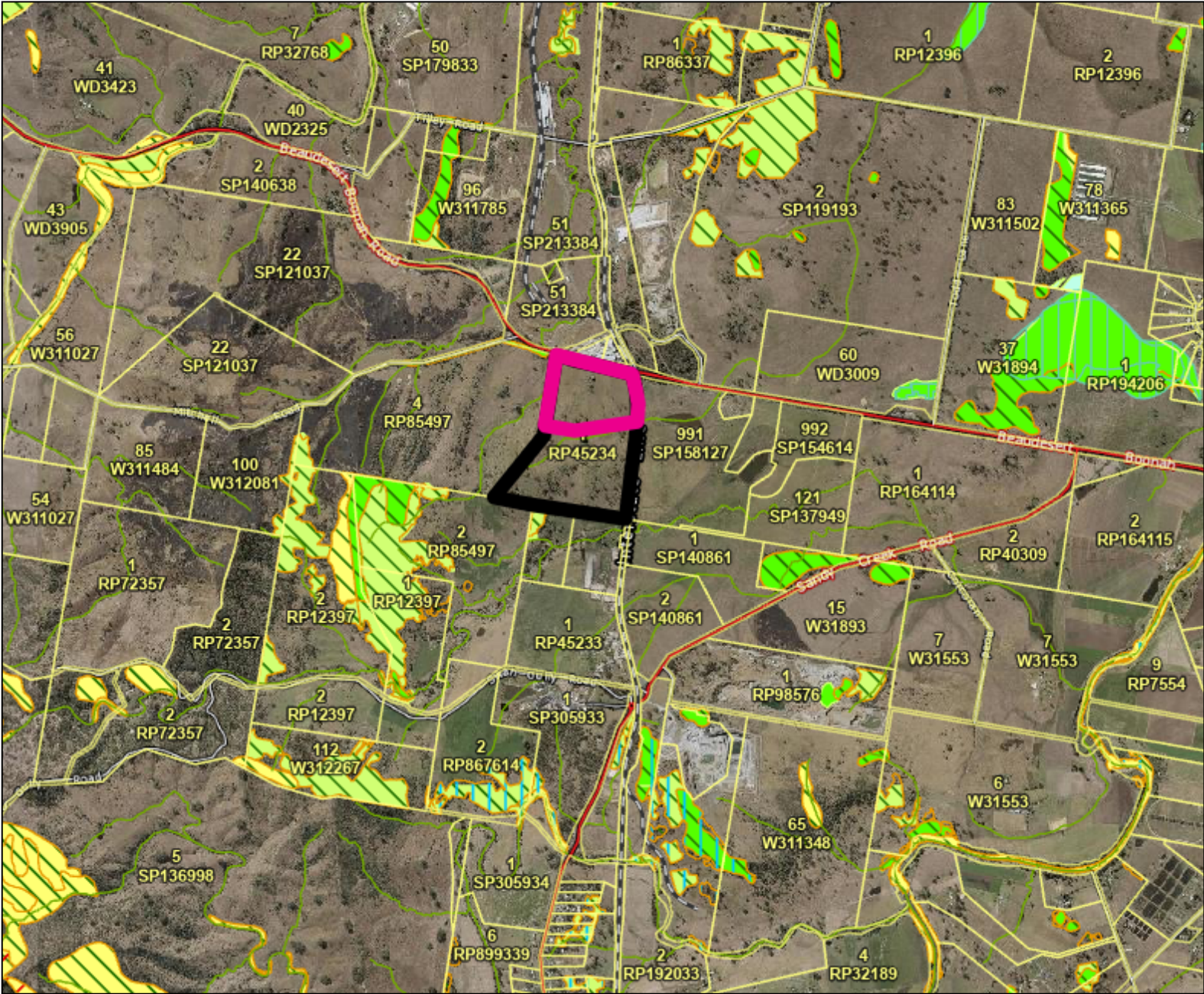
Appendix D

ESA Map

ESA Map

27°57'13"S 152°53'9"E

27°57'13"S 152°57'59"E



28°0'44"S 152°53'9"E

28°0'44"S 152°57'59"E



Legend located on next page



Scale: 1:43061

Printed at: A4

Print date: 25/5/2023

Not suitable for accurate measurement.
Projection: Web Mercator EPSG 102100 (3857)

For more information, visit
<https://qldglobe.information.qld.gov.au/help-info/Contact-us.html>

Includes material © State of Queensland 2023. You are responsible for ensuring that the map is suitable for your purposes. The State of Queensland makes no representation or warranties in relation to the map contents and disclaims all liability.

If imagery is displayed, imagery includes material © CNES reproduced under license from Airbus DS, all rights reserved © 21AT © Earth-i, all rights reserved, © Planet Labs PBC, 2023

ESA Map

Legend

MSES protected area
[estates]



MSES protected area
[nature refuges]



MSES marine park [highly
protected]



MSES declared fish habitat
area [A and B areas]



MSES legally secured offset
area [offset register]



MSES legally secured offset
area [vegetation offsets]



MSES regulated vegetation
[defined watercourse]



MSES strategic
environmental area
[designated precinct]



MSES regulated vegetation
[category B - endangered or
of concern]



MSES regulated vegetation
[category C- endangered or
of concern]



MSES regulated vegetation
[category R- GBR riverine]



MSES regulated vegetation
[essential habitat]



MSES regulated vegetation
[100m from wetland]



MSES wildlife habitat
[endangered or vulnerable]

MSES protected area
[special wildlife reserves]



MSES wildlife habitat [sea
turtle nesting areas]



Land parcel



Land parcel - gt 1 ha



Land parcel - gt 10 ha



Land parcel - gt 1000 ha



Land parcel label

Land parcel label - gt 1 ha

Land parcel label - gt 10 ha

Attribution

Maxar

Includes material © State of Queensland (Department of Resources); © Commonwealth of Australia (Geoscience Australia); © 21AT, © Earth-i, all rights reserved, 2023.

© State of Queensland (Department of Environment and Science) 2022

© State of Queensland (Department of Resources) 2022

© State of Queensland (Department of Resources) 2021

© State of Queensland (Department of Resources) 2023

MSES declared high
ecological value waters
[watercourse]



MSES declared high
ecological value waters
[wetland]



MSES high ecological
significance wetlands



MSES wildlife habitat
[special least concern
animal]



MSES wildlife habitat [SEQ
koala habitat - core]



MSES wildlife habitat [SEQ
koala habitat - locally
refined]



Land parcel label - gt 1000
ha



Cities and Towns



Road Crossing



Bridge

Tunnel

Road



Highway



Main



Local



Private

Railway



Appendix E

Lotsearch Report



LOTSEARCH

LOTSEARCH ENVIRO PROFESSIONAL

Address: Lot 1 Beaudesert-Boonah Road, Bromelton, QLD 4285

Date: 22 May 2023 14:59:28

Reference: LS043785 EP

Disclaimer:

The purpose of this report is to provide an overview of some of the site history, environmental risk and planning information available, affecting an individual address or geographical area in which the property is located. It is not a substitute for an on-site inspection or review of other available reports and records. It is not intended to be, and should not be taken to be, a rating or assessment of the desirability or market value of the property or its features.

You should obtain independent advice before you make any decision based on the information within the report.

The detailed terms applicable to use of this report are set out at the end of this report.

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 Onsite	No. Features within 100m	No. Features in Buffer
Cadastre Boundaries	State of Queensland (Department of Natural Resources, Mines and Energy) and Mines) 2017	13/02/2023	13/02/2023	Quarterly	-	-	-	-
Environmental Authorities Register Current Prescribed Environmentally Relevant Activities	Queensland Department of Environment and Science	20/04/2023	20/04/2023	Monthly	1000	0	4	12
Environmental Authorities Register Current Resource Activities	Queensland Department of Environment and Science	20/04/2023	20/04/2023	Monthly	1000	0	0	0
Environmental Authorities Register Former Prescribed Environmentally Relevant Activities	Queensland Department of Environment and Science	20/04/2023	20/04/2023	Monthly	1000	0	0	0
Environmental Authorities Register Former Resource Activities	Queensland Department of Environment and Science	20/04/2023	20/04/2023	Monthly	1000	3	3	4
Defence PFAS Investigation & Management Program - Investigation Sites	Department of Defence	09/05/2023	09/05/2023	Monthly	2000	0	0	0
Defence PFAS Investigation & Management Program - Management Sites	Department of Defence	09/05/2023	09/05/2023	Monthly	2000	0	0	0
Airservices Australia National PFAS Management Program	Airservices Australia	09/05/2023	09/05/2023	Monthly	2000	0	0	0
Queensland Fire and Emergency Services PFAS Investigation Sites	Queensland Fire and Emergency Services	05/05/2023	27/06/2022	Monthly	2000	0	0	0
Defence 3 Year Regional Contamination Investigation Program	Department of Defence	02/09/2022	02/09/2022	Quarterly	2000	0	0	0
National Waste Management Facilities Database	Geoscience Australia	26/05/2022	07/03/2017	Annually	1000	0	0	1
National Liquid Fuel Facilities	Geoscience Australia	23/08/2022	13/07/2012	Annually	1000	0	0	0
UBD Business Directories (Premise & Intersection Matches)	Hardie Grant			Not required	150	0	0	0
UBD Business Directories (Road & Area Matches)	Hardie Grant			Not required	150	-	0	0
UBD Business Directory Dry Cleaners & Motor Garages/Service Stations (Premise & Intersection Matches)	Hardie Grant			Not required	500	0	0	0
UBD Business Directory Dry Cleaners & Motor Garages/Service Stations (Road & Area Matches)	Hardie Grant			Not required	500	-	0	0
Hydrogeology Map of Australia	Commonwealth of Australia (Geoscience Australia)	20/03/2023	19/08/2019	As required	1000	1	1	2
Groundwater Boreholes	State of Queensland (Department of Natural Resources, Mines and Energy)	15/05/2023	15/05/2023	Quarterly	2000	0	0	28
Detailed Surface Geological Units	State of Queensland (Department of Natural Resources, Mines and Energy)	13/11/2017	28/03/2017	As required	1000	2	-	4
Detailed Surface Geological Structures	State of Queensland (Department of Natural Resources, Mines and Energy)	13/11/2017	28/03/2017	As required	1000	0	-	-
Atlas of Australian Soils	ABARES	19/05/2017	17/02/2011	As required	1000	2	2	3

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features Onsite	No. Features within 100m	No. Features in Buffer
Atlas of Australian Acid Sulfate Soils	CSIRO	19/01/2017	21/02/2013	As required	1000	2	2	2
Commonwealth Heritage List	Australian Government Department of Agriculture, Water and the Environment	03/06/2022	13/04/2022	Annually	1000	0	0	0
National Heritage List	Australian Government Department of Agriculture, Water and the Environment	03/06/2022	13/04/2022	Annually	1000	0	0	0
Heritage Register Boundaries	State of Queensland (Environment and Heritage Protection)	18/10/2022	18/10/2022	Quarterly	1000	0	0	0
Statewide Bushfire Prone Areas	State of Queensland (Department of Natural Resources, Mines and Energy)	05/09/2022	15/07/2015	Annually	1000	3	4	4
Queensland Floodplain Assessment Overlay	State of Queensland (Department of Natural Resources, Mines and Energy)	19/04/2022	06/06/2021	Annually	1000	1	1	1
Regulated Vegetation Management Map	Queensland Government – Department of Resources	27/03/2023	27/03/2023	Monthly	1000	1	3	10
Wetland Protection Area	State of Queensland (Environment and Heritage Protection)	09/04/2018	14/09/2017	Unknown	1000	0	0	0
Groundwater Dependent Ecosystems Atlas	Bureau of Meteorology	28/10/2022	26/10/2022	Annually	1000	0	1	6
Inflow Dependent Ecosystems Likelihood	Bureau of Meteorology	28/10/2022	26/10/2022	Annually	1000	0	1	2

Aerial Imagery 2022

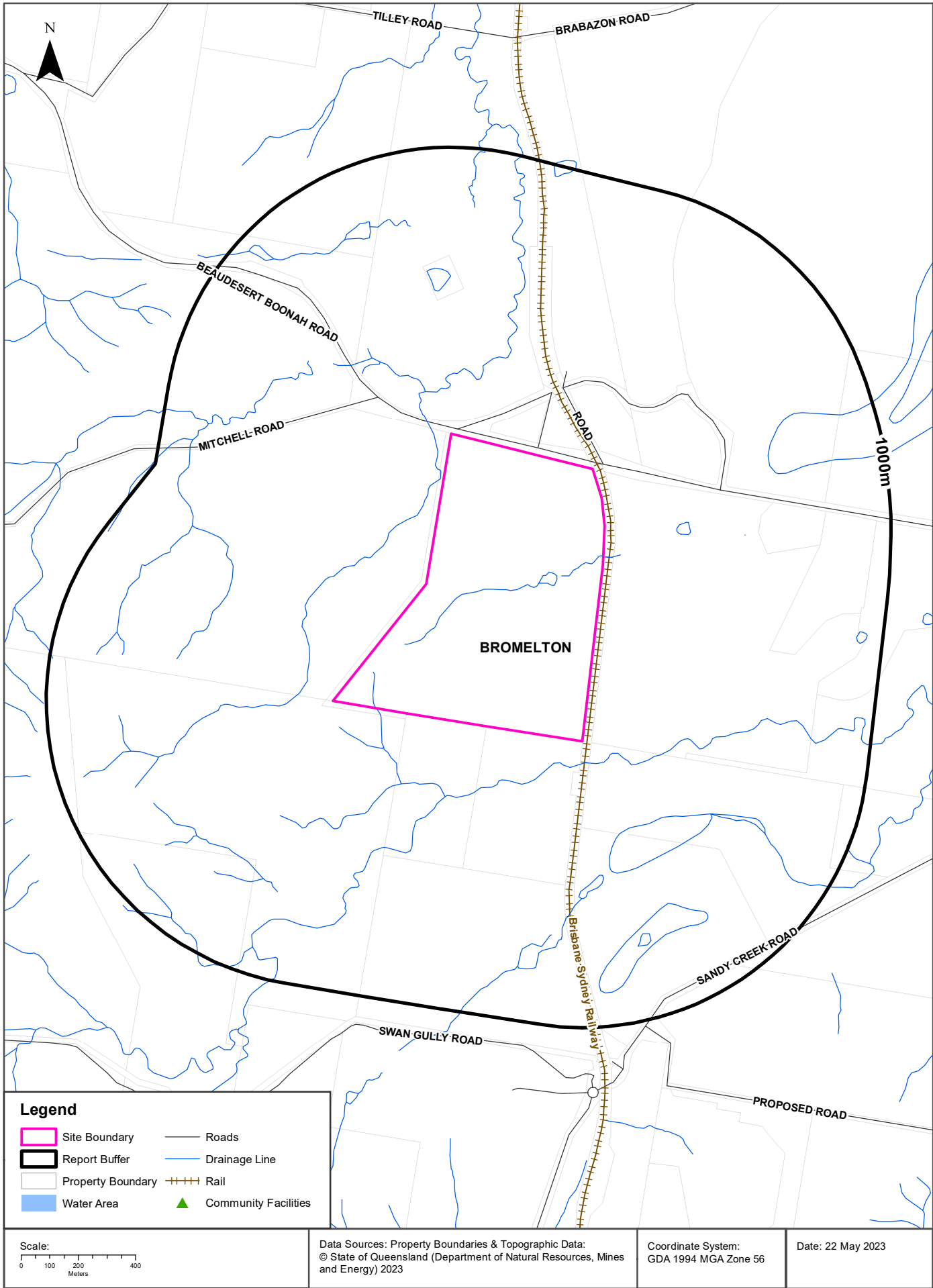
Lot 1 Beaudesert-Boonah Road, Bromelton, QLD 4285



Scale: 0 80 160 240 320 Meters	Data Sources: Aerial Imagery © Aerometrex Pty Ltd	Coordinate System: GDA 1994 MGA Zone 56	Date: 22 May 2023
---	--	--	--------------------------

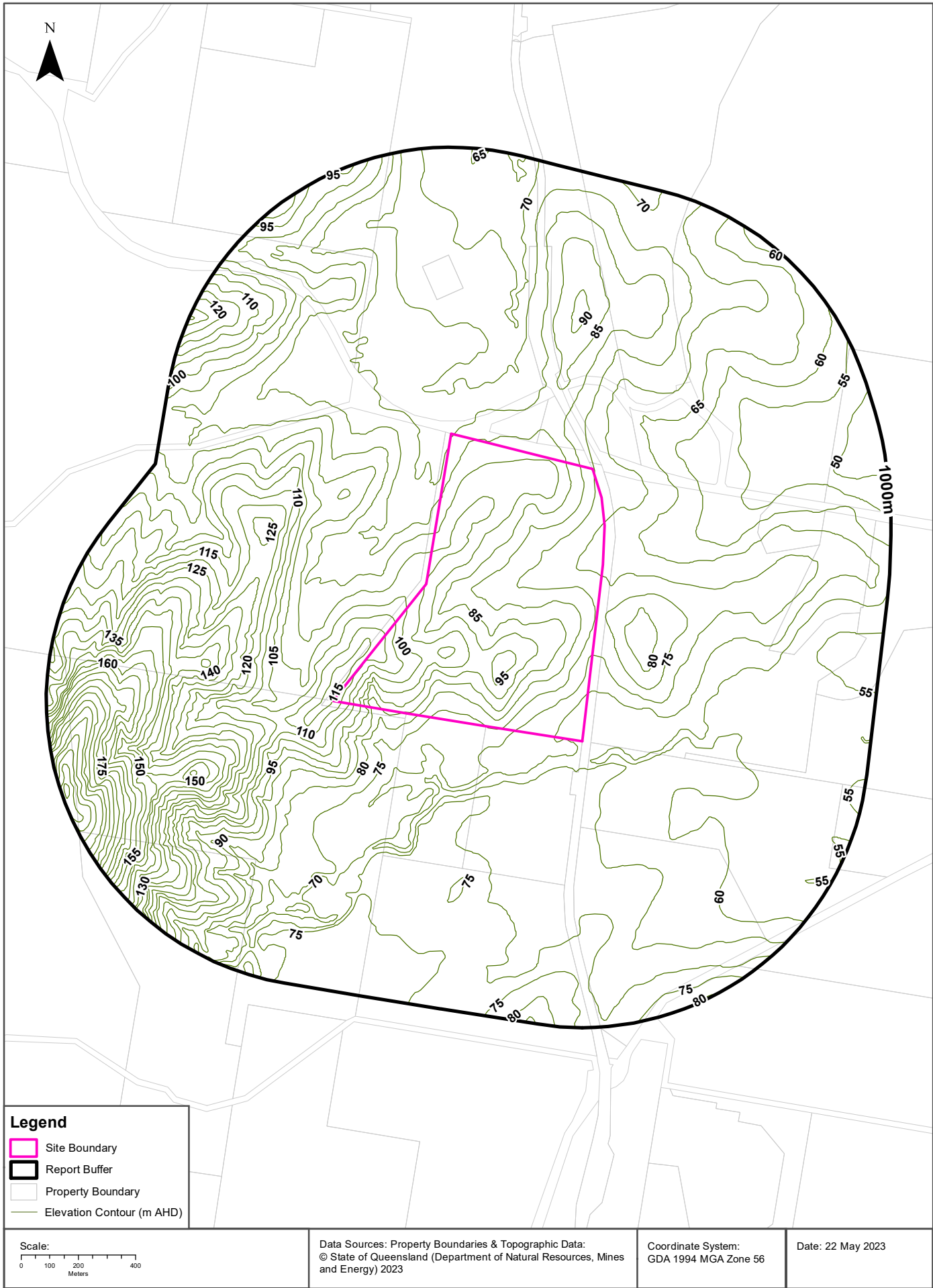
Topographic Features

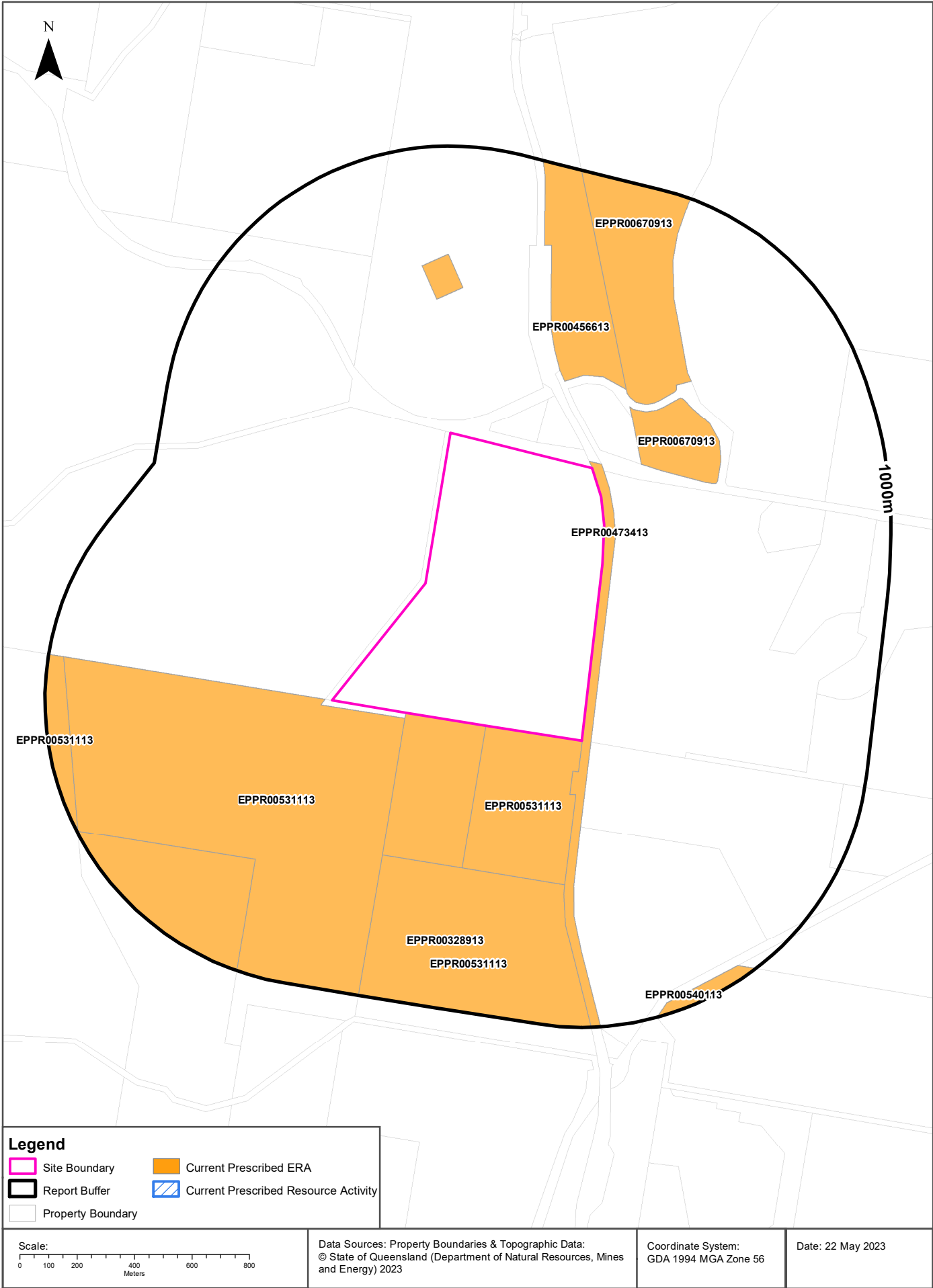
Lot 1 Beaudesert-Boonah Road, Bromelton, QLD 4285



Elevation Contours (5m)

Lot 1 Beaudesert-Boonah Road, Bromelton, QLD 4285





Environmental Authorities Register

Lot 1 Beaudesert-Boonah Road, Bromelton, QLD 4285

Current Prescribed ERA Activities

Current prescribed environmentally relevant activities within the dataset buffer.

Note: Due to the fact that not all records on the EAR have specific or current location details, some premises associated with a permit reference number may not have been mapped, and therefore will not appear in this report. For further details refer to: <https://environment.ehp.qld.gov.au/env-authorities>

Permit No	Permit Status	Effective Date	Holder	Premise	Activity	Loc Conf	Dist'	Dir'n
EPPR00473413	Granted	2018-05-08	Bromelton Quarry Pty Ltd	281/SP130095 Lot 281/SP130095 SWAN GULLY RD, BROMELTON, SCENIC RIM REGIONAL, 4285	ERA 16 - Extraction and Screening, 2(c) - Extracting, other than by dredging, in a year, the following quantity of material - more than 1,000,000t ERA 16 - Extraction and Screening, 3(c) - Screening, in a year, the following quantity of material - more than 1,000,000t	Premise match	0m	South
EPPR00531113	Granted	2015-07-06	AJ Bush & Sons (Manufactures) Pty Ltd	1/RP43189 Lot 1/RP43189, BROMELTON, SCENIC RIM REGIONAL	ERA 15 - Fuel burning, Using fuel burning equipment that is capable of burning at least 500kg of fuel in an hour ERA 25 - Meat Processing, 3(b) - Rendering, without any other processing, in a year, the following quantity of meat or meat products - more than 500t ERA 63 - Sewage Treatment, 1(a-i) - Operating sewage treatment works, other than no-release works, with a total daily peak design capacity of 21 to 100EP - if treated effluent is discharged from the works to an infiltration trench or through an irrigation scheme	Premise match	0m	South
EPPR00531113	Granted	2015-07-06	AJ Bush & Sons (Manufactures) Pty Ltd	2/RP68584 Lot 2/RP68584, BROMELTON, SCENIC RIM REGIONAL	ERA 15 - Fuel burning, Using fuel burning equipment that is capable of burning at least 500kg of fuel in an hour ERA 25 - Meat Processing, 3(b) - Rendering, without any other processing, in a year, the following quantity of meat or meat products - more than 500t ERA 63 - Sewage Treatment, 1(a-i) - Operating sewage treatment works, other than no-release works, with a total daily peak design capacity of 21 to 100EP - if treated effluent is discharged from the works to an infiltration trench or through an irrigation scheme	Premise match	0m	South
EPPR00531113	Granted	2015-07-06	AJ Bush & Sons (Manufactures) Pty Ltd	2/RP85497 Lot 2/RP85497 SWAN GULLY RD, BROMELTON, SCENIC RIM REGIONAL, 4285	ERA 15 - Fuel burning, Using fuel burning equipment that is capable of burning at least 500kg of fuel in an hour ERA 25 - Meat Processing, 3(b) - Rendering, without any other processing, in a year, the following quantity of meat or meat products - more than 500t ERA 63 - Sewage Treatment, 1(a-i) - Operating sewage treatment works, other than no-release works, with a total daily peak design capacity of 21 to 100EP - if treated effluent is discharged from the works to an infiltration trench or through an irrigation scheme	Premise match	19m	South West
EPPR00670913	Granted	2015-01-28	Scenic Rim Regional Council	3/SP119193	ERA 60 - Waste disposal, 1(c) - Operating a facility for disposing of, in a year, the following quantity of waste mentioned in subsection (1)(a) - more than 100,000t but not more than 200,000t ERA 62 - Resource recovery and transfer facility operation, 1(c) - Operating a facility for receiving and sorting, dismantling, baling or temporarily storing category 2 regulated waste	Premise match	167m	North

Permit No	Permit Status	Effective Date	Holder	Premise	Activity	Loc Conf	Dist'	Dir'n
EPPR00456613	Granted	2018-12-20	NATIONAL HIDE PROCESSORS PTY LTD	100/SP223082 48 RECYCLING ST, BROMELTON, SCENIC RIM REGIONAL, 4285	ERA 39 - Tanning, Operating a tannery or facility for tanning, curing or finishing 100t or more of leather products in a year ERA 55 - Other waste reprocessing or treatment, 2(a) - Operating a facility for receiving and either reprocessing or treating, in a year, the following quantity of category 2 regulated waste - 5,000t or less	Premise match	272m	North
EPPR00456613	Granted	2018-12-20	NATIONAL HIDE PROCESSORS PTY LTD	1/RP80463 Lot 1/RP80463, BROMELTON, SCENIC RIM REGIONAL	ERA 39 - Tanning, Operating a tannery or facility for tanning, curing or finishing 100t or more of leather products in a year ERA 55 - Other waste reprocessing or treatment, 2(a) - Operating a facility for receiving and either reprocessing or treating, in a year, the following quantity of category 2 regulated waste - 5,000t or less	Premise match	470m	North
EPPR00328913	Granted	2009-10-21	YURIKA PTY LTD	1/RP45233 28 SWAN GULLY RD, BROMELTON, SCENIC RIM REGIONAL, 4285	ERA 14 - Electricity generation, 2(a) - Generating electricity by using a fuel, other than gas, at a rated capacity of 10MW electrical to 150MW electrical	Premise match	504m	South
EPPR00531113	Granted	2015-07-06	AJ Bush & Sons (Manufactures) Pty Ltd	1/RP45233 28 SWAN GULLY RD, BROMELTON, SCENIC RIM REGIONAL, 4285	ERA 15 - Fuel burning, Using fuel burning equipment that is capable of burning at least 500kg of fuel in an hour ERA 25 - Meat Processing, 3(b) - Rendering, without any other processing, in a year, the following quantity of meat or meat products - more than 500t ERA 63 - Sewage Treatment, 1(a-i) - Operating sewage treatment works, other than no-release works, with a total daily peak design capacity of 21 to 100EP - if treated effluent is discharged from the works to an infiltration trench or through an irrigation scheme	Premise match	504m	South
EPPR00531113	Granted	2015-07-06	AJ Bush & Sons (Manufactures) Pty Ltd	1/RP12397 Lot 1/RP12397 SWAN GULLY RD, BROMELTON, SCENIC RIM REGIONAL, 4285	ERA 15 - Fuel burning, Using fuel burning equipment that is capable of burning at least 500kg of fuel in an hour ERA 25 - Meat Processing, 3(b) - Rendering, without any other processing, in a year, the following quantity of meat or meat products - more than 500t ERA 63 - Sewage Treatment, 1(a-i) - Operating sewage treatment works, other than no-release works, with a total daily peak design capacity of 21 to 100EP - if treated effluent is discharged from the works to an infiltration trench or through an irrigation scheme	Premise match	617m	South West
EPPR00531113	Granted	2015-07-06	AJ Bush & Sons (Manufactures) Pty Ltd	2/RP12397 194 SWAN GULLY RD, BROMELTON, SCENIC RIM REGIONAL, 4285	ERA 15 - Fuel burning, Using fuel burning equipment that is capable of burning at least 500kg of fuel in an hour ERA 25 - Meat Processing, 3(b) - Rendering, without any other processing, in a year, the following quantity of meat or meat products - more than 500t ERA 63 - Sewage Treatment, 1(a-i) - Operating sewage treatment works, other than no-release works, with a total daily peak design capacity of 21 to 100EP - if treated effluent is discharged from the works to an infiltration trench or through an irrigation scheme	Premise match	920m	South West
EPPR00540113	Granted	2020-08-12	NEILSENS QUALITY GRAVELS PTY. LTD.	1/RP98576 291 SANDY CREEK RD, BROMELTON, SCENIC RIM REGIONAL, 4285	ERA 16 - Extraction and Screening, 2(b) - Extracting, other than by dredging, in a year, the following quantity of material - more than 100,000t but not more than 1,000,000t ERA 16 - Extraction and Screening, 3(b) - Screening, in a year, the following quantity of material - more than 100,000t but not more than 1,000,000t	Premise match	946m	South East

Current Prescribed ERA Activities Data Source: QLD Department of Environment and Science
Creative Commons Attribution 4.0 <https://creativecommons.org/licenses/by/4.0/>

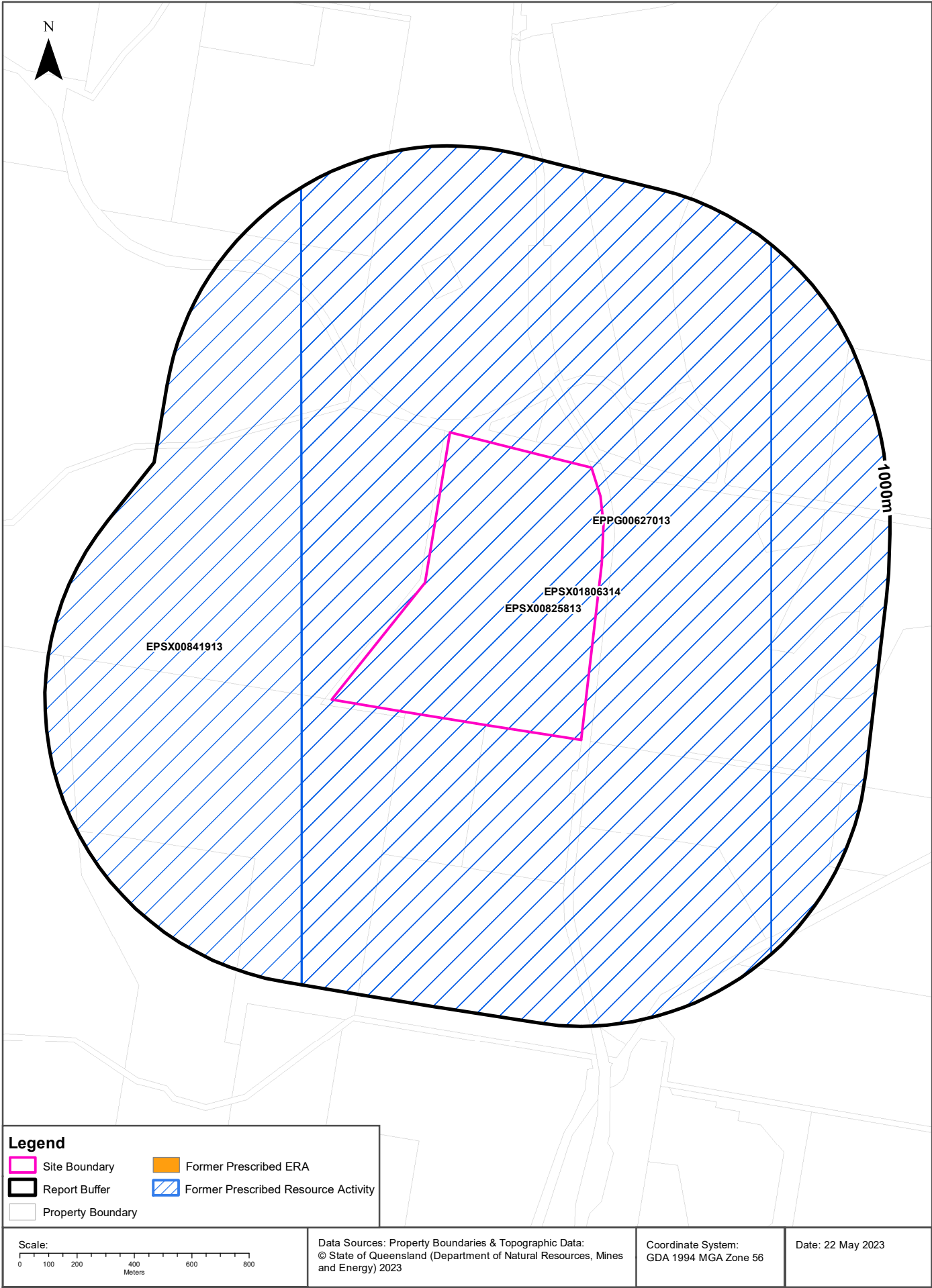
Current Prescribed Resource Activities

Current prescribed resource activities within the dataset buffer.

Note: Due to the fact that not all records on the EAR have specific or current location details, some premises associated with a permit reference number may not have been mapped, and therefore will not appear in this report. For further details refer to: <https://environment.ehp.qld.gov.au/env-authorities>

Permit No	Permit Status	Effective Date	Holder	Premise	Activity	Loc Conf	Dist'	Dir'n
N/A	No records in buffer							

Current Prescribed Resource Activities Data Source: QLD Department of Environment and Science
Creative Commons Attribution 4.0 <https://creativecommons.org/licenses/by/4.0/>



Environmental Authorities Register

Lot 1 Beaudesert-Boonah Road, Bromelton, QLD 4285

Former Prescribed ERA Activities

Former prescribed environmentally relevant activities within the dataset buffer.

Note: Due to the fact that not all records on the EAR have specific or current location details, some premises associated with a permit reference number may not have been mapped, and therefore will not appear in this report. For further details refer to: <https://environment.ehp.qld.gov.au/env-authorities>

Permit No	Permit Status	Effective Date	Holder	Premise	Activity	Loc Conf	Dist'	Dir'n
N/A	No records in buffer							

Former Prescribed ERA Activities Data Source: QLD Department of Environment and Science
Creative Commons Attribution 4.0 <https://creativecommons.org/licenses/by/4.0/>

Former Prescribed Resource Activities

Former prescribed resource activities within the dataset buffer.

Note: Due to the fact that not all records on the EAR have specific or current location details, some premises associated with a permit reference number may not have been mapped, and therefore will not appear in this report. For further details refer to: <https://environment.ehp.qld.gov.au/env-authorities>

Permit No	Permit Status	Effective Date	Holder	Premise	Activity	Loc Conf	Dist'	Dir'n
EPPG00627013	No Longer on Supplied List	2014-01-03	BNG Pty Ltd	ATP644	Petroleum	General area	0m	Onsite
EPSX00825813	Surrendered	2012-09-10	Orbit Capital Pty Ltd	EPC1299	Exploration - Coal	General area	0m	Onsite
EPSX01806314	Surrendered	2014-01-03	B.N.G. PTY. LTD.; ARROW CSG (AUSTRALIA) PTY LTD	ATP644	Non-Scheduled, Petroleum Activity - Authority to Prospect (ATP)	General area	0m	Onsite
EPSX00841913	Surrendered	2015-07-09	Linc Energy Ltd	EPC910	Exploration - Coal	General area	105m	South West

Former Prescribed Resource Activities Data Source: QLD Department of Environment and Science
Creative Commons Attribution 4.0 <https://creativecommons.org/licenses/by/4.0/>

PFAS Investigation Sites

Lot 1 Beaudesert-Boonah Road, Bromelton, QLD 4285

Defence PFAS Investigation and Management Program Investigation Sites

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

Defence PFAS Investigation and Management Program Management Sites

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 Investigation & 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

Queensland Fire and Emergency Services PFAS Investigation Sites

Sites being investigated by Queensland Fire and Emergency Services for PFAS contamination within the dataset buffer:

Map ID	Fire Station Name	PFOA (µg/L)	PFOS (Σ(PFOS + PFHxS) (µg/L)	Location Confidence	Dist	Dir
N/A	No records in buffer					

Queensland Fire and Emergency Services PFAS investigation Sites Data Source: Queensland Fire and Emergency Services, Queensland Government

Defence Sites

Lot 1 Beaudesert-Boonah Road, Bromelton, QLD 4285

Defence 3 Year Regional Contamination Investigation Program

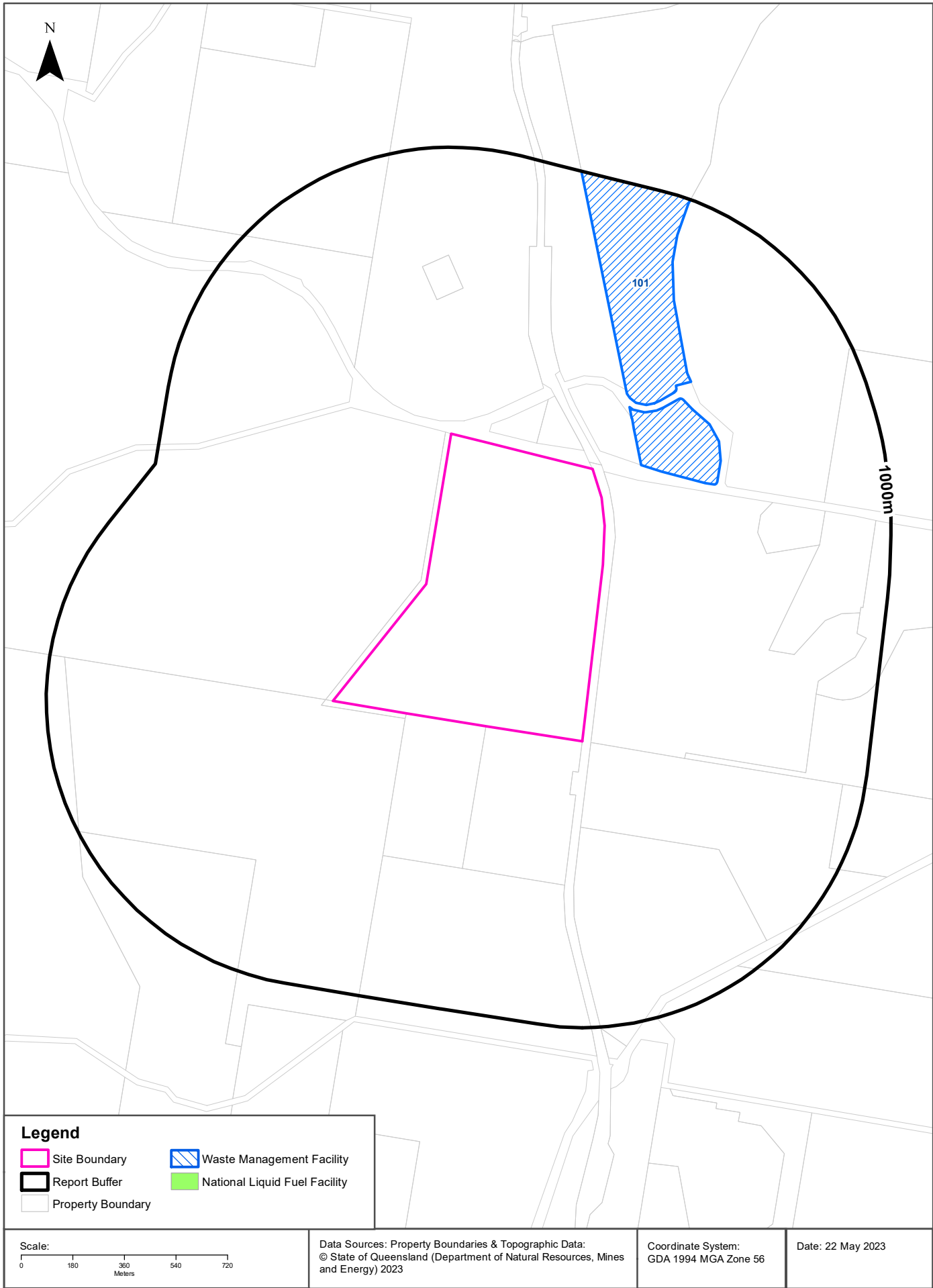
Sites which have been assessed as part of the Defence 3 Year Regional Contamination Investigation Program within the dataset buffer:

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

Waste Management and Liquid Fuel Facilities

Lot 1 Beaudesert-Boonah Road, Bromelton, QLD 4285



Waste Management and Liquid Fuel Facilities

Lot 1 Beaudesert-Boonah Road, Bromelton, QLD 4285

National Waste Management Site Database

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

Site Id	Owner	Name	Address	Suburb	Class	Landfill	Reprocess	Transfer	Comments	Loc Conf	Dist'	Direction
101	Scenic Rim Regional Council	Beaudesert Waste Transfer Station	Boonah Road	Beaudesert	Landfill	Operational			Original information on waste management site collected by WMAA in 2008 via survey	Premise Match	167m	North

Waste Management Facilities Data Source: Australian Government Geoscience Australia

Creative Commons 3.0 © Commonwealth of Australia <http://creativecommons.org/licenses/by/3.0/au/deed.en>

National Liquid Fuel Facilities

National Liquid Fuel Facilities within the dataset buffer:

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

National Liquid Fuel Facilities Data Source: Geoscience Australia

Creative Commons 3.0 © Commonwealth of Australia <http://creativecommons.org/licenses/by/3.0/au/deed.en>

Historical Business Directories

Lot 1 Beaudesert-Boonah Road, Bromelton, QLD 4285

Business Directory Records 1941 - 1968-70 Premise or Road Intersection Matches

Universal Business Directory records, from years 1968-70, 1961, 1950 & 1941, 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
	No records in buffer						

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

Business Directory Records 1941 - 1968-70 Road or Area Matches

Universal Business Directory records, from years 1968-70, 1961, 1950 & 1941, 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
	No records in buffer					

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

Historical Business Directories

Lot 1 Beaudesert-Boonah Road, Bromelton, QLD 4285

Dry Cleaners, Motor Garages & Service Stations 1941 - 1968-70 Premise or Road Intersection Matches

Dry Cleaners, Motor Garages & Service Stations from UBD Business Directories, from years 1968-70, 1961, 1950 & 1941, 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
	No records in buffer						

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

Dry Cleaners, Motor Garages & Service Stations 1941 - 1968-70 Road or Area Matches

Dry Cleaners, Motor Garages & Service Stations from UBD Business Directories, from years 1968-70, 1961, 1950 & 1941, 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
	No records in buffer					

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

Lot 1 Beaudesert-Boonah Road, Bromelton, QLD 4285



Aerial Imagery 2016

Lot 1 Beaudesert-Boonah Road, Bromelton, QLD 4285



Scale: 0 80 160 240 320 Meters	Data Source Aerial Imagery: © 2023 Google Inc, used with permission. Google and the Google logo are registered trademarks of Google Inc.	Coordinate System: GDA 1994 MGA Zone 56	Date: 19 May, 2023
---	---	--	---------------------------

Aerial Imagery 2012

Lot 1 Beaudesert-Boonah Road, Bromelton, QLD 4285



Scale: 0 80 160 240 320 Meters	Data Source Aerial Imagery: © 2023 Google Inc, used with permission. Google and the Google logo are registered trademarks of Google Inc.	Coordinate System: GDA 1994 MGA Zone 56	Date: 19 May, 2023
---	---	---	---------------------------

Aerial Imagery 2004

Lot 1 Beaudesert-Boonah Road, Bromelton, QLD 4285



Scale: 0 80 160 240 320 Meters	Data Source Aerial Imagery: © 2023 Google Inc, used with permission. Google and the Google logo are registered trademarks of Google Inc.	Coordinate System: GDA 1994 MGA Zone 56	Date: 19 May, 2023
---	---	---	---------------------------

Aerial Imagery 1993

Lot 1 Beaudesert-Boonah Road, Bromelton, QLD 4285



Aerial Imagery 1982

Lot 1 Beaudesert-Boonah Road, Bromelton, QLD 4285



Scale: 0 80 160 240 320 Meters	Data Source Aerial Imagery: © State of Queensland (Department of Natural Resources, Mines and Energy) [2023]	Coordinate System: GDA 1994 MGA Zone 56	Date: 19 May, 2023
---	---	--	---------------------------

Aerial Imagery 1974

Lot 1 Beaudesert-Boonah Road, Bromelton, QLD 4285



Aerial Imagery 1965

Lot 1 Beaudesert-Boonah Road, Bromelton, QLD 4285



Scale: 0 80 160 240 320 Meters	Data Source Aerial Imagery: © State of Queensland (Department of Natural Resources, Mines and Energy) [2023]	Coordinate System: GDA 1994 MGA Zone 56	Date: 19 May, 2023
---	---	--	---------------------------