Report on Preliminary Site Investigation

Blueys Beach Residential Development - Blueys Beach, NSW

50522033-002

Prepared for

Addenbrooke Pty Ltd

12 August 2022

Cardno

now

Stantec

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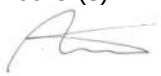

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Executive Summary

Cardno now Stantec Australia Pty Ltd (Stantec) have been engaged by Addenbrooke Pty Ltd (the Client) to prepare a Preliminary Site Investigation (PSI) for the proposed development in the eastern portion of Lot 23 DP 537919, located at Croll Street, Blueys Beach, NSW (the Site).

The purpose of this PSI is to provide the Client with preliminary advice on the contamination status of the Site and subsequent implications for the intended use. The PSI reviews current and historical activities undertaken at the site and provides a preliminary environmental assessment of the potential for soil and/or groundwater contamination to be present on the Site. The following tasks formed the scope of works Stantec undertook to complete the PSI:

- Defining of the Site extents, features and surrounding area;
- Review of hydrogeology and groundwater resource use;
- Review of public records on Site history;
- Site inspection of the Site and surrounding land;
- Review of previous intrusive site investigation, sampling and testing undertaken at the Site; and
- Preparation of a PSI report to advise on the Site's preliminary contamination status.

As part of the initial investigation, multiple soil samples were subject to laboratory analysis for a range of analytical suites to assess site soils against residential guidelines. Analytical testing undertaken comprised; heavy metals (As, Cd, Cr, Cu, Pb, Hg, Ni & Zn), organochlorine pesticides (OCPs) and organophosphate pesticides (OPPs), Total Recoverable Hydrocarbons (TRH), BTEXN (Benzene, Toluene, Ethyl-benzene, Xylenes and Naphthalene), Polycyclic Aromatic Hydrocarbons (PAH), Volatile Organic Compounds (VOC), Polychlorinated Biphenyls (PCB) and asbestos ID in soil.

Results from laboratory testing indicate there were no exceedances of the following thresholds for residential development for the analytes tested as detailed in NEPM 1999 [1]:

- Health Investigation Levels (HIL's) "residential with garden/accessible soil" (HIL A);
- Soil Health Screening Levels (HSL) for vapour intrusion recommended for residential (HSL A);
- Ecological Screening Levels (ESLs) for TPH fractions F1-F4, BTEX and Benzo(a)Pyrene in soil for Urban residential and public open space; and
- Ecological Investigation Levels (EILs) for urban residential and public open space limits. The thresholds adopted include conservative added contaminant limit (ACL) values from Table 1B (1) to 1B (3) NEPM based on pH results of the site soils ranging between 5.5 - 6.3 and in the absence of CEC and/or % clay content testing.

Based on the review of the Site history, investigation works, Site inspection and laboratory testing, Stantec did not identify any past or current, potentially gross contaminating activities having been undertaken on or adjacent to the Site.

Given the results of this assessment, Stantec recommend the development and implementation of an unexpected finds protocol to address any potential contamination that may be uncovered during construction phase. This has been included as an Appendix in this report. Stantec also recommended inspection is undertaken within the footprint of the former structure (in the southern portion of the lot) during construction to assess the footprint of the previously existing structure for remnant demolition materials/disturbance.

The Site is considered low risk of potential contamination based on the review of Site history, investigation findings and the identified data gaps. Based on the findings of the PSI, Stantec did not identify any contamination or potentially contaminating activities previously undertaken on Site that would render the site unsuitable for its proposed use.

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1 Introduction

1.1 Background

Cardno, now Stantec Australia Pty Ltd (Stantec) was commissioned by Addenbrooke Pty Ltd, to prepare a Preliminary Site Investigation (PSI) report for the proposed subdivision development extents within the eastern portion of Lot 23 DP 537919, located at Boomerang Drive, Blueys Beach NSW.

The overall lot predominately comprises undeveloped bushland, with open grassland in the eastern portion of the lot. The Site assessment area is restricted to the eastern portion of the overall lot, shown in Figure 1 attached in Appendix A (The "Site").

Based on a supplied concept plan prepared and provided by designers from Cardno, Now Stantec, the proposed development comprises the creation of 73 residential allotments, two (2) business opportunity lots, reconstruction of Croll Street for access (off-site) and construction of internal subdivision pavement. The development will be predominantly undertaken in the south-west portion of the lot as shown in Figure 3 attached in Appendix A.

The PSI included a Site inspection, desktop study of available historical data including a review of the MCC Planning Certificate, historical aerial photographs, title deeds and the NSW EPA database.

The assessment also comprised intrusive field investigation and laboratory sampling that was undertaken in conjunction with geotechnical investigation at the Site, reported under cover "Report on Geotechnical Investigation – Blueys Beach Residential Development (50522033-001)".

The assessment was undertaken with reference to the following guidelines:

- '*NSW EPA (2020) guidelines for "Consultants Reporting on Contaminated Land, Contaminated land guidelines*' [2].
- '*National Environment Protection Measure (NEPM) for the Assessment of Site Contamination, 1999'* [1].
- *'State Environmental Planning Policy No 55 - Remediation of Land'* [3].

1.2 Purpose & Objectives

The purpose of this PSI is to provide the Client with preliminary advice on the contamination status of the site and subsequent implications for the intended use. The PSI reviews current and historical activities undertaken at the site and provides a preliminary environmental assessment of the potential for soil and/or groundwater contamination to be present on the Site.

The objectives of the PSI are to:

- To the extent practicable, identify the potential for past or present activities on; and surrounding the Site, to have impacted soil or groundwater at the Site.
- Identify potential areas and contaminants of concern at the Site.
- Identify potential receptors of concern and assess the potential for the protected beneficial uses of the land to be impacted due to contamination.
- To make a preliminary assessment of whether contamination is likely to affect the future use or development of the Site.
- Assess the requirement, if any, for further environmental investigation to assess or make the Site suitable for the proposed use.

1.3 Scope

Stantec carried out the following tasks to satisfy the purpose and objectives of the PSI assessment.

Defined the Site, Features & Surrounds:

- Obtained the property title description from a Land-data Property Report.
- Defined the Site boundaries based on title information, available data and established a Site base plan.
- Identified the Site features.
- Defined the topography, surface water drainage of the site and its proximity to the nearest surface water body.
- Identified the location of nearby sensitive environments and receptors such as residential, child-care and primary schools, wetlands, streams or rivers.
- Identified the zoning of the site under the local Planning Scheme.

Hydrogeology & Groundwater Resource Use

- Ascertained the potential utilisation of groundwater at and near the site through a search of the NSW Groundwater Database at NSW Office of Water website.

Review of Public Records on Site History

Review publicly available documents relevant to the site including:

- The historical chain of land titles.
- Historical and current maps of the area.
- Selected historical aerial photos available from the Department of Lands.
- Undertake review of the NSW EPA Contaminated Lands Register to identify nearby contaminated sites reported to the NSW EPA under section 60 of the CLM (1997).

Site Inspection & Surrounds

- Confirmed the site features and identified any visible evidence of fuel storage tanks (above or below ground) and other infrastructure with potential to act as a source of soil and/or groundwater.
- Confirmed the soil type and looked for evidence of site cutting and filling.
- Assessed the surrounding area (to a radius of approximately 500 m) for potential sources of contamination of soil or groundwater at the site.

Intrusive Site Investigation Sampling & Testing

- Performed limited investigations of soil conditions at 17 selected locations to depths ranging from 0.95-3.5 m below existing ground level (BGL).
- Tested selected soil samples for a broad range of analytes (by a National Association of Testing Authorities (NATA) accredited laboratory).
- Compared laboratory concentrations to thresholds detailed within the NEPM [1].

Test pitting was restricted to portions of the site included in the proposed development.

Reporting

- Preparation of this Preliminary Site Investigation (PSI) report to document the assessment activities and results to including findings and recommendations relevant to the objectives of the assessment.
- Developed a Conceptual Site Model (CSM) for the Site, identifying complete and potential pathways between known and potential sources and receptors. This CSM is incorporated in this investigation report.

2 Site Inspection & Surrounding Environment

2.1 Site Identification

The subject Site details are presented in Table 2-1 below. For Site location, refer to Figure 1 in Appendix.

Table 2-1 Site Details

Site Address	Boomerang Drive, Blueys Beach NSW 2428
Lot Number and Deposited Plan	Lot 23 DP 537919
Site Area	Approx. 10.6 Ha
Local Government Area	Midcoast Council
Relative Zoning	B1 Neighbourhood Centre E2 Environmental Conservation E4 Environmental Living R2 Low Density Residential RU2 Rural Landscape

2.2 Site Use & Infrastructure

A Site inspection was undertaken by Stantec on 24 January 2022 in order to identify and map salient features of the site and the surrounding area. The inspection comprised a walkover assessment and intrusive investigation and sampling. Due to site terrain, portions of the Site were unable to be accessed. This predominately comprised the southernmost portion of the lot, outside the extents of the proposed development. Site features and observations are detailed in Table 2-2 below with Site Photographs attached in Appendix B.

Table 2-2 Site features and Observations

Item	Observations
Site use	▪ Rural/bushland
Weather condition	▪ Sunny
Site slope and drainage features	▪ Topographically the Site is located on the eastern face of a northwest to southeast trending ridgeline. Site slopes vary, generally characterised as east to west and are shown through contours shown on Figure 2 attached in Appendix A. ▪ The Site is traversed by two gullies, one in the central portion of the Site trending northwest to southeast, and one in the southern portion of the site tending southeast to northwest. ▪ The eastern portion of the Site is typically flat, with drainage at the Site comprising overland flow generally to the east, with swale drains noted along the eastern boundary of the Site, trending to the southern portion of the Site.
Nearby water bodies	▪ Tasman Sea coastline at Blueys Beach approximately 200 m to the east (depending on tide). ▪ Three rural dams were noted onsite, as shown in Figure 1 attached in Appendix A.
Site surface coverings	▪ Generally comprised grassland, mature trees with shrubs and reeds noted within gully lines.
Surface soils	▪ Surface soils generally comprise Silty/Sandy CLAY and Clayey/Silty SAND.
Site cut and fill	▪ The Site is typically natural with the exception of existing rural dams noted in the northern, eastern and

Item	Observations
	south eastern portions of the Site. These are shown in Appendix A, and Photograph 1 in Appendix B. ▪ Potential minor cut associated with previous building pads for previously existing residential dwellings in the southern portion of the lot. This is outside the proposed development extents. ▪ Potential minor cut associated with a previous livestock yard identified in the aerial. No remnants of the livestock yard was identified onsite. ▪ A minor isolated pocket of fill material placed on the surface was noted in the central portion of the Site, outlined on Figure 1 in Appendix A and in photograph 2 in Appendix B. The fill material comprised soils with no anthropogenic materials observed during inspection. ▪ Mulch stockpiles were noted in the northern portion of the Site, outlined on Figure 1 in Appendix A, and in Photograph 3 in Appendix B.
Buildings	▪ No existing buildings were noted at the Site, however aerial review indicates an existing residential structure was present in the southern corner of the lot. This is outside the development extents.
Potential asbestos in building materials	▪ No existing buildings were noted at the Site.
Manufacturing, industrial or chemical processes and infrastructure	▪ Not observed.
Fuel storage tanks (USTs/ASTs)	▪ No UST/AST was observed at the Site.
Dangerous goods	▪ Not observed.
Presence of stockpiles, fly tipping or anthropogenic materials	▪ Stockpiles of mulch were observed in the northern portion of the Site, shown in Figure 1 of Appendix A, and Photograph 3 in Appendix B.
Liquid waste disposal features	▪ Not observed
Evidence of previous site contamination investigations	▪ Not observed
Evidence of land contamination (staining or odours)	▪ Not observed
Evidence of groundwater contamination	▪ Not observed
Groundwater use	▪ Not observed
Vegetation	▪ Typically, grassland with scattered mature trees. Increased density of mature trees was noted along the western boundary of the Site and within drainage gully lines. Photograph 4 in Appendix B depicts typical vegetation and surface coverage at the Site. ▪ Reeds and shrubs were noted within gully lines. ▪ Heavily vegetated bushland in the western portion of the Site, outside the proposed developable area.
Site fencing	▪ Fencing was generally associated with residential properties to the north, south and east.
Additional Notes and Observations	-

2.3 Surrounding Environment & Land Uses

The site is located within a residential district. Land uses around the site are detailed in the Table 2-3 below.

Table 2-3 Surrounding Land Use

Direction	Land Use or Activity
North	▪ Boomerang Drive. ▪ Commercial and residential allotments ▪ Undeveloped, densely vegetated area to the north-west.
West	▪ Undeveloped, densely vegetated area.
East	▪ Residential development and internal road network. ▪ Blueys Beach within 200 m.
South	▪ Undeveloped, densely vegetated area to the south-west. ▪ Residential and rural residential development to the south-east.

The area is serviced by public roads and access to the site is via locked gates located off Croll Street and Newman Avenue.

3 Published Data

3.1 Regional Geology

Reference to the New South Wales (NSW) Seamless Geology dataset accessed on NSW Governments web mapping application “Minview” [4] (See Figure 3-1) indicates the Site is predominantly underlain by the Yagon Siltstone (**Cumy**) formation known to comprise fossiliferous dark siltstone, minor interbeds of mudstone and fossiliferous sandstone and residual soils derived through the decomposition of these rocks.

The boundary with the Koolanock Sandstone (**Cuml**) formation is situated at the western boundary of the site and is known to comprise brown to grey lithic sandstone, interbedded bioturbated siltstone, cream rhyolite flows, upward fining conglomerate, carbonaceous siltstone, minor coal seams and soils derived from the weathering of these.

Small areas within the Site are underlain by different deposits including;

- Coastal Deposits – bedrock-mantling dune facies (**QP_bdr)** within the north-east portion of the Site known to comprise indurated marine-deposited and aeolian-reworked quartz-lithic sand with abundant carbonate, sporadic humic debris in stabilised dunes.
- Coastal Deposits – backbarrier flat facies (**QH_bf)** within the central portion of the eastern boundary in proximity to a gulley line. The deposits are known to comprise fine to medium grained, quartz-lithic sand with carbonate and humic components (marine-deposited), indurated sand, silt, clay, gravel, organic mud and peat.

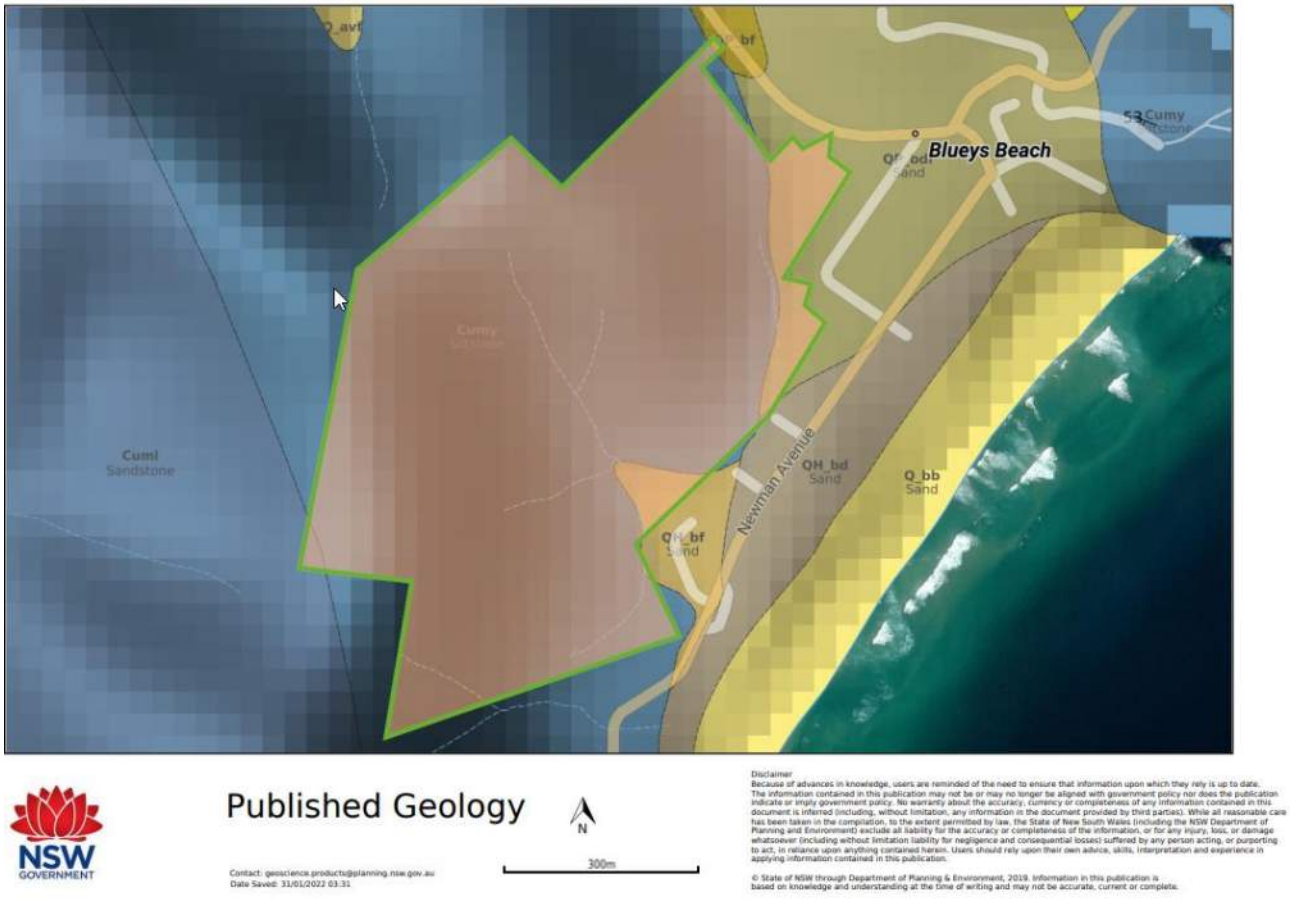

Figure 3-1 Published Geology at the Site obtained from NSW Government Minview Website [4]

A similar geology search and review can be seen within the Lotsearch report (LS028382 EP) attached as Appendix C.

3.2 Hydrogeology

3.2.1 Groundwater Bores

A search of the NSW Groundwater Database from Department of Primary Industries – Office of Water NSW and Commonwealth of Australia (BOM), found nine (9) wells within 500 m of the Site and eighteen (18) noted between 500 and 2000 m of the Site. Details of the wells found within 500 m of the Site are summarised below in Table 3-1. The searches are present in the Lotsearch Report (LS028382 EP), attached in Appendix C.

Table 3-1 Summary of Groundwater Bores with 500 m of Site

Gw ID No.	Type	Purpose	Final Depth (m)	Elevation (AHD)	SWL (m bgl)	Distance from Site (m)	Direction from Site
GW080157	Bore	Monitoring	14.60	5.60	2.40	80	South East
GW080156	Bore	Monitoring	17.90	12.60	7.60	102	East
GW060983	Spear	Domestic	12.00		-	105	North East
GW080155	Bore	Monitoring	13.30	13.70	7.10	188	North East
GW080158	Bore	Monitoring	13.70	11.50	-	205	East
GW080154	Bore	Monitoring	7.20	7.50	-	366	North East
GW080150	Bore	Monitoring	11.60	6.80	-	388	North East
GW080148	Bore	Monitoring	16.30	9.50	-	466	North East
GW080147	Bore	Monitoring	10.10	96.20	2.50	484	North East

Notes to Table:
AHD: Australian Height Datum
Bgl: below ground level
SWL: Standing Water Level

3.3 Acid Sulfate Soils

3.3.1 Great Lakes Local Environmental Plan (LEP) 2014

Review of the Great Lakes Local Environmental Plan (LEP) 2014 Mapping indicates the Site is predominantly situated within a Class 5 Acid Sulfate Soils area with an area in the south-east of the Site noted to be Class 4 in proxility to a gulley line.

Works in Class 4 areas that present an environmental risk are “Works more than 2 metres below the natural ground surface and works by which the water-table is likely to be lowered more than 2 metres below the natural ground surface.”.

Class 5 indicates that *“works within 500 metres of adjacent Class 1, 2, 3, or 4 land that is below 5 metres AHD and by which the watertable is likely to be lowered below 1 metres AHD on adjacent Class 1, 2, 3 or 4 land, present an environmental risk”.*

3.3.2 NSW Office of Environmental Heritage

A review of the NSW Office of Environment and Heritage, eSPADE v2.1 mapping system [5] Acid Sulphate Soils Risk Map indicates that an area in the south-east portion of the Site is situated within an area of Low Probability (L4) of ASS at greater than 3m below ground level.

3.3.3 Atlas of Australian Acid Sulfate Soils

A review of the Atlas of Australian Acid Sulfate Soils (CSIRO) indicate that the Site is situated in a Class B area. Class B area has a low probability of occurrence in the order of 6 to 70%. The search can be seen in the Lotsearch Report (LS028382 EP), attached in Appendix C.

3.4 EPA Records Search

3.4.1 Contaminated Land Record of Notices

The Contaminated Land Record of Notices is maintained by the Office of Environment and Heritage (OEH) in accordance with Part 5 of the Contaminated Land Management (CLM) Act 1997 and contains regulatory notices issued by the Environment Protection Authority (EPA) in relation to contaminated sites.

A search of NSW EPA Record of Notices revealed no notices listed within 500 m the Site. Search Records are attached in Appendix C as part of the Lotsearch Report (LS028382 EP).

3.4.2 PoEO Public Register

The PoEO Public Register under Section 308 of the Protection of the Environment Operations (PoEO) Act 1997 contains Environment Protection Licences (EPLs), applications and notices issued by the EPA.

The search revealed one (1) licenced activity within 500 m radius of the Site. The search results are present in Table 3-2 below and attached as Appendix C as part of the Lotsearch Report (LS028382 EP).

Table 3-2 PoEO Public Register

EPL	Organisation	Name	Address	Activity	Distance
11346	Mid-Coast Council	Waterways and Riparian Areas Within	Mid-Coast Council Local Government Area, Forster, NSW 2428	Other Activities	0 m (On-Site)

Furthermore, three (3) licensed activities now revoked or surrendered were found within 500 m of the Site. The search results are present in the table below and attached as Appendix C, as part of the Lotsearch Report (LS028382 EP).

Table 3-3 Former Licensed Activities under the PoEO Act 1997

License No.	Organisation	Location	Status	Date Issued	Activity	Distance
4653	Luhrmann Environment Management Pty Ltd	Waterways Throughout NSW	Surrendered	06/09/2000	Other Activities / Non Scheduled Activity – Application of Herbicides	0 m (On-Site)
4838	Robert Orchard	Various Waterways throughout NSW Sydney NSW 200	Surrendered	07/09/2000	Other Activities / Non Scheduled Activity – Application of Herbicides	0 m (On-Site)
6630	Sydney Weed & Pest Management Pty Ltd	Waterways Throughout NSW-Prospect, NSW 2148	Surrendered	09/11/2000	Other Activities / Non Scheduled Activity – Application of Herbicides	0 m (On-Site)

3.4.3 List of NSW Contaminated Sites Notified to the EPA

A search of the List of NSW Contaminated Sites Notified to the EPA did not identify contaminated sites within 500 m of the Site. The search results are presented in Appendix C, as part of the Lotsearch Report (LS028382 EP).

4 Site History

4.1 General

The site history comprised review of the Lotsearch Report LS028382 EP, title deed searches, available published data, Section 10.7 planning certificates and aerial photography review, all attached in Appendix C. The site history review is detailed herein.

4.1.1 Historical Title Deeds Search

Historical Title Deeds were obtained to help determine previous land use of the Site. The search indicated the Lot to formerly comprise of two areas (1 and 2) of ownership, as per the attached Cadastral Records Inquiry Report in Appendix C until 1969. A summary of the registered proprietors and occupations where available for Lot 23 DP 537919 (the "Site") is detailed in Table 4-1, below. Historical Title Deeds are attached in Appendix C**.**

Table 4-1 Historical Title Deeds – Lot 1 DP 717107

Area	Date of Acquisition & Term Held	Registered Proprietor(s) & Occupation	Title Reference at Acquisition
1 (Southern Portion)	30.01.1934 (1934 to 1954)	Samuel Thomas Newman (Farmer)	Crown Tenure Crown Lease 1934/1 Taree Now Crown Tenure Conditional Purchase 1946/10 Taree
	16.09.1954 (1954 to 1969)	Ray Allen Williams (Farmer) Now Raymond Allen Williams	Crown Tenure Conditional Purchase 1946/10 Taree (Book 2311 No. 46) Then Vol 8222 Fol 133 Now Vol 11161 Fol 69
2 (Northern Portion)	21.05.1919 (1919 to 1941?)	John James Newman (Died? 1929)	Crown Tenure Conditional Lease 1919/17 Taree
	1929 (1929 to 1954)	Bertha Rose Newman (Spinster)	Crown Tenure Conditional Lease 1919/17 Taree Then Crown Tenure Conditional Purchase 1941/7 Taree Vol 5791 Fol 190 Vol 5980 Fol 108 Now Vol 6120 Fol 225
	02.09.1954 (1954 to 1969)	Ray Allen Williams (Farmer) Now Raymond Allen Williams	Vol 6120 Fol 225 Then Vol 9270 Fol 209 Now Vol 11161 Fol 69
Whole Subject Land	29.12.1969 (1969 to date)	# Wilmar Enterprises Pty Limited	Vol 11161 Fol 69 Now 23/537919

# Denotes current registered proprietor
Leases: - NIL
Easements: - NIL

4.1.2 Midcoast Council Planning Information

A Section 10.7(2) Planning Certificate search was undertaken for the Site. No notations of potential contamination issues were detailed in regards to Lot 23 DP 537919 (the "Site").

The complete certificates are attached in Appendix C and summarised within Table 4-2 below.

Table 4-2 Summary of Section 10.7(2) Planning Certificates for Lot 1 DP 717107

Matters Pursuant to Section 10.7(2)	Lot 23 DP 537919
Zoning & Land Use	Five Portions Comprising; B1 Neighbourhood Centre E2 Environmental Conservation E4 Environmental Living R2 Low Density Residential RU2 Rural Landscape
Development Control Plan (DCP)	Great Lakes Development Control Plan 2014
Critical Habitat	Land is NOT identified as a critical habitat
Conservation Area & Environmental Heritage	Land is NOT identified as being within a Conservation area. No environmental planning instrument identifies an item of environmental heritage on the land.
Coal Mine Subsidence Act 2017	Land is NOT within a proclaimed Mine Subsidence District
Road Widening & Realignment	Land is NOT affected by road realignment or road widening
Flood Related Development Controls	Development on this land is NOT subject to flood related development controls associated with an identified Probable Maximum Flood (PMF) within an adopted Council policy or environmental planning instrument.
Land Reserved for Acquisition	Land is NOT identified in the Land Acquisition layer of the local environmental plan or a draft environmental planning instrument.
Biodiversity Certified Land	Land is NOT identified as biodiversity certified land.
Biodiversity Stewardship Site	Land has NOT been notified to Council of the land being a biodiversity stewardship site.
Native Vegegation Clearing Set Asides	Land has NOT been notified to Council as containing a native vegetation clearing set asides site.
Bushfire Prone Land	Land IS identified as being bushfire prone land
Property Vegetation Plans	It has NOT been advised to Council that the land is subject to a property vegetation plan under the Native Vegetation Act 2003
Loose-fill asbestos information	Council have not been notified of any premises on the subject land that are listed to contain or have contained loose-fill asbestos insulation.
Contaminated Land	a) The land to which this certificate relates is NOT significantly contaminated land within the meaning of the Contaminated Land Management Act 1997. b) The land to which this certificate relates is NOT subject to a management order within the meaning of the Contaminated Land Management Act 1997. c) The land to which this certificate relates is NOT the subject of an approved voluntary management proposal within the meaning of the Contaminated Land Management Act 1997. d) The land to which this certificate relates is NOT the subject to an ongoing maintenance order within the meaning of the Contaminated Land Management Act 1997. e) Council has NOT been provided with a site audit statement, within the meaning of the Contaminated Land Management Act 1997, for the land to which this Certificate relates.

4.1.3 Review of the Historical Aerial Photos

Stantec has conducted a review of historical aerial photographs or available aerial imagery, current site inspection and knowledge of the area.

A summary of the interpreted site features is detailed in Table 4-3 below and aerial photographs are provided in C (Lotsearch Report LS028382 EP).

Table 4-3 Aerial Imagery Review

Date	Reference	Observations
1971	Black & White	**Onsite:** ▪ The subject extent is predominantly open grassland. ▪ Two farm dams present – one in the central portion of the Site one in the northern. ▪ Small Structure in the southern portion as well as a smaller farm dam. ▪ North-west trending track traversing through the site up to the holls. **Offsite:** ▪ Undeveloped bushland to the west and north-west. ▪ Clearing to the south-east likely associated with a residential subdivision development. ▪ Residential structures and road pavements to the east. ▪ Boomerang Drive and a few scattered structures to the north.
1975	Black & White	**Onsite:** ▪ Generally consistent with 1971 aerial imagery detailed above with the exception of the following: – A small fence area present in the eastern portion of the site, likely to be associated with a small livestock yard. – The construction of a residential structure along the southern boundary of the lot (outside the proposed development). – The construction of a farm dam in the eastern portion of the Site. **Offsite:** ▪ Generally consistent with 1971 aerial imagery detailed above, with the following exception(s): – Construction of road pavements to the south-east where the clearing was noted in 1971. – Appears to be sealing of Boomerang Drive Pavement to the North. – Increase in residential structure construction to the east and north of the Site.
1980	Black & White	**Onsite:** ▪ Generally consistent with 1975 aerial imagery detailed above, with the following exception(s): – Introduction of an access track (likely gravel). – Increase in dense vegetation in the northern and western portions of the site. – Appears to be sealing of Boomerang Drive Pavement to the North. **Offsite:** ▪ Generally consistent with 1975 aerial imagery detailed above, with the following exception(s): – Increased in residential structures to the east and north-east. – Construction of rural-residential structures to the south. – Increased development to the north including residential and commercial structures along Boomerang Drive.
1997	Colour	**Onsite:** ▪ Generally consistent with 1980 aerial imagery detailed above, with the following exception(s): – Decrease in size of the structure (demolition of the main structure) to the south and no more access driveway. – What appears to be minor surficial disturbance, adjacent the potential livestock yard to the east. **Offsite:**

Date	Reference	Observations
		▪ Generally consistent with 1980 aerial imagery detailed above, with the following exception(s): – Increased in residential and rural residential structures to the north, east and south.
2003	Colour	**Onsite:** ▪ Generally consistent with 1997 aerial imagery detailed above, with the exception of the removal of the cattle yard area towards the Croll Street entrance at the Site. **Offsite:** ▪ Generally consistent with 1997 aerial imagery detailed above, with the following exception(s): – Increased pavement and residential structure construction to the south and south-east. – A few additional residential structures to the east.
2009	Colour	**Onsite:** ▪ Generally consistent with 2003 aerial imagery detailed above. **Offsite:** ▪ Generally consistent with 2003 aerial imagery detailed above, with the following exception(s): - Increase of residential development north, east and south of Site.
2015	Colour	**Onsite:** ▪ Generally consistent with 2009 aerial imagery detailed above, with the following exception(s): - Removal of remaining structure to the south. **Offsite:** ▪ Generally consistent with 2009 aerial imagery detailed above, with the following exception(s): - Minor addition rural residential property to the south.
2021	Colour	**Onsite:** ▪ Generally consistent with 2015 aerial imagery detailed above. **Offsite:** ▪ Generally consistent with 2015 aerial imagery detailed above, with the following exception(s): ▪ Minor addition residential structure to the south-east and south and redevelopment of properties to the north.

4.2 Summary of Site History

Based on the available historical data (dated from 1971 to present), Stantec Site inspections and public searches, the Site was predominantly open grass land / pasture. The Site was previously utilised for small rural residential land use (former dwelling located within the south-east corner) with the potential of housing minor livestock / cattle for grazing. At the time of the earliest aerial imagery (1971), the surrounding areas generally appeared to comprise residential properties.

5 Criteria for Contamination Assessment

The assessment criteria used in NSW to evaluate soil analytical results are based on the National Environment Protection Measure (NEPM) for the Assessment of Site Contamination, 1999 [1]. Table 5A of Schedule B (1) Guideline on Investigation Levels for Soil and Groundwater (NEPM 1999) provides default Tier I screening criteria contaminants of concern based on human health and generalised exposure scenarios.

Based on the proposed use of the Site, the following criteria have been adopted:

- Health Investigation Levels (HIL's) Residential A (HIL A);
- Soil Health Screening Levels (HSL) for vapour intrusion recommended for Residential land use (HSL A);
- Ecological Screening Levels (ESLs) for TPH fractions F1-F4, BTEX and Benzo(a)Pyrene in soil for Urban Residential Areas; and
- Ecological Investigation Levels (EILs) for Urban Residential Areas. The thresholds adopted include conservative added contaminant limit (ACL) values from Table 1B (1) to 1B (3) NEPM based on pH results of the Site soils ranging between 5.5 - 6.3 and in the absence of CEC and/or % clay content testing.

"Investigation levels" or "screening levels" presented in the NEPM are not intended to be interpreted as "maximum permissible levels", "clean up levels" or "safe levels", rather, they are levels at which further investigation or assessment should be undertaken to provide assurance that unacceptable contamination does not occur to an extent that could cause harm or detriment for users of the land. Subsequent assessment on a site-specific basis often results in higher levels being acceptable. However, since the "investigation levels" or "screening levels" are generally set at conservatively low levels, they are often taken to be the acceptable levels.

Soils identified during the site inspection and sampling were predominantly comprised of Silty/Sandy CLAY / Silty SAND. Based on the observed soil type, the ESL's and HIL's for sand, silt and clay soils have been considered. Sandy soils have been adopted, as NEPM stipulates a conservative approach for determination of observed soil type to be assessed.

6 Site Investigation Methodology

6.1 Fieldwork Scope

Intrusive investigation was undertaken on 24th January 2022 by Stantec in conjunction with the geotechnical investigation and comprised the following.

- Site inspection on the 24h January 2022 (as detailed in Section 2.2 above).
- Excavation of 17 test pits (TP001-TP017) using a 13.5-tonne excavator fitted with an 800mm toothed bucket to depths ranging from 0.95-3.5 m below existing ground level (bgl), with refusal (including slow progress termination) in the underlying weathered rock encountered in test pits TP002-TP004, TP008-TP012, TP014 and TP015.
- Drilling of three (3) test bores (TB001-TB003) with a ute mounted drill rig to depths ranging from 1.1-1.2 m BGL within the Croll Street alignment to inform the geotechnical investigation only.
- The test locations are shown on Figure 1 in Appendix A with logs and explanatory notes attached in Appendix D. Data from the Croll Street portion of the investigation has been excluded from the report, as the PSI is limited to the extents shown in Figure 1 in Appendix A.

6.2 Laboratory Testing

Laboratory testing on selected samples recovered during fieldwork comprised the following:

- Six (6) soil contamination tests. The samples were analysed for eight metals (As, Cd, Cr, Cu, Pb, Hg, Ni & Zn), organochlorine pesticides (OCPs) and organophosphate pesticides (OPPs), Total Petroleum Hydrocarbons (TPH), BTEXN (Benzene, Toluene, Ethyl-benzene, Xylenes and Naphthalene), Polycyclic Aromatic Hydrocarbons (PAH) and Polychlorinated Biphenyls (PCB); and
- Six (6) asbestos ID in soil tests.

Laboratory analysis and testing was carried out on soil samples by Eurofins, which holds current accreditation with the National Association of Testing Authorities, Australia (NATA) for the analysis performed. Results of laboratory testing are in the laboratory reports attached in Appendix E.

6.3 Sampling Methodology

Environmental sampling was performed according to Stantec standard operating procedures with sampling data recorded on Chain of Custody sheets.

The methodology utilised is as follows:

- The use of new disposable gloves for the collection of each sample to prevent sample cross contamination;
- Decontamination of all sampling equipment using a 3% solution of phosphate free detergent (Decon 90) and distilled water prior to each sample;
- Test pits were advanced using a 13.5t excavator;
- The environmental samples from test pits were sampled directly from sidewalls following the preparation of a fresh face prior to sampling. Samples were collected using a stainless-steel trowel which was thoroughly decontaminated prior to advancement and collection of samples.
- All sampling utensils was decontaminated with Decon 90 solution and a “three bucket wash” procedure between sampling events.
- Soil samples were immediately placed into laboratory containers supplied by Eurofins, sample jars contained zero headspace and the sample details were recorded on the jar label.
- Samples were sent to the laboratory within recommended holding times; and
- The samples were preserved in a chilled esky containing ice bricks immediately after sampling and during transport to the laboratory. The laboratory chain of custody documentation was completed and

accompanied the samples during shipment (a copy of the COC is attached to the laboratory test results in Appendix E).

The samples were collected at the intrusive testing locations as shown on Figure 1, attached in Appendix A.

7 Areas & Contaminants of Potential Concern

The assessment has identified several potential sources of contamination (and related Contaminants of Potential Concern – COPC), which are summarised in the Table 7-1 below.

Table 7-1 Site Activities and Potential Contaminants of Concern

Area of Environmental Concern (AoEC)	Site Activity / Potential Source		Contaminants of Potential Concern (CoPC)	Comments
Onsite Sources				
Area 1-3	Rural Dams	▪ Machinery use for potential minor cut and fill operations for rural dams.	▪ 8 Heavy Metals ▪ PAH, TRH BTEXN ▪ OCP/OPP	▪ Potential for uncontrolled fill in existing dams. ▪ Potential imported fill.
Area 4	Previously existing livestock yard	▪ Machinery use for potential minor cut.	▪ ACM (asbestos containing materials) and lead paint. ▪ Heavy Metals ▪ OCP/OPP	▪ Age of construction indicates potential ACM may have been used in construction.
Area 5	Minor Isolated Fill (< 10 m^3)	▪ Potentially imported filling.	▪ Heavy Metals ▪ PAH, TRH BTEXN ▪ OCP/OPP ▪ Asbestos	▪ A minor isolated pocket of fill material placed on the surface noted within the central portion of the Site.
Area 6	Mulch Stockpiles	▪ Mulch process	▪ 8 Heavy Metals ▪ PAH, TRH BTEXN	▪ Machinery use during mulching.
Overall Site	Grass Pasture	▪ Possible cattle grazing.	▪ OCP/OPP and metals	▪ Potential use of pesticides
Offsite Sources (within Lot 23 DP 537919)				
Area 7	Previously demolished Buildings / Sheds	▪ Potential hazardous building materials and storage of chemicals. ▪ Machinery use for potential minor cut and fill.	▪ ACM (asbestos containing materials) and lead paint. ▪ Potential storage of pesticides, chemicals & fuels. ▪ Metals PAH, TRH BTEXN	▪ Age of the structures indicate that ACM may have been used in construction materials. ▪ Potential cut / fill for leveling of building platforms for existing residence ▪ Potential for uncontrolled fill material present onsite for onsite leveling with building footprints.

8 Investigation Findings

8.1 Analytical Tables

Analytical testing was carried out on soil samples by Eurofins, a National Association of Testing Authorities, Australia (NATA) accredited laboratory.

All testing was undertaken within the terms of their accreditation. Copies of the laboratory analytical reports are shown in Appendix E. The results of laboratory analysis for soil samples are summarised in the analytical comparison tables attached in Appendix E.

8.2 Subsurface Conditions

A summary of subsurface conditions has been provided below, with depths of encountered material provided in Table 8-1 below. For full details of subsurface conditions engineering logs should be referenced, attached in Appendix D.

- TOPSOIL: Silty/Sandy CLAY / Silty SAND generally of low plasticity / fine to coarse grained, grey and dark brown, with varying fractions of sand and gravel. Typically, the topsoil was of colluvium origin, with the top 0.1 m organically impacted.
- COLLUVIUM:
  - Silty/Sandy CLAY generally of low to medium plasticity, varying from dark brown, black and grey, with varying fractions of sand, gravel and cobbles, and generally of stiff consistency.
  - Sandy GRAVEL generally fine to coarse and angular, grey mottled yellow, varying fractions of fine to coarse grained sand and cobbles, generally loose to medium dense.
- FILL: Isolated fill that had been placed on the surface was noted in the central portion of the Site (approx. < 10 m^3) and in the walls for the rural dams. Rural dam walls were also observed to comprise filling. Filling predominately comprised Silty/Sandy CLAY and was consistent with Site soils (likely site won).
- AEOLIAN: SAND generally ranging from fine to coarse grained, pale grey, grey and brown. Aeolian sand was generally loose to medium dense.
- ALLUVIUM:
  - Silty/Gravelly CLAY, generally medium to high plasticity, grey/pale grey mottled yellow, with varying fractions of fine to coarse rounded gravels. Generally cohesive alluvium material ranged from firm to very stiff.
  - Clayey SAND, generally fine to coarse grained, brown and black, generally loose to medium dense.
- RESIDUAL: CLAY / Silty/Sandy/Gravelly CLAY ranging from low to high plasticity, of varying colours comprising yellow, orange, red and grey, with varying fractions of fine to coarse grained sand, and fine to coarse angular to sub-angular gravel. Residual clays ranged from firm to hard consistency.
- EXTREMELY WEATHERED MATERIAL:
  - Silty/Gravelly CLAY ranging from low to medium plasticity, pale grey mottled yellow, with varying fractions of fine to coarse angular gravel and fine to coarse grained sand, generally of very stiff to hard.
  - Clayey GRAVEL generally fine to coarse and angular, grey mottled yellow, varying fractions of fine to coarse grained sand and cobbles, generally loose to medium dense.
- WEATHERED ROCK: SANDSTONE / SILTSTONE generally highly fractured, with fracturing decreasing with depth prior to refusal.

Depths of subsurface units are provided in Table 4-2 below.

Table 8-1 Summary of Subsurface Conditions.

Test Bore ID	DEPTH OF PROFILE (m BGL)							
	TOPSOIL	COLLUVIUM	AEOLIAN	ALLUVIAL	RESIDUAL	EWM	ROCK	TERMINATION
TP001	0.1	0.3	-	-	2.2	>3.0	-	3.0
TP002	0.1	0.55	-	-	0.9	-	>1.9	1.9
TP003	0.1	0.5	-	-	-	-	>1.2	1.2
TP004	0.2	0.45	-	-	-	1.3	>1.4	1.4
TP005	0.1	0.3	-	-	>3.0	-	-	3.0
TP006	0.15	-	1.1	>3.3	-	-	-	3.3
TP007	0.2	-	>2.9	-	-	-	-	2.9
TP008	0.1	0.25	-	-	0.9	-	>1.4	1.4
TP009	0.1	0.45	-	-	-	-	>1.3	1.3
TP010	0.1	0.3	-	-	1.45	1.8	>2.15	2.15
TP011	0.2	-	-	-	0.5	-	>0.95	0.95
TP012	0.1	0.5	-	-	1.5	1.8	>2.2	2.2
TP013	0.15	-	-	2.8	>3.5	-	-	3.5
TP014	0.1	0.4	-	-	1.1	1.4	>1.65	1.65
TP015	0.1	0.3	-	-	1.45	1.8	>2.2	2.2
TP016	0.2	-	-	-	2.5	>3.0	-	3.0
TP017	0.1	-	1.4	1.9	>2.2	-	-	2.2

Notes to table:
- "-": Not encountered.
- EWM: Extremely Weathered Material.

Groundwater was encountered in TP013 and TP016 at depths of 1.7 m and 1.75 m BGL respectively, notably within test pits undertaken in gullies at the base of natural overland flow paths. Groundwater conditions are likely to fluctuate with variations in climatic and site conditions. For detailed description of subsurface conditions, engineering logs should be referenced attached in Appendix B, together with explanatory notes.

8.3 Analytical Testing

A summary of the chemical testing undertaken is provided below.

8.3.1 Heavy Metals

Appraisal of the results indicates that concentrations of metals within the samples tested were below the thresholds for Residential A guidelines (HIL A) as detailed in National Environment Protection Measure (NEPM) for the Assessment of Site Contamination, 1999 [1].

Ecological Investigation Limits (EIL) for tested metals were below thresholds for Urban Residential Areas.

8.3.2 Total Petroleum Hydrocarbons (TPH)

Results for TPH's were below the threshold limits as detailed in the National Environment Protection Measure for the Assessment of Site Contamination, 1999 [1] for Residential A Land Use (HSL A) and ESLs.

8.3.3 Benzene Toluene Ethylbenzene Xylenes and Naphthalene (BTEXN)

All results for BTEXN were below the Limit of Reporting (LOR) concentrations for each sample and all samples were below the threshold limits as detailed in the National Environment Protection Measure for the Assessment of Site Contamination, 1999 [1] for Residential A guidelines (HIL A) and ESLs.

8.3.4 Polycyclic Aromatic Hydrocarbon (PAH)

Results for PAH's were below the LOR for each sample and below the threshold limits as detailed in the National Environment Protection Measure for the Assessment of Site Contamination, 1999 [1] for Residential A guidelines (HIL A) and ESLs.

8.3.5 Organophosphorus & Organochlorine Pesticides (OPP/OCP) & Polychlorinated Biphenyls (PCB)

Results for OPP/OCC and PCB were below the threshold limits as detailed in the National Environment Protection Measure for the Assessment of Site Contamination, 1999 [1] for Residential A guidelines (HIL A) and ESLs.

8.3.6 Asbestos

No asbestos fibres were detected in soil samples collected.

8.4 Quality Control / Quality Assurance

A critical aspect of site investigation is the demonstration of the quality of the data used as the basis for the assessment. This is achieved through a Data Validation process, which includes a review of the following aspects of the data collection process:

- Project Quality Objectives and Plans.
- Data Representativeness.
- Data Precision and Accuracy.
- Laboratory Performance.
- Data Comparability.
- Data Set Completeness.

No field duplicate was collected during the investigation; however, Eurofins have undertaken internal quality assurance testing which involves duplicate analysis on selected samples, method blanks and matrix spikes. Stantec have undertaken a review of the laboratory QA results and interpretation. The laboratory results are contained within the laboratory report sheets and are attached to this report.

Laboratory replicates are generated by subjecting a separate aliquot of sample through the same preparation and analysis procedures as the primary sample. Comparison of the primary sample to the duplicate will yield a precision measurement (expressed as RPD) in a given matrix.

The laboratory acceptance criteria for duplicate samples are as follows:

- Results less than 5 times LOR preclude acceptance criteria for RPD; and,
- If results are greater than 5 times the PQL, an RPD of 0-50% is acceptable.

All RPD values were within the acceptance criteria. The chosen analytical laboratory undertook internal QA/QC procedures, which include the analysis of method blanks, internal duplicate samples, laboratory control samples, matrix spikes and surrogate recovery. Additional laboratory QA/QC procedures include sample receipt, logging, storage, preservation and analysis within the method specified holding time.

It was considered that the laboratory QA/QC criteria were within acceptable limits indicating field sampling, storage, handling and decontamination procedures and laboratory preparation and analysis procedures were adequate for the purposes of the environmental investigation. Therefore, the data set used as the basis for the soil assessment is considered valid and complete.

9 Conceptual Site Model

9.1 Preliminary Conceptual Site Model

Generally, a conceptual site model (CSM) provides an assessment of the fate and transport of COPCs relative to site-specific subsurface conditions with regard to their potential risk to human health and the environment. The CSM considers site-specific factors including:

- Source(s) of contamination,
- Identification of contaminants of potential concern (COPCs) associated with past (and present) source(s),
- Vertical, lateral and temporal distribution of COPCs,
- Site specific lithological information including soil type(s), depth to groundwater, effective porosity, and groundwater flow velocity,
- Actual or potential receptors considering both current and future land use for both the site and adjacent properties, and any sensitive ecological receptors.

Based on the information sourced in this report, a preliminary CSM has been developed and is outlined in Table 9-1 below. Additional details are included in the sections that follow as necessary.

Table 9-1 Preliminary Conceptual Site Model

Conceptual Site Model Element	Description
Site History	▪ Rural residential, predominately undeveloped open pasture with potential of housing livestock.
Site Current and Future Use	▪ Previously existing rural residential property in the southern portion of the lot, outside the developable area. The structure has since been removed. ▪ Proposed to be developed into a residential subdivision.
Site Geology	▪ Intrusive investigation was undertaken as part of the PSI. Based on Site conditions, published data and previous geotechnical investigations, the subsurface conditions can be generally summarised as isolated filling associated with rural dams and localised building pads and natural materials, typically comprising sand, gravel and clay materials.
Site Hydrogeology	▪ Groundwater assessment was not undertaken as part of the scope, however, was encountered in TP013 and TP016 at depths of 1.7 m and 1.75 m BGL respectively, notably within test pits undertaken in gullies at the base of natural overland flow paths.
Area of Environmental Concern (AoEC) - Onsite	▪ No significant potentially contaminating activities are known to have occurred on site, however the following areas of potential environmental concern were identified: – Area 1-3 – Rural dams containing uncontrolled filling. Filling comprised Silty CLAY and appeared to be consistent with subsurface conditions encountered at the Site (likely site sourced). – Area 4 – Previous potential livestock yard. No remnants of the livestock yard are present onsite. – Area 5 - Minor isolated fill (< 10 m^3) comprising Silty/Sandy CLAY. Filling was consistent with encountered subsurface conditions at the Site (likely Site sourced). – Area 6 – Mulch stockpile encountered at the Site. – Area 7 – Previously existing structure which has been demolished and removed. Review of aerials indicate there may be remnant materials from the demolition on the structure. – Overall Site – Potential for cattle grazing.
Media Potentially Impacted	▪ Potentially contaminated surficial soils onsite. ▪ Potentially contaminated underlying soils onsite. ▪ Potentially contaminated fill materials onsite.

Conceptual Site Model Element	Description
Potential Human Receptors	▪ Site users / workers / employees (onsite) ▪ Site Construction workers (onsite) ▪ Future residents (onsite) ▪ Local rural residents and surrounding properties (offsite)
Potential Environmental Receptors	▪ Flora and fauna. ▪ Surrounding soils. ▪ Nearby waterbodies – Onsite and offsite creek lines, Tasman Sea (200m east of Site).
Potential Exposure Pathways	▪ Air – inhalation of dusts. ▪ Soil – dermal / direct contact. ▪ Lateral migration via surficial runoff

9.2 Data Gaps

Based on the inspection, the potential for contamination at this site is not considered to present a significant constraint on the proposed redevelopment of subject site. However, it must be appreciated that assessment was limited to accessible soils (test pit locations) during the investigation within the subject Site, and limited intrusive sampling and laboratory analysis was undertaken.

The following data gaps and uncertainties regarding the assessment are detailed below:

> Limited intrusive sampling spatially and vertically.

> No groundwater samples collected; however, groundwater contamination is considered unlikely.

> No sampling along far southern boundary of the Site in the footprint of the previous residential structure due to access issues and overgrown vegetation at the time of the assessment. The footprint is outside the proposed developable area. Based on aerial review, it is likely remnant inground services and possible construction materials are present at the Site.

> Assessment of the remaining areas of Lot 23 DP 537919, outside the subject Site were not undertaken.

10 Discussion

Review of historical aerial imagery indicates the Site has remained predominately undeveloped, except for the following:

- A previously existing residential structure in the southern corner of the lot, outside the proposed developable area. The residence was demolished at the time of investigation; however, remnant construction rubble may be present.
- Previously existing potential livestock yard in the northern portion of the Site at the Croll Street entrance.

Review of the aerial imagery suggests minimal earthworks were undertaken for construction of the previous residential structure. The structure had been demolished at the time of the investigation, with intrusive investigation undertaken within structure footprint. The southern structure footprint was inaccessible due to overgrown vegetation.

10.1 Site Conditions

The subsurface profile encountered across the Site generally comprised colluvial, residual, EWM, alluvial, aeolian and weathered siltstone/sandstone. Generally subsurface materials comprised natural soils, with the exception of the following:

- Rural farm dam walls, shown on Figure 1 in Appendix A.
- A minor area of isolated fill (< 10 m^3) in the central portion of the Site shown on Figure 1 in Appendix A.
- Mulch stockpiles in the northern portion of the Site shown on Figure 1 in Appendix A.

During the Site inspection, no indication of staining or olfactory indication of hydrocarbons, nor fibrous sheeting materials were observed within the test pits, filling encountered or on the surface of the Site at the time of inspection. It should be noted the footprint of the previously existing structure in the southern corner of the lot was inaccessible at the time of inspection. Review of aerials indicate remnant demolition material and disturbance within the footprint may be present.

10.2 Laboratory Testing

Sampling was undertaken during test pitting to allow for laboratory testing for specified analytes. Sampling was targeted in areas exposed since development and in portions of the Site proposed to be disturbed. Results from laboratory testing were assessed against the following guidelines as detailed in NEPM 1999 [1]:

- Health Investigation Levels (HIL's) Residential A (HIL A);
- Soil Health Screening Levels (HSL) for vapour intrusion recommended for Residential land use (HSL A);
- Ecological Screening Levels (ESLs) for TPH fractions F1-F4, BTEX and Benzo(a)Pyrene in soil for Urban Residential Areas; and
- Ecological Investigation Levels (EILs) for Urban Residential Areas. The thresholds adopted include conservative added contaminant limit (ACL) values from Table 1B (1) to 1B (3) NEPM based on pH results of the site soils ranging between 5.5 - 6.3 and in the absence of CEC and/or % clay content testing.

All testing was below the adopted criteria for residential developments. Minor detections for TPH C15-C28 and C29-C36 fractions was noted in sample ES6 (although within criteria). No indication of staining or olfactory indication of hydrocarbons, nor fibrous sheeting materials were observed within the isolated filling. It is likely the TPH detections are associated with either earthmoving equipment used to place the material initially or subsequent slashing of the Site. No other detections were noted within the natural or site won fill across the Site.

10.3 Areas of Concern

Areas of concern identified during the investigation have been subject to intrusive investigation and sampling. Areas of concern and subsequent discussion have been provided in Table 10-1 below.

Table 10-1 Sample Table

Area of Environmental Concern (AoEC)	Site Activity / Potential Source	Comment
Area 1-3	Previous Earthworks for Rural Dams	Based on inspection observations, test pitting and chemical analysis, filling used appears to be Site won.
Area 4	Potential livestock yard	Inspection and test pitting indicates no disturbance or remnant material is present within the footprint of the potential livestock yard. Results from laboratory testing were within the adopted assessment limits.
Area 5	Minor Isolated Fill (< 10 m^3)	Testing undertaken within the filling indicates levels are below the adopted guidelines for residential development, however minor detections for TPH C15-C28 and C29-C36 fractions was noted in sample ES6. As no indication of staining or olfactory indication of hydrocarbons were observed within the isolated filling, it is likely the TPH detections are associated with either earthmoving equipment used to place the material initially or subsequent slashing of the Site. Fill material was soil, consistent with site soils encountered during the investigation.
Area 6	Mulch Stockpiles	No indication of staining or olfactory indication of contamination was observed within the stockpile.
Area 7	Previously demolished Buildings / Sheds	Aerial review indicates disturbance within the footprint of the previously existing structure. Based on review, there may be remnant in-ground services and demolition material.
Overall Site	Grass Pasture	No detections of OCP/OPP or exceedances of heavy metals were observed in laboratory testing.

11 Conclusions and Recommendations

Stantec has completed a Preliminary Site Investigation of Lot 23 DP 537919, located at Croll Street, Blueys Beach, NSW. The objectives of the investigation were to assess:

- The potential for the past and present activities undertaken on and adjacent to the Site to have affected soil at the Site.
- The need for any further assessment or remedial works before definitive conclusions could be made on the suitably of the Site for use.

Results from laboratory testing indicate there were no exceedances of the adopted guidelines for the analytes tested as detailed in NEPM 1999 [1]. Analytes were tested against the following thresholds:

- Health Investigation Levels (HIL's) Residential A (HIL A);
- Soil Health Screening Levels (HSL) for vapour intrusion recommended for Residential land use (HSL A);
- Ecological Screening Levels (ESLs) for TPH fractions F1-F4, BTEX and Benzo(a)Pyrene in soil for Urban Residential Areas; and
- Ecological Investigation Levels (EILs) for Urban Residential Areas. The thresholds adopted include conservative added contaminant limit (ACL) values from Table 1B (1) to 1B (3) NEPM based on pH results of the site soils ranging between 5.5 - 6.3 and in the absence of CEC and/or % clay content testing.

Based on the review of the Site history, geotechnical works and Site inspection, Stantec identified no past or current, potentially gross contaminating activities having been undertaken on or adjacent to the Site.

The Site is considered low risk of potential contamination based on the review of Site history, limited intrusive and laboratory works, investigation findings and the identified data gap. As there is a low risk for contamination, an unexpected finds protocol should be implemented and managed during the development.

Stantec has undertaken a Preliminary Site Investigation (PSI) in accordance with the State Environmental Planning Policy No 55 - Remediation of Land (SEPP 55) [3]. Based on the findings of the PSI, Stantec did not identify gross contamination or potentially contaminating activities previously undertaken on Site that would render the Site unsuitable for its proposed use.

11.1 Recommendations

Given the results of this assessment, Stantec recommends the following:

- The implementation of an unexpected finds protocol to address any potential issues that may be uncovered during construction of the development. An unexpected finds protocol has been developed and attached as Appendix F.
- Inspection within the footprint of the former structure in the southern portion of the lot by a suitably qualified environmental consultant. It is expected the inspection would be undertaken during construction stripping works to assess for any remnant demolition materials. Where remnant materials are transported from Site, materials should be disposed of at a licensed waste facility with appropriate records kept.
- Any soil to be excavated and transported off Site for disposal require classification in accordance with the NSW EPA Waste Classification Guidelines.
- Presence of any sundry items to be assessed for offsite disposal or reuse. This can be undertaken during the construction phase.

12 Standard of Assessment & Limitations

This investigation has been undertaken in general accordance with the current “industry standards” for a site investigation for the purpose, objectives and scope identified in this report. These standards are set out in:

- National Environment Protection Council (NEPC) (1999) *National Environment Protection (Assessment of Site Contamination) Measure*, as amended (registered on 15 May 2013) [1]. This is referred to from here on as “the NEPM” or “NEPM”.
- Standards Australia (2005) *AS4482.1- 2005: Guide to the investigation and sampling of sites with potentially contaminated soil Part 1: Non-volatile and semi-volatile compounds*. [6].
- NSW EPA “*Guidelines for Consultants Reporting on Contaminated Sites*” [2].

The agreed scope of this investigation has been limited for the current purposes of the Client. The investigation may not identify contamination occurring in all areas of the site, or occurring after sampling was conducted. Subsurface conditions may vary considerably away from the sample locations where information has been obtained.

This site investigation report is not any of the following:

- An Environmental Audit Report as defined under NSW Site Auditor Scheme [7].
- A detailed site investigation (DSI) report sufficient for an Environmental Auditor to be able to conclude a statutory or non-statutory environmental audit.
- A detailed hydrogeological assessment or an assessment of groundwater contaminants potentially arising from other sites or sources nearby.
- A waste classification report of soil analytical results from the site.

13 References

[1] National Environment Protection (Assessment of Site Contamination) Measure 1999, "Schedule B1 Guidelines on Investigation Levels For Soil and Groundwater," National Environment Protection Council (NEPC), 16 May 2013.

[2] NSW EPA, ""Consultants reporting on contaminated land guidelines”," NSW Environmental Protection Authority, 2020.

[3] NSW Government, "State Environmental Planning Policy No 55 - Remediation of Land (SEPP 55)," 1998.

[4] NSW Government, "Minview," 2020. [Online]. Available: https://minview.geoscience.nsw.gov.au/. [Accessed 31 January 2022].

[5] NSW office of Environment and Heritage, "eSPADE v2.1," 2022.

[6] Standards Australia, "Australian Standard - Guide to the investigation and sampling of sites with potentially contamainted soils - PArt one: Non-volatile and semi-volatile compounds," Standards Australia, 2005.

[7] NSW DEC, "Contaminated Sites: Guidelines for the NSW Site Auditor Scheme (3rd Edition)," Department of Environment and Conservation NSW, 2017.

APPENDIX

A

FIGURES

Cardno

now

Stantec

NOTES:

Image underlay adapted from Metromaps aerial imagery.

LEGEND:

= TP001 Approximate test pit locations and numbers.

0 50m

SCALE 1:2000 @A3

NORTH

TP003

TP002

AREA 6
MULCH STOCKPILES
(Photograph 3)

AREA 1
RURAL DAM - ES2
(Photograph 1)

TP001

TP004

AREA 4
PREVIOUS POTENTIAL
LIVESTOCK YARD

TP007

TP005

AREA 5
ES5 & ES6
(Photograph 2)

TP006

TP008

TP017

AREA 2
RURAL DAM

SITE EXTENT

TP009

TP010

TP011

AREA 3
RURAL DAM

TP012

TP013

TP014

TP016

TP015

AREA 7
PREVIOUSLY EXISTING
STRUCTURE

NOT TO SCALE

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Shaping the Future
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Web: www.cardno.com.au

Drawn KS	Date 7/6/2022	
Checked IGP	Date 7/6/2022	
Designed	Date	
Verified	Date	
Approved		

Client: Addenbrooke Pty Ltd

Project: Blueys Beach
Residential Development
Blueys Beach, NSW

Title: Preliminary Site Investigaiton
Figure 1

Status: PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Project Number	Scale	Size
50522033	1:2000	A3

Drawing Number	Revision
Figure 1	001

DATE PLOTTED: 12 August 2022 10:51 AM BY: KOSTANDREAS SYKIOTIS

XREFs: X-Lot Areas_Option C; X-Final Lot Areas_Option E
CAD File: A:\Projects\505\FY22\033_BLUEYS BEACH DA\Drawings\Build\Geotechnical\50522033-GI- Draft Site Plan- Blueys Beach.dwg

NOTES:

Image underlay adapted from Metromaps aerial imagery.

LEGEND:

= TP001 Approximate test pit locations and numbers.

0 50m

SCALE 1:2000 @A3

NORTH

TP001
TP002
TP003
TP004
TP005
TP006
TP007
TP008
TP009
TP010
TP011
TP012
TP013
TP014
TP015
TP016
TP017

NOT TO SCALE

DATE PLOTTED: 12 August 2022 10:53 AM BY: KOSTANDREAS SYKIOTIS

XREFs: X-Lot Areas_Option C; X-Final Lot Areas_Option E
CAD File: A:\Projects\505\FY22\033_BLUEYS BEACH DA\Drawings\Build\Geotechnical\50522033-GI- Draft Site Plan- Blueys Beach.dwg

Cardno
Shaping the Future
Cardno (NSW/ACT) Pty Ltd | ABN 95 001 145 035
Unit 1, 10 Denney Street
Broadmeadow, NSW 2292
Tel: 02 4965 4555 Fax: 02 4965 4666
Web: www.cardno.com.au

Drawn	KS	Date 7/6/2022
Checked	IGP	Date 7/6/2022
Designed		Date
Verified		Date
Approved		

Client: Addenbrooke Pty Ltd

Project: Blueys Beach
Residential Development
Blueys Beach, NSW

Title: Preliminary Site Investigaiton
Figure 2
Contour Overlay

Status: PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Project Number	Scale	Size
50522033	1:2000	A3

Drawing Number: Figure 2

Revision: 001

NOTES:

Image underlay adapted from Metromaps aerial imagery.

LEGEND:

= TP001 Approximate test pit locations and numbers.

0 50m

SCALE 1:2000 @A3

NORTH

TP001 TP002 TP003 TP004 TP005 TP006 TP007 TP008 TP009 TP010 TP011 TP012 TP013 TP014 TP015 TP016 TP017

G1 G2 G3 G4 G5 G6 Z1 F1 F2 F3 F4 F5 F6 E1 E2 E3 E4 E5 E6

D1 D2 D3 D4 D5 D6 D7 D8 D10 D11 D12 D13 D14 D16 D17 D18 D20 D21 D23 D24 D25 D26 D27 D28 D29 D30

C2 C3 C4 C6 C7 C8

B1 B2 B3 B5 B6 B7 B8

A1 A2 A3 A4 A5 A6 A7 A8 A9

Y1 Y2 Y3 Y4

SITE

NOT TO SCALE

Cardno
Shaping the Future
Cardno (NSW/ACT) Pty Ltd | ABN 95 001 145 035
Unit 1, 10 Denney Street
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Tel: 02 4965 4555 Fax: 02 4965 4666
Web: www.cardno.com.au

Drawn	KS	Date 7/6/2022
Checked	IGP	Date 7/6/2022
Designed		Date
Verified		Date
Approved		

Client: Addenbrooke Pty Ltd

Project: Blueys Beach
Residential Development
Blueys Beach, NSW

Title: Preliminary Site Investigaiton
Figure 3

Status: PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Project Number	Scale	Size
50522033	1:2000	A3

Drawing Number: Figure 3

Revision: 001

DATE PLOTTED: 12 August 2022 10:54 AM BY: KOSTANDREAS SYKIOTIS

XREFs: X-Lot Areas_Option C; X-Final Lot Areas_Option E
CAD File: A:\Projects\505\FY22\033_BLUEYS BEACH DA\Drawings\Build\Geotechnical\50522033-GI- Draft Site Plan- Blueys Beach.dwg

APPENDIX B

PHOTOGRAPHS

Photograph 1: Rural dam noted in northern portion of the Site.

Photograph 2: Isolated fill material placed on surface in the central portion of the Site.

Photograph 3: Mulch stockpiles in northern portion of the Site.

Photograph 4: Typical Site Coverings – grass pasture and mature trees.

APPENDIX C

REVIEW DATA

LOTSEARCH

LOTSEARCH ENVIRO PROFESSIONAL

Date: 18 Jan 2022 16:13:09

Reference: LS028382 EP

Address: Boomerang Drive, Blueys Beach, NSW 2428

Dataset Listing

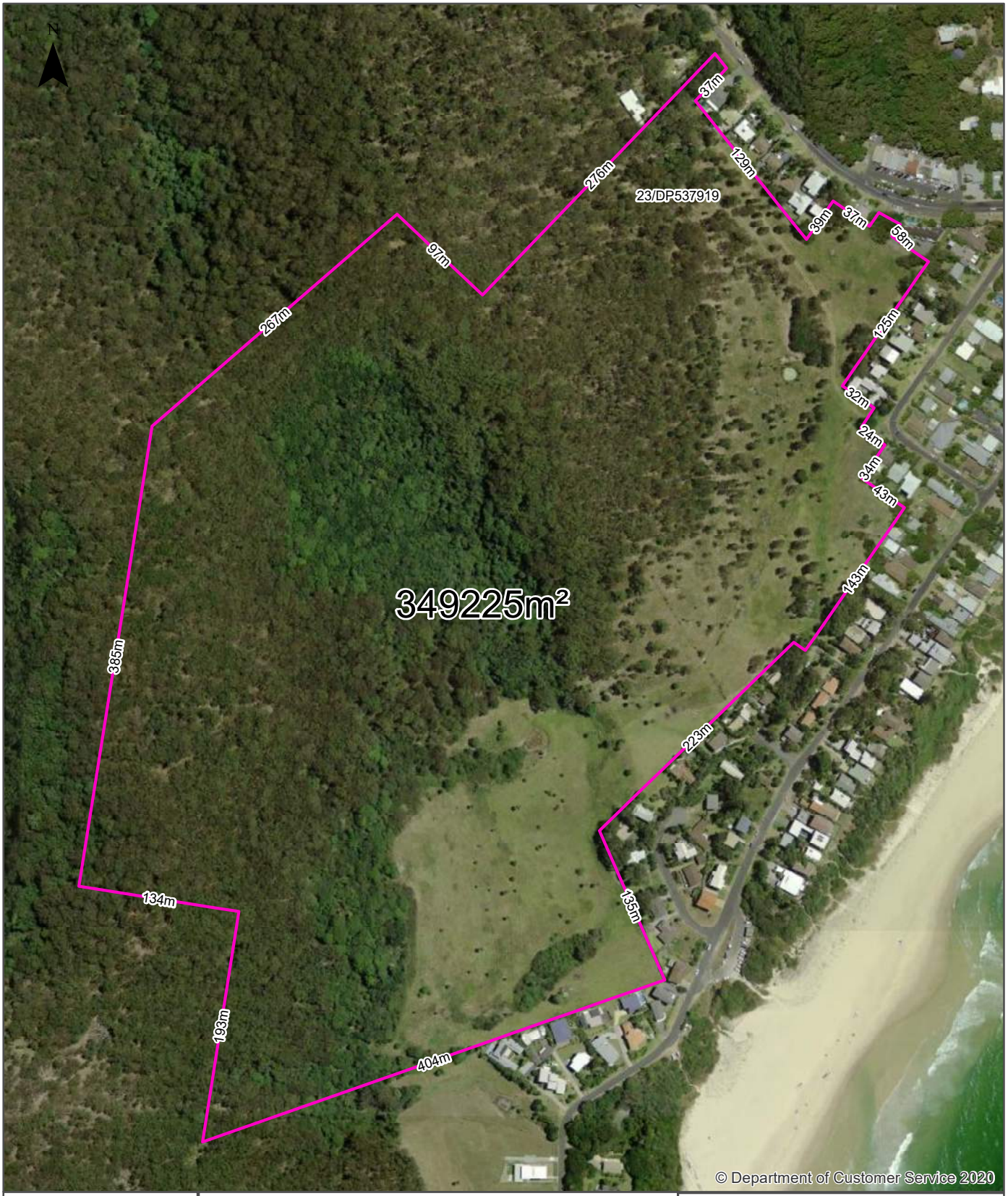
Datasets contained within this report, detailing their source and data currency:

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features On-site	No. Features within 100m	No. Features within Buffer
Cadastre Boundaries	NSW Department of Finance, Services & Innovation	04/01/2022	04/01/2022	Quarterly	-	-	-	-
Topographic Data	NSW Department of Finance, Services & Innovation	25/06/2019	25/06/2019	As required	-	-	-	-
List of NSW contaminated sites notified to EPA	Environment Protection Authority	10/12/2021	09/12/2021	Monthly	1000m	0	0	0
Contaminated Land Records of Notice	Environment Protection Authority	11/01/2022	11/01/2022	Monthly	1000m	0	0	0
Former Gasworks	Environment Protection Authority	07/01/2022	11/10/2017	Quarterly	1000m	0	0	0
National Waste Management Facilities Database	Geoscience Australia	12/05/2021	07/03/2017	Annually	1000m	0	0	0
National Liquid Fuel Facilities	Geoscience Australia	15/02/2021	13/07/2012	Annually	1000m	0	0	1
EPA PFAS Investigation Program	Environment Protection Authority	14/12/2021	14/07/2021	Monthly	2000m	0	0	0
Defence PFAS Investigation & Management Program - Investigation Sites	Department of Defence	29/10/2021	29/10/2021	Monthly	2000m	0	0	0
Defence PFAS Investigation & Management Program - Management Sites	Department of Defence	29/10/2021	29/10/2021	Monthly	2000m	0	0	0
Airservices Australia National PFAS Management Program	Airservices Australia	06/01/2022	06/01/2022	Monthly	2000m	0	0	0
Defence 3 Year Regional Contamination Investigation Program	Department of Defence	06/01/2022	06/01/2022	Quarterly	2000m	0	0	0
EPA Other Sites with Contamination Issues	Environment Protection Authority	02/02/2021	13/12/2018	Annually	1000m	0	0	0
Licensed Activities under the POEO Act 1997	Environment Protection Authority	21/12/2021	21/12/2021	Monthly	1000m	1	1	1
Delicensed POEO Activities still regulated by the EPA	Environment Protection Authority	21/12/2021	21/12/2021	Monthly	1000m	0	0	0
Former POEO Licensed Activities now revoked or surrendered	Environment Protection Authority	21/12/2021	21/12/2021	Monthly	1000m	3	3	3
UBD Business Directories (Premise & Intersection Matches)	Hardie Grant			Not required	150m	0	2	2
UBD Business Directories (Road & Area Matches)	Hardie Grant			Not required	150m	-	14	14
UBD Business Directory Dry Cleaners & Motor Garages/Service Stations (Premise & Intersection Matches)	Hardie Grant			Not required	500m	0	0	0
UBD Business Directory Dry Cleaners & Motor Garages/Service Stations (Road & Area Matches)	Hardie Grant			Not required	500m	-	0	0
Points of Interest	NSW Department of Finance, Services & Innovation	19/08/2021	19/08/2021	Quarterly	1000m	0	2	13
Tanks (Areas)	NSW Department of Customer Service - Spatial Services	19/08/2021	19/08/2021	Quarterly	1000m	0	0	0
Tanks (Points)	NSW Department of Customer Service - Spatial Services	19/08/2021	19/08/2021	Quarterly	1000m	0	0	0
Major Easements	NSW Department of Finance, Services & Innovation	19/08/2021	19/08/2021	Quarterly	1000m	0	0	2
State Forest	Forestry Corporation of NSW	25/02/2021	14/02/2021	Annually	1000m	0	0	0
NSW National Parks and Wildlife Service Reserves	NSW Office of Environment & Heritage	22/01/2021	11/12/2020	Annually	1000m	0	0	0
Hydrogeology Map of Australia	Commonwealth of Australia (Geoscience Australia)	08/10/2014	17/03/2000	As required	1000m	1	1	1
Temporary Water Restriction (Botany Sands Groundwater Source) Order 2018	NSW Department of Planning, Industry and Environment	26/10/2020	21/02/2018	Annually	1000m	0	0	0
Groundwater Boreholes	NSW Dept. of Primary Industries - Water NSW; Commonwealth of Australia (Bureau of Meteorology)	24/07/2018	23/07/2018	Annually	2000m	0	1	27

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features On-site	No. Features within 100m	No. Features within Buffer
Geological Units 1:100,000	NSW Department of Planning, Industry and Environment	20/08/2014		Annually	1000m	3	4	6
Geological Structures 1:100,000	NSW Department of Planning, Industry and Environment	20/08/2014		Annually	1000m	0	0	0
Naturally Occurring Asbestos Potential	NSW Dept. of Industry, Resources & Energy	04/12/2015	24/09/2015	Unknown	1000m	0	0	0
Atlas of Australian Soils	Australian Bureau of Agriculture and Resource Economics and Sciences (ABARES)	19/05/2017	17/02/2011	As required	1000m	1	1	2
Environmental Planning Instrument Acid Sulfate Soils	NSW Department of Planning, Industry and Environment	07/01/2022	17/12/2021	Monthly	500m	2	-	-
Atlas of Australian Acid Sulfate Soils	CSIRO	19/01/2017	21/02/2013	As required	1000m	1	2	2
Dryland Salinity - National Assessment	National Land and Water Resources Audit	18/07/2014	12/05/2013	None planned	1000m	0	0	0
Mining Subsidence Districts	NSW Department of Customer Service - Subsidence Advisory NSW	19/08/2021	05/08/2021	Quarterly	1000m	0	0	0
Current Mining Titles	NSW Department of Industry	07/01/2022	07/01/2022	Monthly	1000m	0	0	0
Mining Title Applications	NSW Department of Industry	07/01/2022	07/01/2022	Monthly	1000m	0	0	0
Historic Mining Titles	NSW Department of Industry	07/01/2022	07/01/2022	Monthly	1000m	2	2	5
Environmental Planning Instrument SEPP State Significant Precincts	NSW Department of Planning, Industry and Environment	15/11/2021	07/12/2018	Monthly	1000m	0	0	0
Environmental Planning Instrument Land Zoning	NSW Department of Planning, Industry and Environment	15/11/2021	05/11/2021	Monthly	1000m	5	7	12
Commonwealth Heritage List	Australian Government Department of the Agriculture, Water and the Environment	18/05/2021	20/11/2019	Annually	1000m	0	0	0
National Heritage List	Australian Government Department of the Agriculture, Water and the Environment	18/05/2021	20/11/2019	Annually	1000m	0	0	0
State Heritage Register - Curtilages	NSW Department of Planning, Industry and Environment	19/08/2021	25/06/2021	Quarterly	1000m	0	0	0
Environmental Planning Instrument Local Heritage	NSW Department of Planning, Industry and Environment	07/01/2022	17/12/2021	Monthly	1000m	0	0	0
Bush Fire Prone Land	NSW Rural Fire Service	10/01/2022	08/12/2021	Weekly	1000m	3	3	3
Eastern Bushland Database (North Region)	NSW Office of Environment & Heritage	24/07/2016	01/01/1991	None planned	1000m	1	2	2
Ramsar Wetlands of Australia	Australian Government Department of Agriculture, Water and the Environment	24/02/2021	19/03/2020	Annually	1000m	0	0	0
Groundwater Dependent Ecosystems	Bureau of Meteorology	14/08/2017	15/05/2017	Annually	1000m	5	5	6
Inflow Dependent Ecosystems Likelihood	Bureau of Meteorology	14/08/2017	15/05/2017	Unknown	1000m	7	8	13
NSW BioNet Species Sightings	NSW Office of Environment & Heritage	17/01/2022	17/01/2022	Weekly	10000m	-	-	-

Site Diagram

Boomerang Drive, Blueys Beach, NSW 2428



Legend

- Site Boundary
- Internal Parcel Boundaries

Total Area: 349225m²

Total Perimeter: 2.9km

Disclaimers:

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

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

Scale:

0 25 50 100 150 200
Meters

Data Sources: Aerial Imagery:
© NSW Department of Finance, Services & Innovation

Coordinate System:
GDA 1994 MGA Zone 56

Date: 18 January 2022

Contaminated Land

Boomerang Drive, Blueys Beach, NSW 2428

List of NSW contaminated sites notified to EPA

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

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

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

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

NSW EPA Contaminated Land List Data Source: Environment Protection Authority

Contaminated Land

Boomerang Drive, Blueys Beach, NSW 2428

Contaminated Land: Records of Notice

Record of Notices within the dataset buffer:

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

Contaminated Land Records of Notice Data Source: Environment Protection Authority

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

Former Gasworks

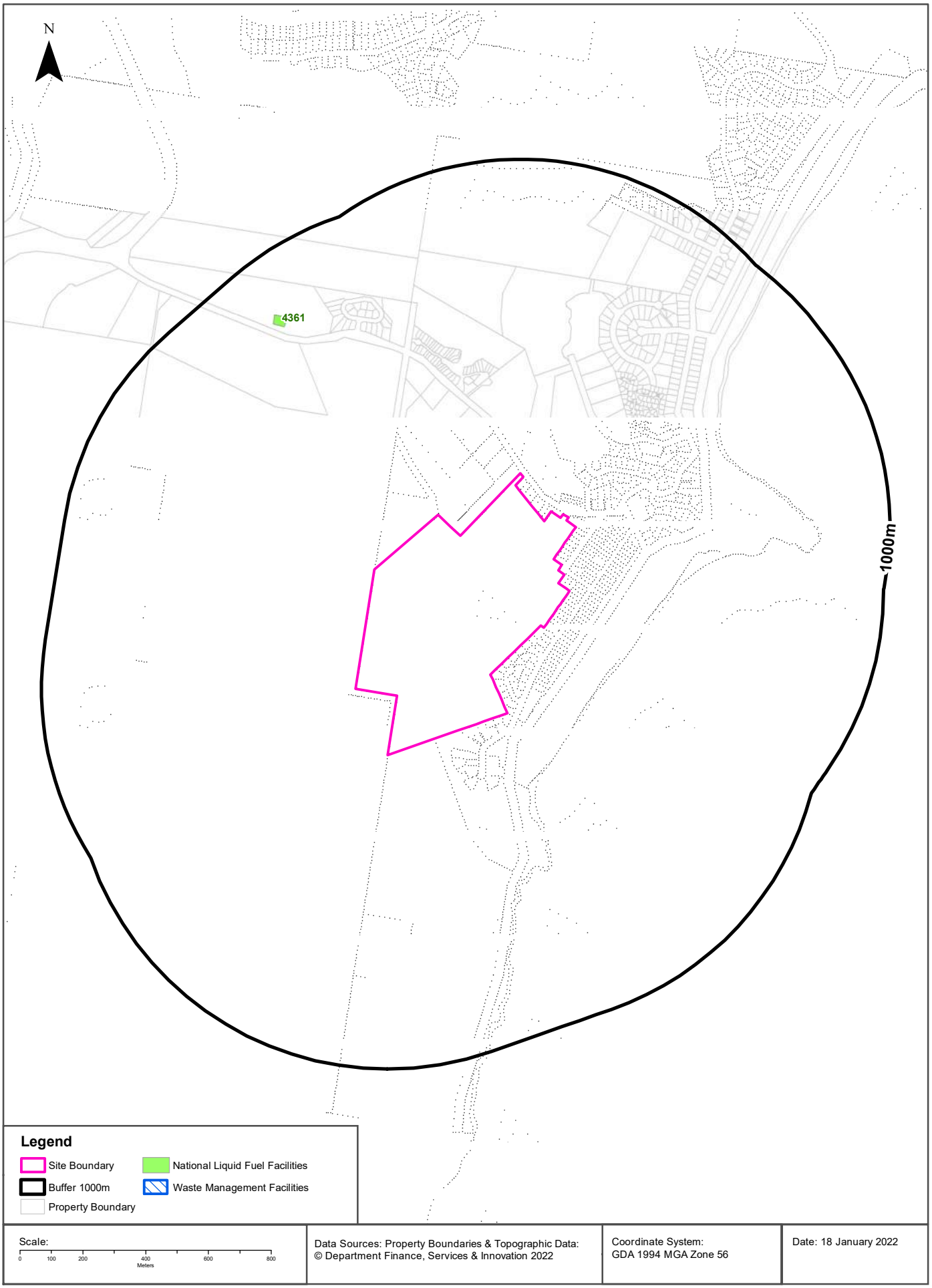
Former Gasworks within the dataset buffer:

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

Former Gasworks Data Source: Environment Protection Authority

Waste Management & Liquid Fuel Facilities

Boomerang Drive, Blueys Beach, NSW 2428



Waste Management & Liquid Fuel Facilities

Boomerang Drive, Blueys Beach, NSW 2428

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
N/A	No records in buffer											

Waste Management Facilities Data Source: Geoscience Australia

National Liquid Fuel Facilities

National Liquid Fuel Facilties within the dataset buffer:

Map Id	Owner	Name	Address	Suburb	Class	Operational Status	Operator	Revision Date	Loc Conf	Dist	Direction
4361	Caltex	Caltex Pacific Palms	339 Boomerang Drive	Blueys Beach	Petrol Station	Operational		25/07/2011	Premise Match	773m	North West

National Liquid Fuel Facilities Data Source: Geoscience Australia

PFAS Investigation & Management Programs

Boomerang Drive, Blueys Beach, NSW 2428

EPA PFAS Investigation Program

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

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

EPA PFAS Investigation Program: Environment Protection Authority

Defence PFAS Investigation Program

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

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

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

Defence PFAS Management Program

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

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

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

Airservices Australia National PFAS Management Program

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

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

Airservices Australia National PFAS Management Program Data Custodian: Airservices Australia

Defence Sites

Boomerang Drive, Blueys Beach, NSW 2428

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

EPA Other Sites with Contamination Issues

Boomerang Drive, Blueys Beach, NSW 2428

EPA Other Sites with Contamination Issues

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

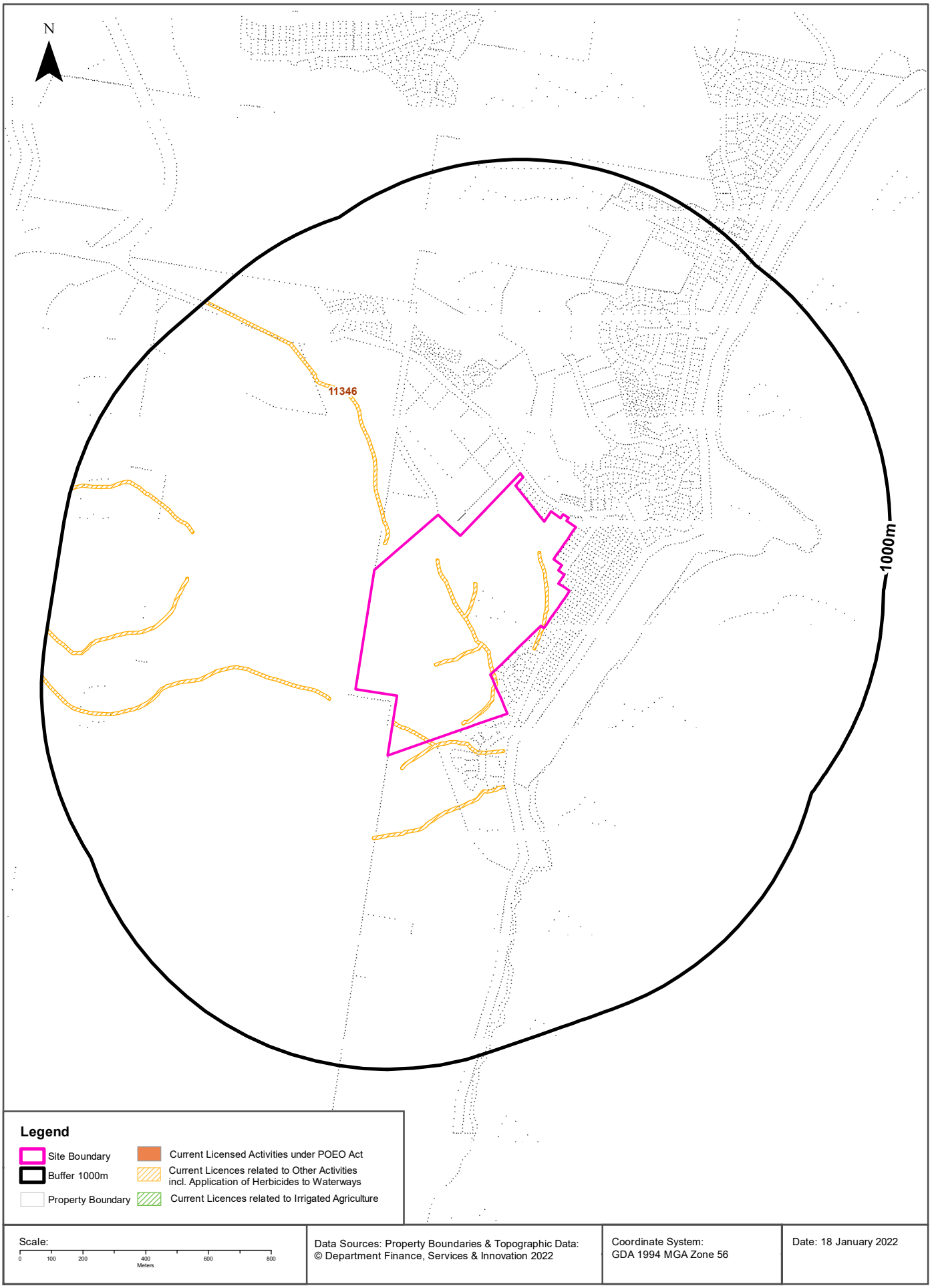
- James Hardie asbestos manufacturing and waste disposal sites
- Radiological investigation sites in Hunter's Hill
- Pasminco Lead Abatement Strategy Area

Sites within the dataset buffer:

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

Current EPA Licensed Activities

Boomerang Drive, Blueys Beach, NSW 2428



EPA Activities

Boomerang Drive, Blueys Beach, NSW 2428

Licensed Activities under the POEO Act 1997

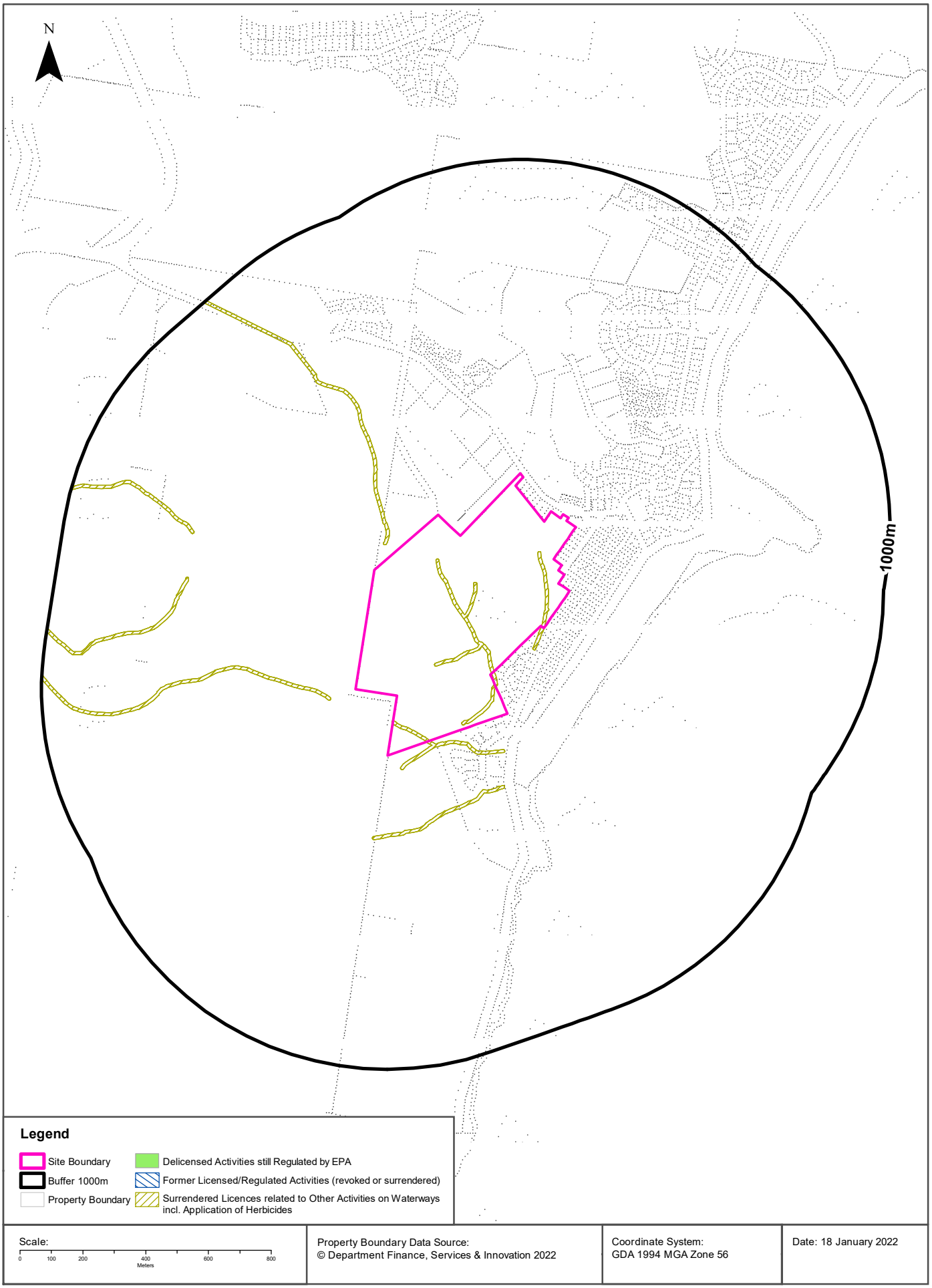
Licensed activities under the Protection of the Environment Operations Act 1997, within the dataset buffer:

EPL	Organisation	Name	Address	Suburb	Activity	Loc Conf	Distance	Direction
11346	MID-COAST COUNCIL	WATERWAYS AND RIPARIAN AREAS WITHIN	MID-COAST COUNCIL LOCAL GOVERNMENT AREA, FORSTER, NSW 2428	FORSTER	Other activities	Network of Features	0m	On-site

POEO Licence Data Source: Environment Protection Authority

Delicensed & Former Licensed EPA Activities

Boomerang Drive, Blueys Beach, NSW 2428



EPA Activities

Boomerang Drive, Blueys Beach, NSW 2428

Delicensed Activities still regulated by the EPA

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

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

Delicensed Activities Data Source: Environment Protection Authority

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

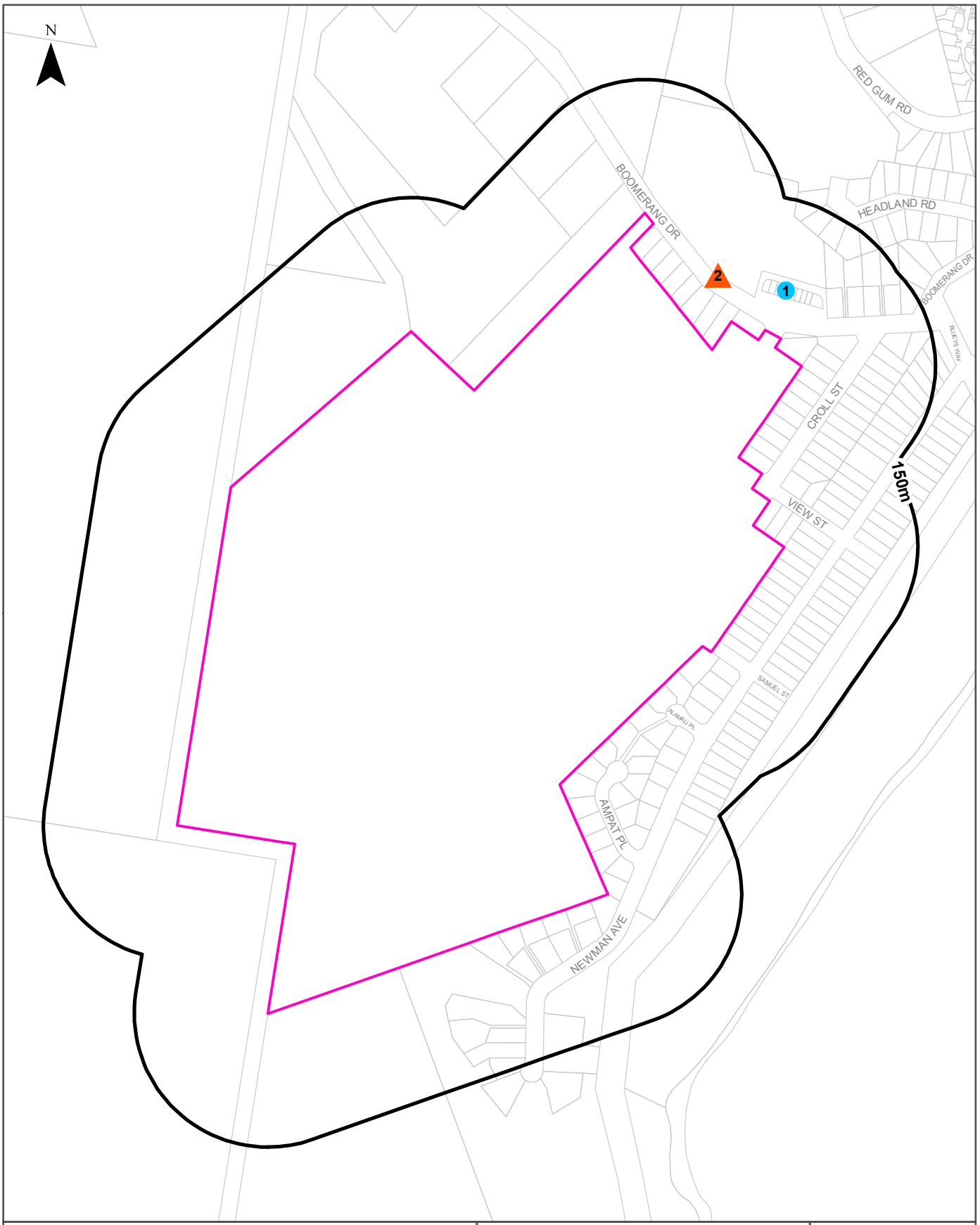
Former Licensed activities under the Protection of the Environment Operations Act 1997, now revoked or surrendered, within the dataset buffer:

Licence No	Organisation	Location	Status	Issued Date	Activity	Loc Conf	Distance	Direction
4653	LUHRMANN ENVIRONMENT MANAGEMENT PTY LTD	WATERWAYS THROUGHOUT NSW	Surrendered	06/09/2000	Other Activities / Non Scheduled Activity - Application of Herbicides	Network of Features	0m	On-site
4838	Robert Orchard	Various Waterways throughout New South Wales - SYDNEY NSW 2000	Surrendered	07/09/2000	Other Activities / Non Scheduled Activity - Application of Herbicides	Network of Features	0m	On-site
6630	SYDNEY WEED & PEST MANAGEMENT PTY LTD	WATERWAYS THROUGHOUT NSW - PROSPECT, NSW, 2148	Surrendered	09/11/2000	Other Activities / Non Scheduled Activity - Application of Herbicides	Network of Features	0m	On-site

Former Licensed Activities Data Source: Environment Protection Authority

Historical Business Directories

Boomerang Drive, Blueys Beach, NSW 2428



Legend

- Site Boundary
- Buffer 150m
- Property Boundary
- Business directory records mapped to a specific premise
- Business directory records mapped to a road intersection
- Business directory records mapped to a road corridor
- Business directory records mapped to a general area

Scale: 0 80 160 240 320 Meters

Coordinate System: GDA 1994 MGA Zone 56

Date: 18 January 2022

Data Sources: Reproduced with permission of UBD and Hardie Grant Media Pty Ltd DD 01/08/2018

Historical Business Directories

Boomerang Drive, Blueys Beach, NSW 2428

Business Directory Records 1950-1991
Premise or Road Intersection Matches

Universal Business Directory records from years 1991, 1982, 1970, 1961 & 1950, mapped to a premise or road intersection within the dataset buffer:

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
1	PROPERTY MANAGEMENT.	Pacific Palms Real Estate., 209 Boomerang Dr., Pacific Palms 2428	75942	1991	Premise Match	41m	North East
	REAL ESTATE AGENTS.	Pacific Palms Real Estate., 209 Boomerang Dr., Pacific Palms 2428	75964	1991	Premise Match	41m	North East

Business Directory Records 1950-1991
Road or Area Matches

Universal Business Directory records from years 1991, 1982, 1970, 1961 & 1950, mapped to a road or an area, within the dataset buffer. Records are mapped to the road when a building number is not supplied, cannot be found, or the road has been renumbered since the directory was published:

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area
2	CLOTHING - RETAIL - LADIES &/OR GIRLS WEAR.	Boomerang Beach & Surf Co., Boomerang Dr., Blueys Beach 2428	75382	1991	Road Match	0m
	FISH BAIT SUPPLIERS.	Boomerang Beach & Surf Co., Boomerang Dr., Blueys Beach 2428	75507	1991	Road Match	0m
	FISHING TACKLE RETAILERS.	Boomerang Beach & Surf Co., Boomerang Dr., Blueys Beach 2428	75526	1991	Road Match	0m
	GIFT SHOPS.	Boomerang Beach & Surf Co., Boomerang Dr., Blueys Beach 2428	75590	1991	Road Match	0m
	SPORTS GOODS - RETAIL	Boomerang Beach & Surf Co., Boomerang Dr., Blueys Beach 2428	76042	1991	Road Match	0m
	SURFBOARDS &/OR SURFING EQUIPMENT MFRS. &/OR DISTS.	Boomerang Beach & Surf Co., Boomerang Dr., Blueys Beach 2428	76066	1991	Road Match	0m
	CLOTHING - RETAIL - LADIES &/OR GIRLS WEAR	Bits N' Pieces, Boomerang Dr., Blueys Beach, Pacific Palms, via Forster 2428	166639	1982	Road Match	0m
	FISH BAIT SUPPLIERS.	Bits N' Pieces, Boomerang Dr., Blueys Beach, Pacific Palms, via Forster 2428	166664	1982	Road Match	0m
	FISHING TACKLE RETAILERS.	Bits N' Pieces, Boomerang Dr., Blueys Beach, Pacific Palms, via Forster 2428	166680	1982	Road Match	0m
	GIFT SHOPS.	Bits N' Pieces, Boomerang Dr., Blueys Beach, Pacific Palms, via Forster 2428	166703	1982	Road Match	0m
	HIRING SERVICES.	Bits N' Pieces, Boomerang Dr., Blueys Beach, Pacific Palms, via Forster 2428	166739	1982	Road Match	0m
	LOCKSMITHS &/OR KEY CUTTERS.	Bits N' Pieces, Boomerang Dr., Blueys Beach, Pacific Palms, via Forster 2428	166780	1982	Road Match	0m
	SPORTING GOODS - RETAIL	Bits N' Pieces, Boomerang Dr., Blueys Beach, Pacific Palms, via Forster 2428	166912	1982	Road Match	0m
	SURFING EQUIPMENT MFRS	Bits N' Pieces, Boomerang Dr., Blueys Beach, Pacific Palms, via Forster 2428	166922	1982	Road Match	0m

Historical Business Directories

Boomerang Drive, Blueys Beach, NSW 2428

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

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

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

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

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

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

Aerial Imagery 2021

Boomerang Drive, Blueys Beach, NSW 2428

Scale:	Data Source Aerial Imagery: © 2022 Google Inc, used with permission. Google and the Google logo are registered trademarks of Google Inc.	Coordinate System: GDA 1994 MGA Zone 56	Date: 17 January 2022

0 70 140 210 280
Meters

Aerial Imagery 2015

Boomerang Drive, Blueys Beach, NSW 2428

Scale: 0 70 140 210 280 Meters	Data Source Aerial Imagery: © 2022 Google Inc, used with permission. Google and the Google logo are registered trademarks of Google Inc.	Coordinate System: GDA 1994 MGA Zone 56	Date: 17 January 2022

Aerial Imagery 2009

Boomerang Drive, Blueys Beach, NSW 2428

Scale: 0 70 140 210 280 Meters	Data Source Aerial Imagery: © 2022 Google Inc, used with permission. Google and the Google logo are registered trademarks of Google Inc.	Coordinate System: GDA 1994 MGA Zone 56	Date: 17 January 2022

Aerial Imagery 2003

Boomerang Drive, Blueys Beach, NSW 2428

Scale:	Data Source Aerial Imagery: © 2022 Google Inc, used with permission. Google and the Google logo are registered trademarks of Google Inc.	Coordinate System: GDA 1994 MGA Zone 56	Date: 17 January 2022

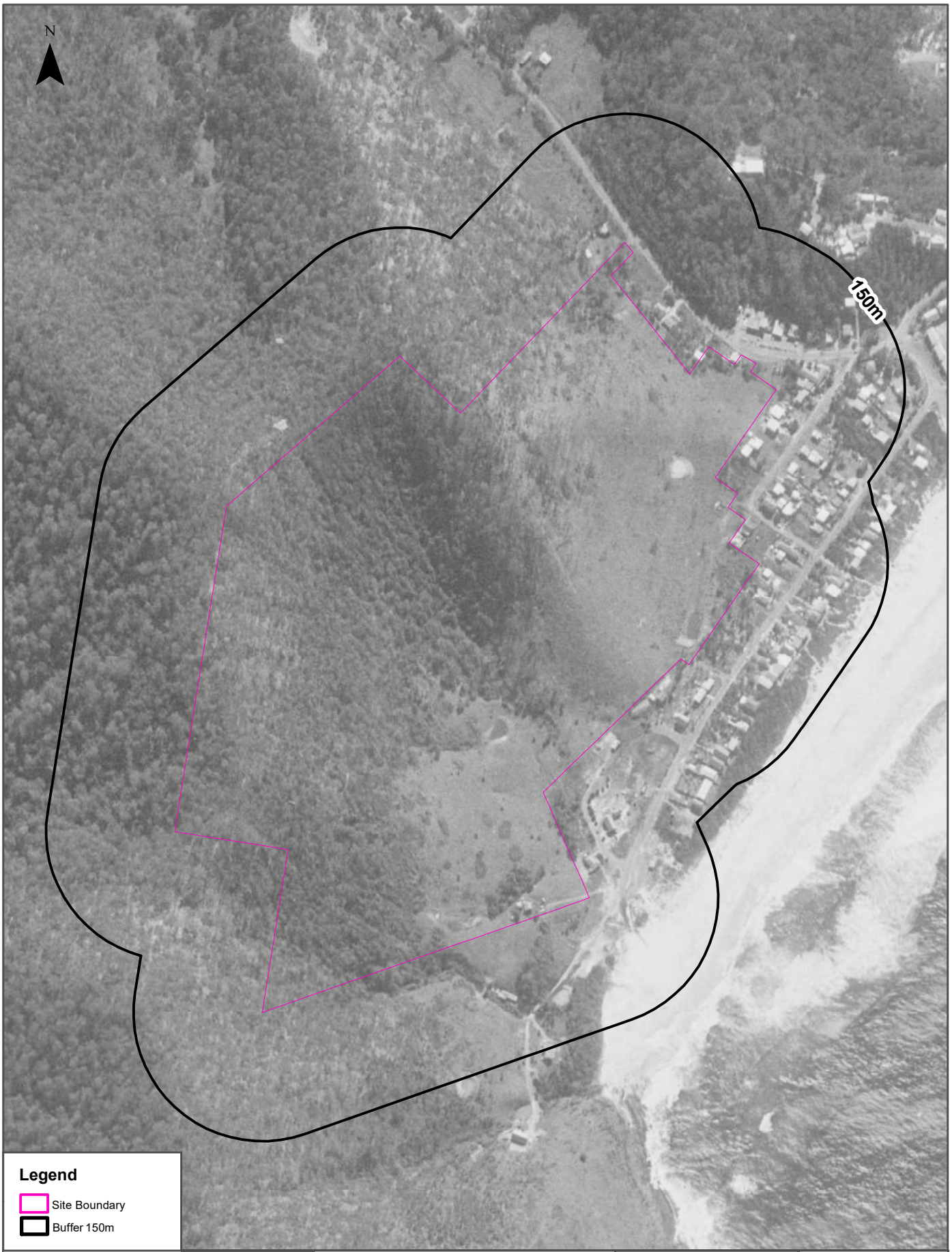
0 70 140 210 280 Meters

Aerial Imagery 1997

Boomerang Drive, Blueys Beach, NSW 2428

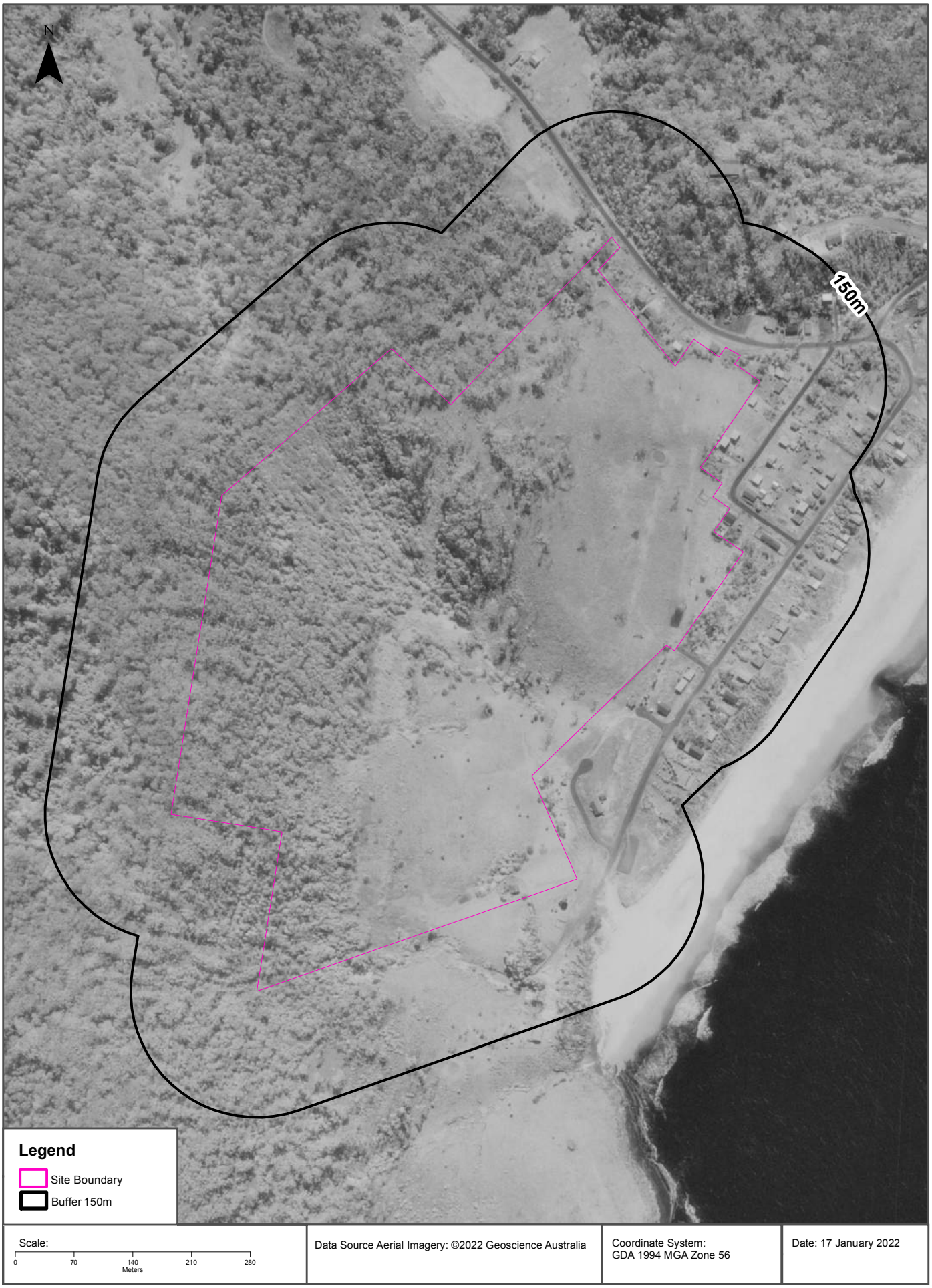
Aerial Imagery 1980

Boomerang Drive, Blueys Beach, NSW 2428



Aerial Imagery 1975

Boomerang Drive, Blueys Beach, NSW 2428



Aerial Imagery 1971

Boomerang Drive, Blueys Beach, NSW 2428

Topographic Map 2015

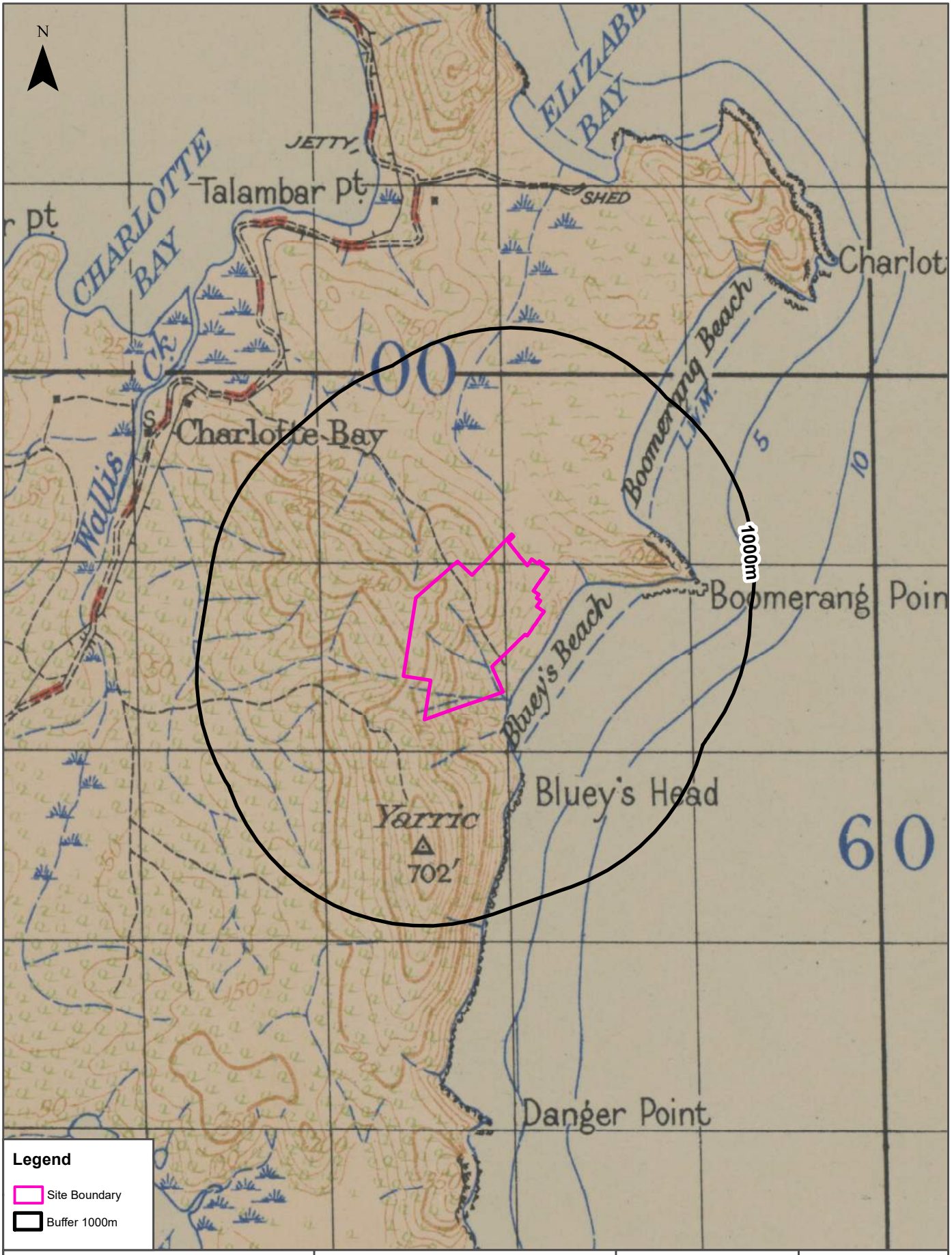
Boomerang Drive, Blueys Beach, NSW 2428

Historical Map 1981

Boomerang Drive, Blueys Beach, NSW 2428

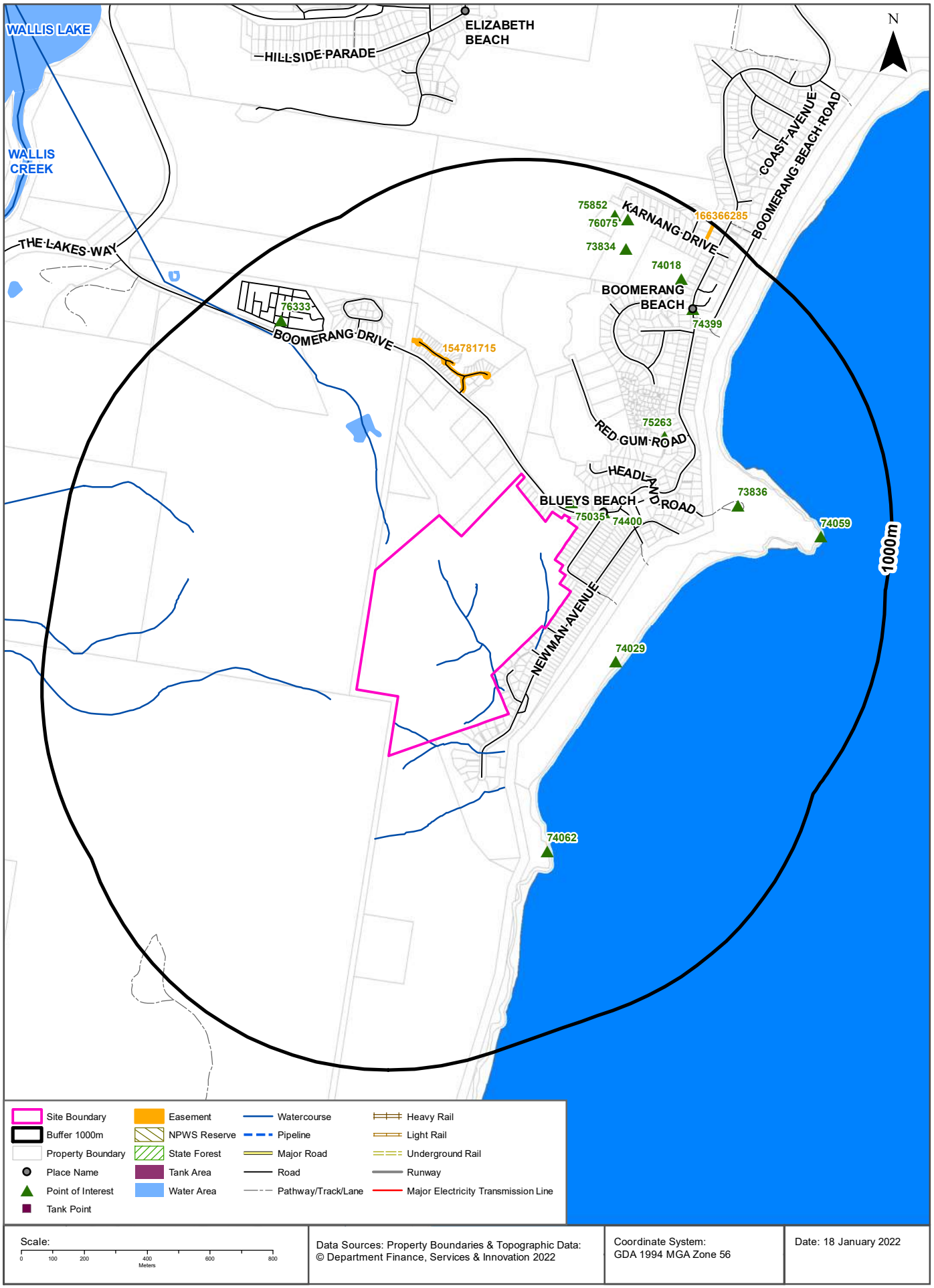
Historical Map c.1939

Boomerang Drive, Blueys Beach, NSW 2428



Topographic Features

Boomerang Drive, Blueys Beach, NSW 2428



Topographic Features

Boomerang Drive, Blueys Beach, NSW 2428

Points of Interest

What Points of Interest exist within the dataset buffer?

Map Id	Feature Type	Label	Distance	Direction
75035	Tourist Information Centre	PACIFIC PALMS TOURIST INFORMATION CENTRE	45m	North East
74400	Village	BLUEYS BEACH	97m	North East
74029	Beach	BLUEYS BEACH	244m	East
75263	Tourist Park / Home Village	MOBYS BEACHSIDE RETREAT	398m	North East
74062	Headland	BLUEYS HEAD	454m	South
73836	Lookout	BOOMERANG POINT LOOKOUT	515m	East
74399	Village	BOOMERANG BEACH	756m	North East
74059	Headland	BOOMERANG POINT	776m	East
73834	Sports Field	PACIFIC PALMS SPORTS OVAL	788m	North East
76333	Tourist Park / Home Village	INGENIA HOLIDAYS BLUEYS BEACH	799m	North West
74018	Primary School	PACIFIC PALMS PUBLIC SCHOOL	801m	North East
75852	Sports Court	TENNIS COURT	874m	North
76075	Sports Court	TENNIS COURT	876m	North East

Topographic Features

Boomerang Drive, Blueys Beach, NSW 2428

Tanks (Areas)

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

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

Tanks (Points)

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

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

Major Easements

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

Map Id	Easement Class	Easement Type	Easement Width	Distance	Direction
154781715	Primary	Right of way	Variable	317m	North
166366285	Primary	Right of way	6m	941m	North East

Topographic Features

Boomerang Drive, Blueys Beach, NSW 2428

State Forest

What State Forest exist within the dataset buffer?

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

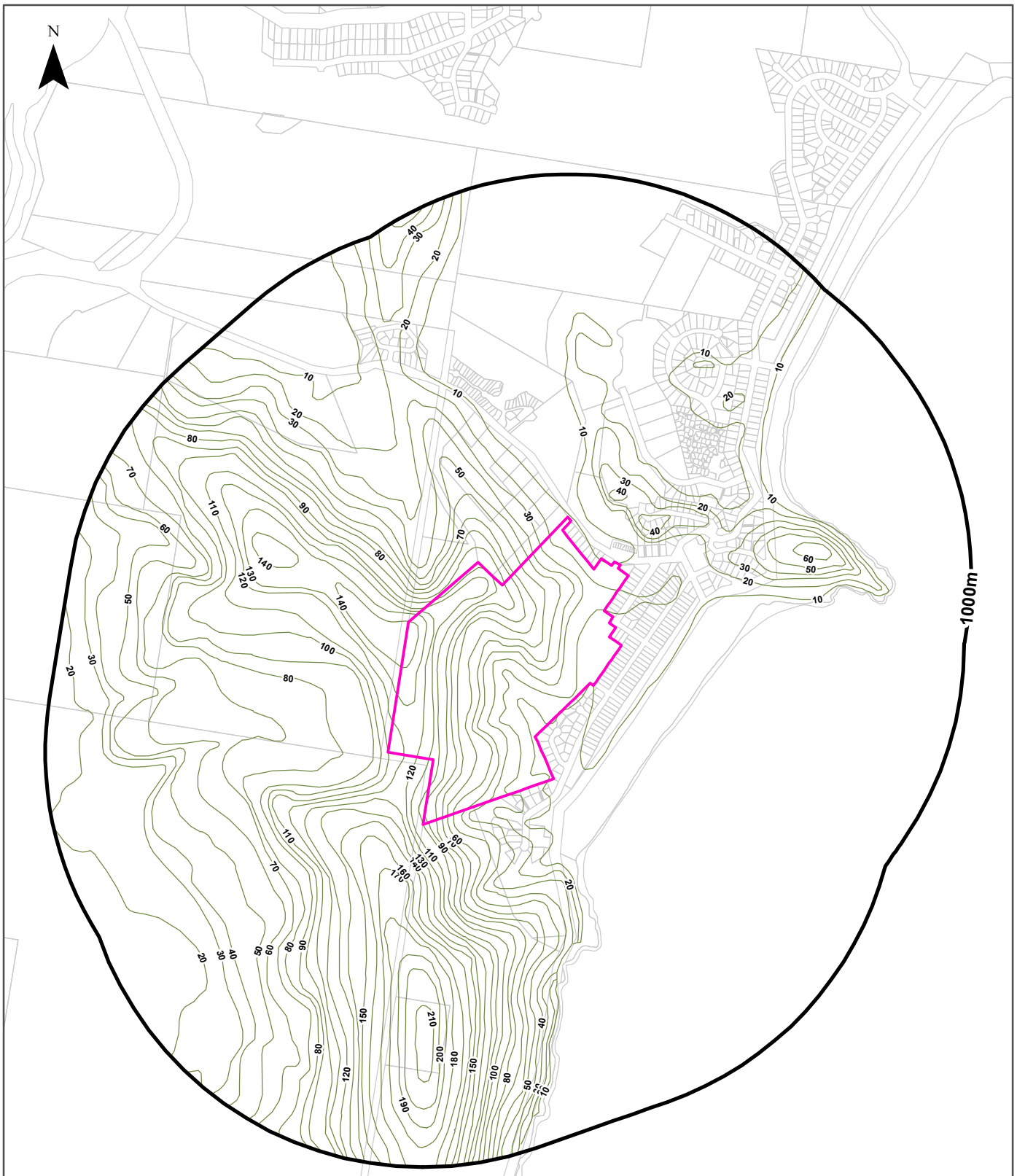
National Parks and Wildlife Service Reserves

What NPWS Reserves exist within the dataset buffer?

Reserve Number	Reserve Type	Reserve Name	Gazetted Date	Distance	Direction
N/A	No records in buffer				

Elevation Contours (m AHD)

Boomerang Drive, Blueys Beach, NSW 2428



Legend

- Elevation Contour (m AHD)
- Site Boundary
- Buffer 1000m
- Property Boundary

Accuracy & Currency: This contour data can be up to 0.4 of the contour interval out in height and must therefore not be used for any design or engineering works, but only as a general guide to topography. Gaps may occur along contour lines due to vertical topography, obscured topography in the source photography such as buildings, dense vegetation or dead ground, or the fact that original buildings have been replaced in the intervening thirty years since the original contour capture.

Scale: 0 100 200 400 Meters	Data Sources: Property Boundaries & Topographic Data: © Department Finance, Services & Innovation 2022	Coordinate System: GDA 1994 MGA Zone 56	Date: 18 January 2022

Hydrogeology & Groundwater

Boomerang Drive, Blueys Beach, NSW 2428

Hydrogeology

Description of aquifers within the dataset buffer:

Description	Distance	Direction
Fractured or fissured, extensive aquifers of low to moderate productivity	0m	On-site

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

Temporary Water Restriction (Botany Sands Groundwater Source) Order 2018

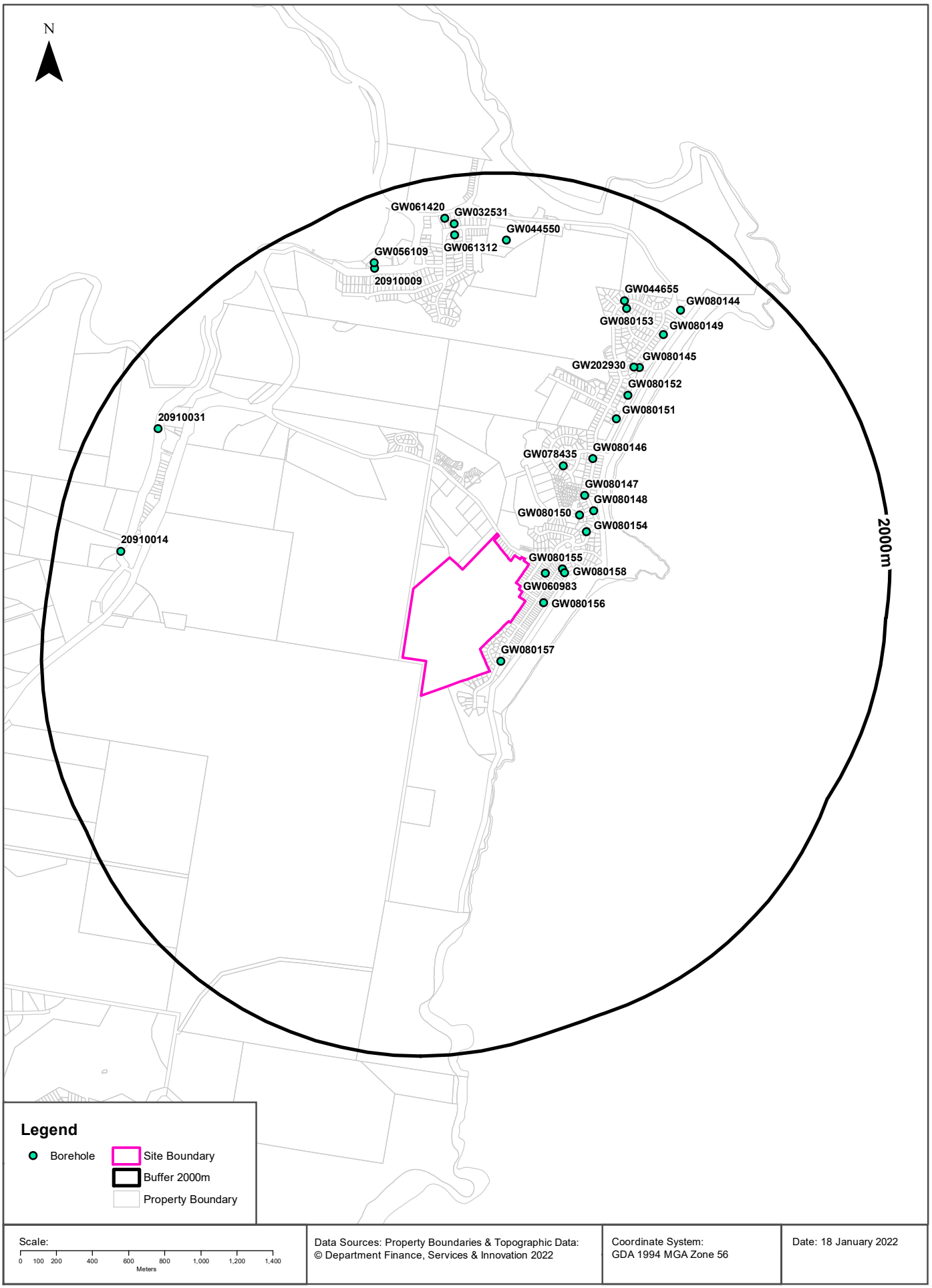
Temporary water restrictions relating to the Botany Sands aquifer within the dataset buffer:

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

Temporary Water Restriction (Botany Sands Groundwater Source) Order 2018 Data Source : NSW Department of Primary Industries

Groundwater Boreholes

Boomerang Drive, Blueys Beach, NSW 2428



Hydrogeology & Groundwater

Boomerang Drive, Blueys Beach, NSW 2428

Groundwater Boreholes

Boreholes within the dataset buffer:

GW No.	Licence No	Work Type	Owner Type	Authorised Purpose	Intended Purpose	Name	Complete Date	Final Depth (m)	Drilled Depth (m)	Salinity (mg/L)	SWL (m bgl)	Yield (L/s)	Elev (AHD)	Dist	Dir
GW080157		Bore	P.W.D.		Monitoring Bore		11/02/1983	14.60	14.60		2.40		5.60	80m	South East
GW080156		Bore	P.W.D.		Monitoring Bore		11/02/1983	17.90	17.90		7.60		12.60	102m	East
GW060983	20BL132604	Spear	Private	Domestic	Domestic		01/06/1985	12.00	15.00					105m	North East
GW080155		Bore	P.W.D.		Monitoring Bore		11/02/1983	13.30	13.30		7.10		13.70	188m	North East
GW080158		Bore	P.W.D.		Monitoring Bore		11/02/1983	13.70	13.70				11.50	205m	East
GW080154		Bore	P.W.D.		Monitoring Bore		11/02/1983	7.20	7.20				7.50	366m	North East
GW080150		Bore	P.W.D.		Monitoring Bore		11/02/1983	11.60	11.60				6.80	388m	North East
GW080148		Bore	P.W.D.		Monitoring Bore		11/02/1983	16.30	16.30				9.50	466m	North East
GW080147		Bore	P.W.D.		Monitoring Bore		11/02/1983	10.10	10.10		2.50		6.20	484m	North East
GW078435	20BL167458	Bore		Domestic	Domestic		01/01/1988	16.40	16.40		4.90	1.000		525m	North East
GW080146		Bore	P.W.D.		Monitoring Bore		11/02/1983	21.00	21.00		8.90		12.00	671m	North East
GW080151		Bore	P.W.D.		Monitoring Bore		11/02/1983	16.30	16.30				10.00	916m	North East
GW080152		Bore	Private		Monitoring Bore		11/02/1983	16.30	16.30				10.40	1055m	North East
GW202930	20WA212732	Bore	Private	Domestic	Domestic		10/04/2013	25.00	25.00					1193m	North East
GW080145		Bore	P.W.D.		Monitoring Bore		11/02/1983	13.30	13.30		7.90		9.50	1212m	North East
GW080149		Bore	P.W.D.		Monitoring Bore		11/02/1983	17.50	17.50				10.40	1437m	North East
GW080153		Bore	P.W.D.		Monitoring Bore		11/02/1983	10.20	10.20		2.40		6.90	1438m	North East
GW044655	20BL102621	Spear	Private	Domestic	General Use		01/01/1975	11.60	11.60	Other				1471m	North East
GW080144		Bore	P.W.D.		Monitoring Bore		11/02/1983	13.40	13.40		7.10		12.00	1602m	North East
20910009					UNK								5.28	1618m	North
GW044550	20BL104211	Bore	Private	Domestic	Domestic		01/08/1975	10.10	10.10					1627m	North
20910014					UNK								7.06	1633m	West
GW056109	20BL122137	Bore open thru rock	Private	Domestic	Domestic		01/11/1981	45.70	45.70	3001-7000 ppm				1646m	North
20910031					UNK								5.25	1669m	North West
GW061312	20BL133465	Bore	Private	Domestic, Stock	Domestic, Stock		01/10/1985	12.20	12.20	1001-3000 ppm				1672m	North
GW032531	20BL024890	Bore open thru rock	Private	Waste Disposal	Domestic		01/02/1970	25.00	25.00					1733m	North

GW No.	Licence No	Work Type	Owner Type	Authorised Purpose	Intended Purpose	Name	Complete Date	Final Depth (m)	Drilled Depth (m)	Salinity (mg/L)	SWL (m bgl)	Yield (L/s)	Elev (AHD)	Dist	Dir
GW061420	20BL133723	Bore	Private	Domestic, Stock	Domestic, Stock		08/11/1985	24.38	24.40	2700	3.35	0.660		1771m	North

Hydrogeology & Groundwater

Boomerang Drive, Blueys Beach, NSW 2428

Driller's Logs

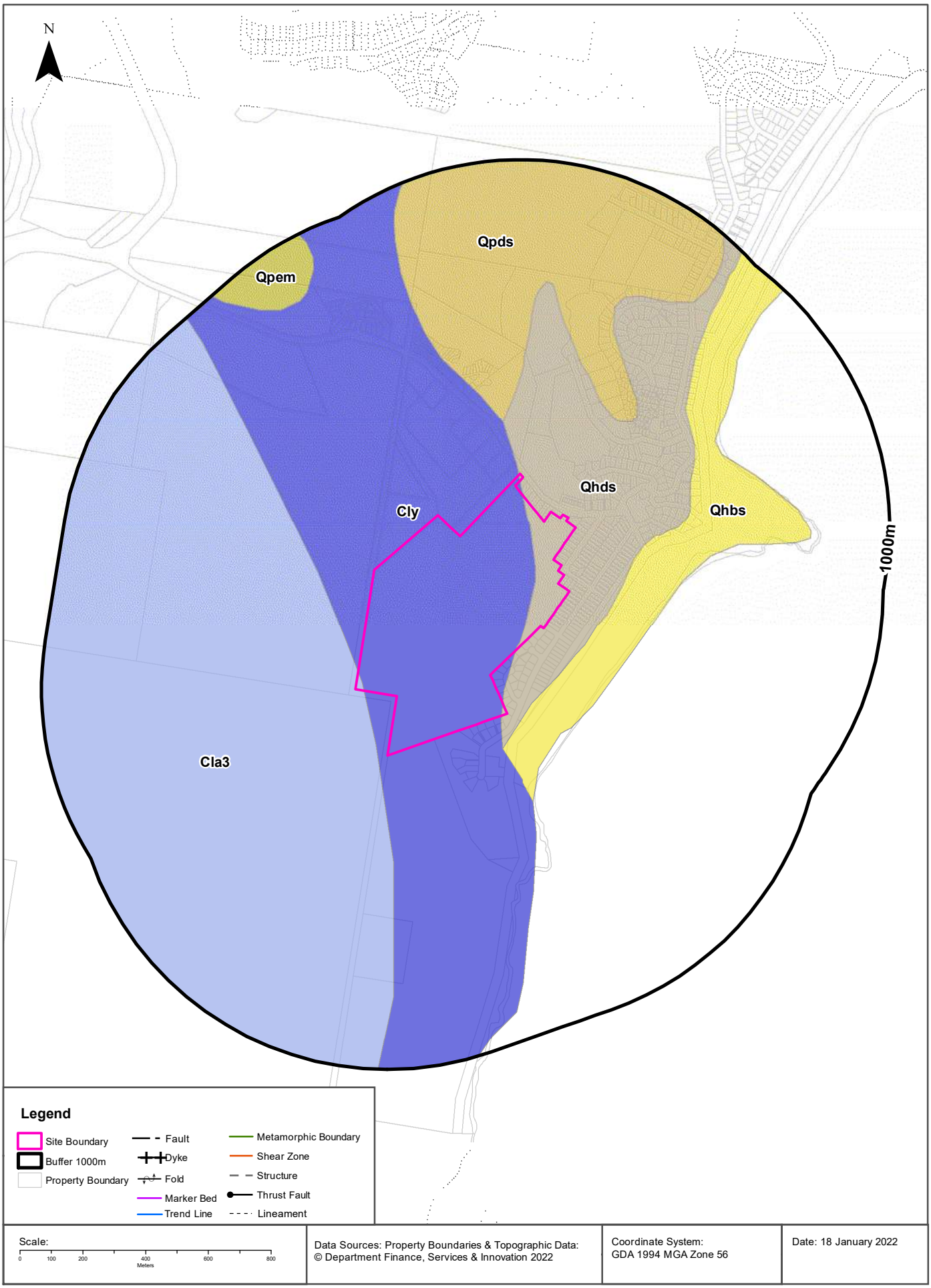
Drill log data relevant to the boreholes within the dataset buffer:

Groundwater No	Drillers Log	Distance	Direction
GW080157	0.00m-2.40m Sand, quartz, clean, poorly sorted, subangular-rounded, 0.25 mm grainsize 2.40m-5.40m Sand, quartz, clean, some clay nodules, mod well sorted, rounded, 0.3 mm grainsize 5.40m-14.60m Clay, grey to yellow, very stiff	80m	South East
GW080156	0.00m-8.60m Sand, quartz, clean, trace silt, mod well sorted, subangular-rounded, 0.3 mm grainsize 8.60m-10.20m Sand, quartz, silty, soft, indurated, humate coated, mod well sorted, rounded, 0.3 mm grainsize 10.20m-11.40m Sand, quartz, clean 11.40m-14.00m Sand, quartz, silty, soft, indurated, humate coated, mod well sorted, rounded, 0.3 mm grainsize 14.00m-14.80m Sand, quartz, silty, clean, mod well sorted, subangular-rounded, 0.4 mm grainsize 14.80m-17.90m Clay, dark brown, stiff	102m	East
GW060983	0.00m-1.00m Sand Grey 1.00m-9.00m Sand White 9.00m-10.00m Sand Dark Brown Indurated 10.00m-12.00m Sand Water Supply 12.00m-15.00m Clay	105m	North East
GW080155	0.00m-10.00m Sand, quartz, clean, mod to well sorted, subangular to rounded, 0.25-0.3 mm grainsize 10.00m-11.50m Sand, quartz, silty, soft, indurated, humate coated, mod well sorted, subangular-rounded, 0.3 mm grainsize 11.50m-13.30m Clay, sandy, green, stiff, grading into bedrock	188m	North East
GW080158	0.00m-7.30m Sand, clean 7.30m-8.40m Sand, silty, soft, indurated 8.40m-9.40m Sand, silty, hard, indurated 9.40m-10.40m Sand, silty, soft, indurated 10.40m-13.70m Clay, green grey, stiff, grading into bedrock	205m	East
GW080154	0.00m-7.20m Clay grading into weathered bedrock, bit refusal at bottom	366m	North East
GW080150	0.00m-6.30m Sand, clean 6.30m-10.10m Sand, silty, firm and indurated 10.10m-11.60m Sand, quartz, clean, poorly sorted, subangular to rounded, 0.4 mm grainsize	388m	North East
GW080148	0.00m-2.50m Sand, clean 2.50m-3.50m Soil 3.50m-9.50m Sand, clean 9.50m-16.30m Clay, yellow grey grading into weathered bedrock	466m	North East
GW080147	0.00m-1.90m Sand, quartz, silty, grey, mod. well sorted, rounded, 0.35 mm in grainsize 1.90m-7.00m Sand, quartz, silty, d. brown, firm, indurated, humate coated, well sorted, rounded, 0.3 mm in grainsize 7.00m-8.40m Sand, quartz, silty, soft, indurated 8.40m-8.60m Sand, quartz, silty, hard, indurated, v. dark brown, humate coated, well sorted, rounded, 0.3 mm grainsize 8.60m-10.10m Sand, quartz, clean, mod well sorted, subangular-rounded, 0.3 mm grainsize	484m	North East
GW078435	0.00m-3.00m sand, firm 3.00m-5.40m indurated sand, firm 5.40m-7.90m sand 7.90m-13.60m indurated, banded 13.60m-16.40m sand, clayey dark	525m	North East
GW080146	0.00m-5.60m Sand, quartz, light grey, mod. well to poorly sorted, subangular to rounded, trace iron stainings, 0.3 mm grainsize 5.60m-7.70m Sand, quartz, silty, v. dark grey, firm, indurated, mod. well to poorly sorted, subangular to rounded, 0.4 mm grainsiz 7.70m-9.30m Sand, quartz, silty, med. grey, mod. well sorted, rounded, 0.3 mm in grainsize 9.30m-9.70m Sand, quartz, silty, clean, light grey, poorly sorted, rounded, 0.35 mm grainsize 9.70m-14.20m Sand, quartz, silty, d. grey, soft, indurated, poorly sorted, subangular-rounded, humate coated, cem. nodules, 0.35 mm g 14.20m-21.00m Sand, quartz, silty, red brown, banded, indurated, mod well sorted, subangular-rounded, humate coated, 0.4 mm grainsize	671m	North East
GW080151	0.00m-5.00m Sand, clean 5.00m-9.20m Sand, silty, firm, indurated 9.20m-10.20m Sand, silty, hard, indurated 10.20m-14.80m Sand, silty, banded, indurated 14.80m-15.30m Sand, peaty and silty 15.30m-16.30m Sand, clean quartz, moderately well sorted, subangular to rounded, 0.4 mm grainsize	916m	North East

Groundwater No	Drillers Log	Distance	Direction
GW080152	0.00m-11.70m Sand, quartz, silty, poorly sorted, subangular to rounded, 0.35 - 0.4 mm grainsize 11.70m-12.40m Sand, quartz, silty, soft, indurated, poorly sorted, subangular to rounded, humate coated, 0.4 mm grainsize 12.40m-14.80m Sand,quartz, trace silt, poorly sorted, subangular to rounded, 0.35 mm grainsize 14.80m-15.60m Sand, quartz, silty, hard, indurated, poorly sorted, subangular to rounded, cemented nodules, 0.4 mm grainsize 15.60m-16.30m Sand, quartz, trace silt, poorly sorted, subangular to rounded, 0.35 mm grainsize	1055m	North East
GW202930	0.00m-0.10m Topsoil 0.10m-12.20m Sand 12.20m-13.50m Rock; coffee rock 13.50m-22.30m Sand; white 22.30m-25.00m Gravel; river gravel	1193m	North East
GW080145	0.00m-6.50m Sand, quartz, clean, light grey, 0.3 mm grainsize 6.50m-11.20m Sand, quartz, silty, soft, indurated, humate coated, rootlets, cemented nodules, 0.35 mm grainsize 11.20m-13.30m Sand, quartz, dark grey, hard, silty, indurated, humate coated, cemented nodules, 0.35 mm grainsize	1212m	North East
GW080149	0.00m-1.80m Sand, clean 1.80m-17.50m Sand, silty, humate coated, soft, indurated, moderately well sorted, rounded, 0.4 mm grainsize	1437m	North East
GW080153	0.00m-4.10m Sand, quartz, clean,moderately well sorted, sub angular to rounded, 0.3 mm grainsize 4.10m-6.00m Sand, silty, soft and indurated, moderately well sorted, rounded, 0.3 mm grainsize 6.00m-7.30m Sand, quartz, silty, moderately well sorted, sub angular to rounded, humate coated, hard and indurated, 0.3 mm grainsize 7.30m-9.90m Sand, quartz, silty, soft and indurated, well sorted, rounded, 0.3 mm grainsize 9.90m-10.20m Sand, quartz, clean, well sorted, rounded, 0.3 mm grainsize	1438m	North East
GW044655	0.00m-2.44m Sand White 2.44m-11.58m Sand Black Sloppy Swamp Water Supply	1471m	North East
GW080144	0.00m-5.60m Sand, quartz, clean, moderately well sorted, subangular to rounded, 0.4 mm grainsize 5.60m-13.10m Sand, silty, dark coffee, soft and indurated, well sorted, rounded, 0.4 mm grainsize 13.10m-13.40m Clay, sandy, bedrock	1602m	North East
GW044550	0.00m-0.61m Soil 0.61m-1.22m Sand White 1.22m-4.88m Rock Dark Brown Soft 4.88m-9.75m Sand Decomposed Humus Water Supply 9.75m-10.06m Clay Grey Shale Seams	1627m	North
GW056109	0.00m-6.10m Basalt Soft 6.10m-45.70m Basalt Black Water Supply	1646m	North
GW061312	0.00m-2.74m Clay 2.74m-9.14m Mudstone 9.14m-9.75m Mudstone Weathered Water Supply 9.75m-12.19m Mudstone	1672m	North
GW032531	0.00m-0.30m Soil 0.30m-2.44m Clay 2.44m-24.99m Basalt Very Hard Water Supply	1733m	North
GW061420	0.00m-6.70m Clay 6.70m-12.19m Conglomerate Weathered 12.19m-13.00m Sandstone Weathered Water Supply 13.00m-21.33m Conglomerate 21.33m-22.00m Conglomerate Weathered Water Supply 22.00m-24.38m Conglomerate	1771m	North

Geology

Boomerang Drive, Blueys Beach, NSW 2428



Geology

Boomerang Drive, Blueys Beach, NSW 2428

Geological Units 1:100,000

What are the Geological Units within the dataset buffer?

Symbol	Description	Unit Name	Group	Sub Group	Age	Dom Lith	Map Sheet	Dist	Dir
Cly	Black-grey, fossiliferous & bioturbated thinly bedded siltstone & mudstone with minor sandstone interbeds. A volcanic member occurs upper parts to the west & deformed & chaotically slumped beds are present in lower parts of the unit	Yagon Siltstone			Carboniferous	siltstone	Bulahdelah	0m	On-site
Qhds	Transgressive dunes	unnamed			Quaternary	sand	Bulahdelah	0m	On-site
Cla3	Brown to grey lithic sandstone, interbedded bioturbated siltstone, cream rhyolite flows, upward fining conglomerate, carbonaceous siltstone and minor coal seams	Koolanock Sandstone			Carboniferous	sandstone	Bulahdelah	0m	On-site
Qhbs	Beach, foredune sands and foredune ridge (locally includes some estuarine deposits)	unnamed			Quaternary	sand	Bulahdelah	46m	East
Qpds	Transgressive dunes	unnamed			Quaternary	sand	Bulahdelah	175m	North
Qpem	Estuarine basin muds and intertidal deposits	unnamed			Quaternary	mud	Bulahdelah	813m	North West

Geological Structures 1:100,000

What are the Geological Structures within the dataset buffer?

Feature	Name	Description	Map Sheet	Distance	Direction
N/A	No records in buffer				

Geological Data Source : NSW Department of Industry, Resources & Energy

Naturally Occurring Asbestos Potential

Boomerang Drive, Blueys Beach, NSW 2428

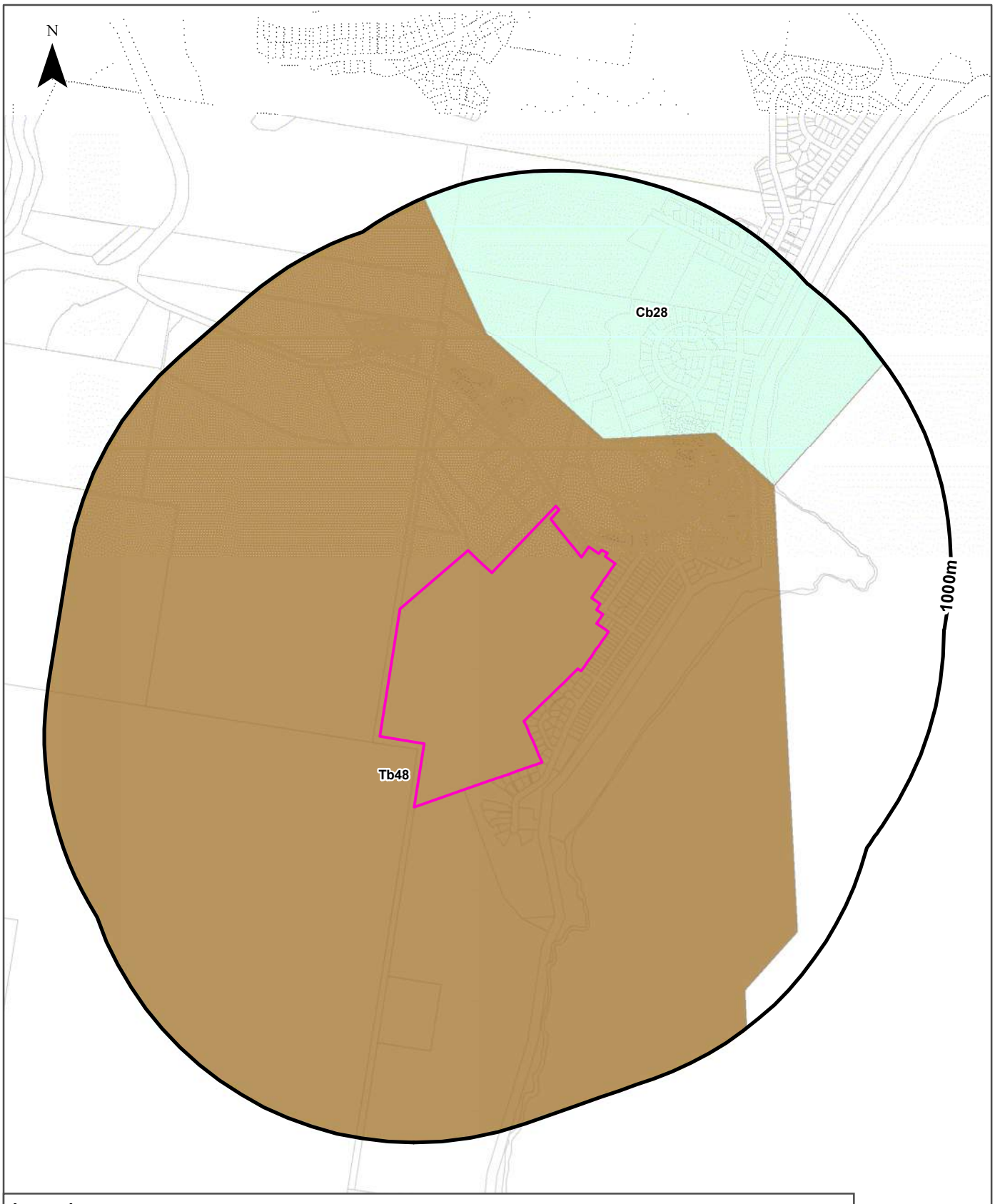
Naturally Occurring Asbestos Potential

Naturally Occurring Asbestos Potential within the dataset buffer:

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

Atlas of Australian Soils

Boomerang Drive, Blueys Beach, NSW 2428



Soils

Boomerang Drive, Blueys Beach, NSW 2428

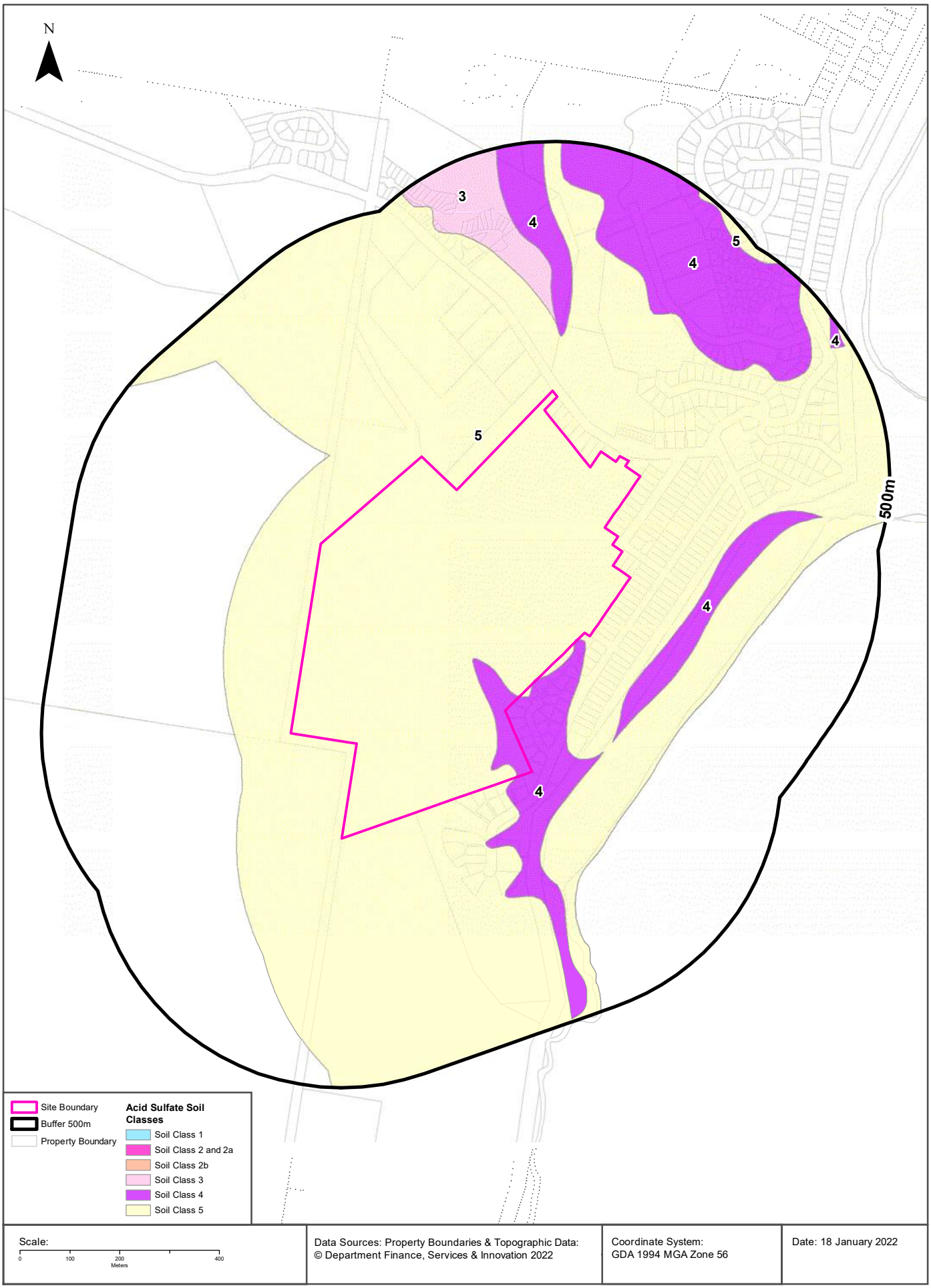
Atlas of Australian Soils

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

Map Unit Code	Soil Order	Map Unit Description	Distance	Direction
Tb48	Sodosol	Hilly to steep hilly areas: chief soils are hard acidic yellow mottled soils (Dy3.41) with various shallow soils (Gn2.24) and/or (Um4.2) or (Um6.21) on hill crests. Other soils including (Uf6) soils may occur on some mid and lower slopes.	0m	On-site
Cb28	Podosol	Undulating coastal plains (ridge and swale sand plains with swampy hollows), tracts of dunes: chief soils are various leached sands (Uc2.3) including (Uc2.33). Associated are tracts of relatively stable dunes of leached sand (Uc2.2); swampy hollows of various acid peats (0) and (Uc2) soils with peaty surfaces; and relatively unstable dunes of calcareous sands (Uc1.l) and/or siliceous sands (Uc1.2) bordering the coast. Compare unit A9. As mapped, low hills of undescribed soils projecting through the sand plain, e.g. Nelson's Bay area, and some coastal swampy areas are included.	245m	North East

Acid Sulfate Soils

Boomerang Drive, Blueys Beach, NSW 2428



Acid Sulfate Soils

Boomerang Drive, Blueys Beach, NSW 2428

Environmental Planning Instrument - Acid Sulfate Soils

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

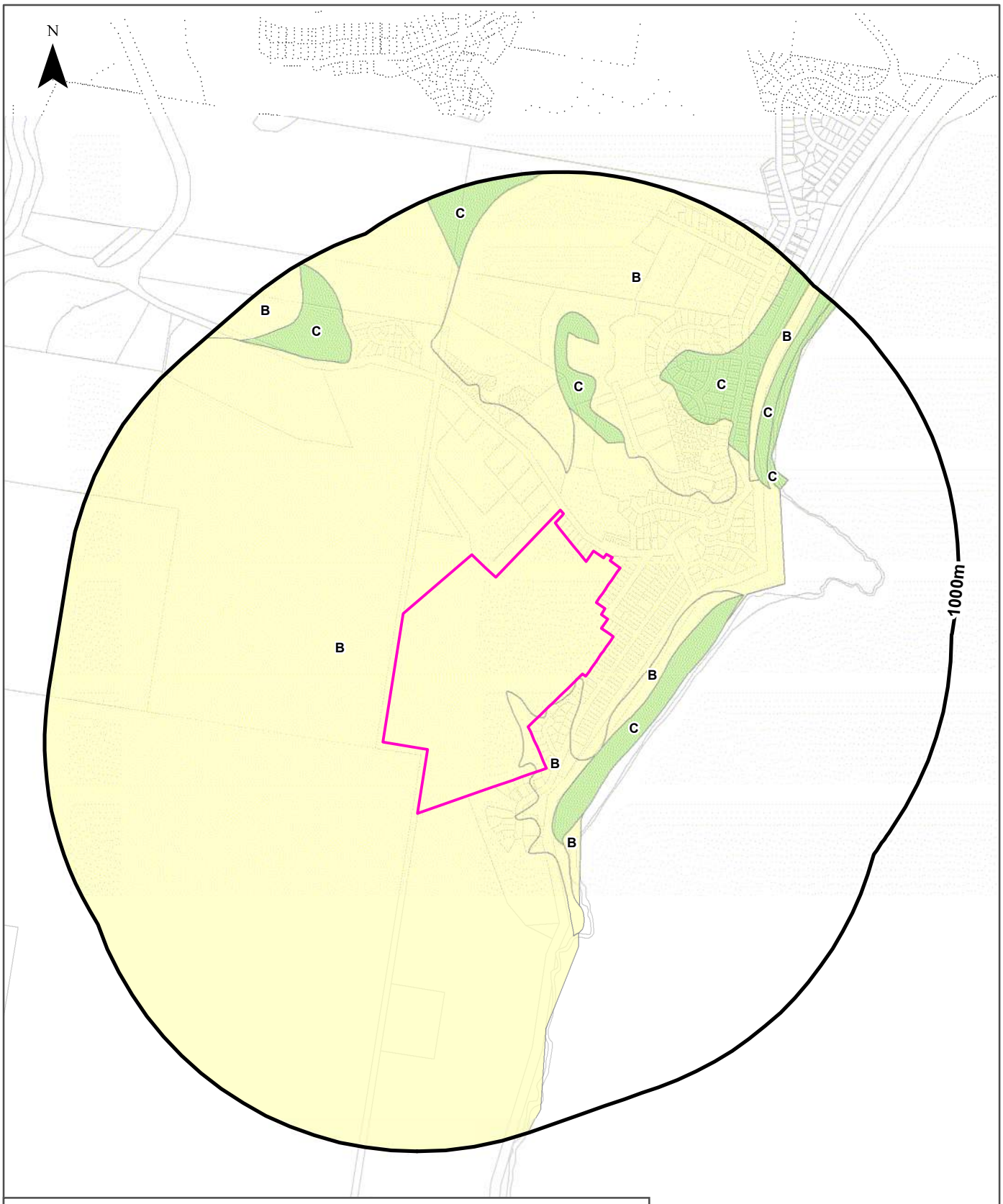
Soil Class	Description	EPI Name
4	Works more than 2 metres below natural ground surface present an environmental risk; Works by which the watertable is likely to be lowered more than 2 metres below natural ground surface, present an environmental risk	Great Lakes Local Environmental Plan 2014

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

Soil Class	Description	EPI Name	Distance	Direction
N/A				

Atlas of Australian Acid Sulfate Soils

Boomerang Drive, Blueys Beach, NSW 2428



Acid Sulfate Soils

Boomerang Drive, Blueys Beach, NSW 2428

Atlas of Australian Acid Sulfate Soils

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

Class	Description	Distance	Direction
B	Low Probability of occurrence. 6-70% chance of occurrence.	0m	On-site
C	Extremely low probability of occurrence. 1-5% chance of occurrence with occurrences in small localised areas.	86m	East

Dryland Salinity

Boomerang Drive, Blueys Beach, NSW 2428

Dryland Salinity - National Assessment

Is there Dryland Salinity - National Assessment data onsite?

No

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

No

What Dryland Salinity assessments are given?

Assessment 2000	Assessment 2020	Assessment 2050	Distance	Direction
N/A	N/A	N/A		

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

Mining

Boomerang Drive, Blueys Beach, NSW 2428

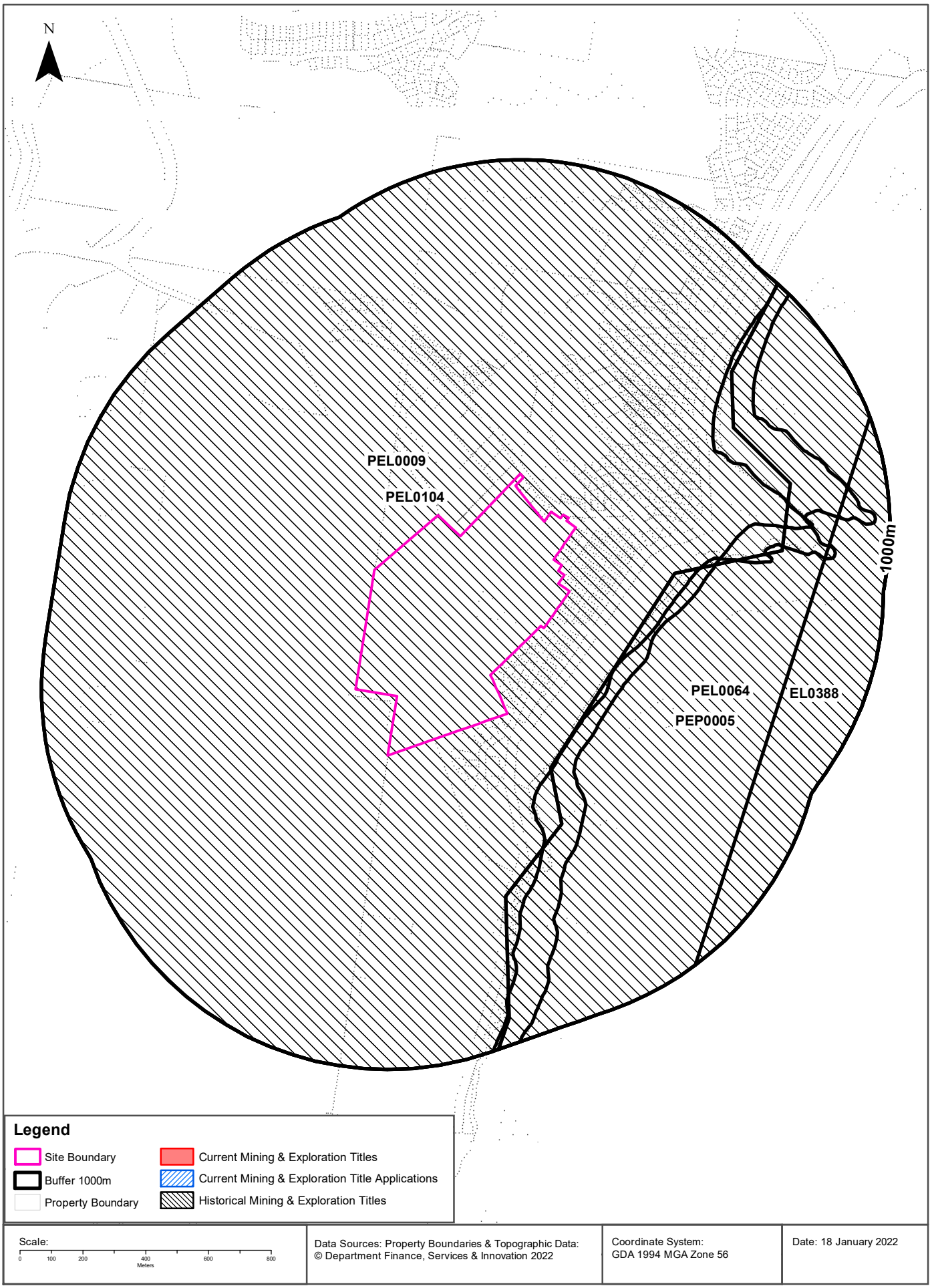
Mining Subsidence Districts

Mining Subsidence Districts within the dataset buffer:

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

Mining & Exploration Titles

Boomerang Drive, Blueys Beach, NSW 2428



Mining

Boomerang Drive, Blueys Beach, NSW 2428

Current Mining & Exploration Titles

Current Mining & Exploration Titles within the dataset buffer:

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

Current Mining & Exploration Titles Data Source: © State of New South Wales through NSW Department of Industry

Current Mining & Exploration Title Applications

Current Mining & Exploration Title Applications within the dataset buffer:

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

Current Mining & Exploration Title Applications Data Source: © State of New South Wales through NSW Department of Industry

Mining

Boomerang Drive, Blueys Beach, NSW 2428

Historical Mining & Exploration Titles

Historical Mining & Exploration Titles within the dataset buffer:

Title Ref	Holder	Start Date	End Date	Resource	Minerals	Dist	Dir
PEL0104	AUSTRALIAN OIL AND GAS CORPORATION LTD			PETROLEUM	Petroleum	0m	On-site
PEL0009	AUSTRALIAN OIL AND GAS CORPORATION LTD, UNION OIL DEVELOPMENT CORP., KERN COUNTY LAND CO.			PETROLEUM	Petroleum	0m	On-site
PEP0005	NSW OIL AND GAS CO NL, PLANET EXPLORATION COMPANY PTY LTD			PETROLEUM	Petroleum	209m	East
PEL0064	L H SMART OIL EXPLORATION CO. LTD			PETROLEUM	Petroleum	209m	East
EL0388	PLANET MINING COMPANY PTY LIMITED	01 Jan 1971	01 Jan 1975	MINERALS	Heavy mineral sands	743m	East

State Environmental Planning Policy

Boomerang Drive, Blueys Beach, NSW 2428

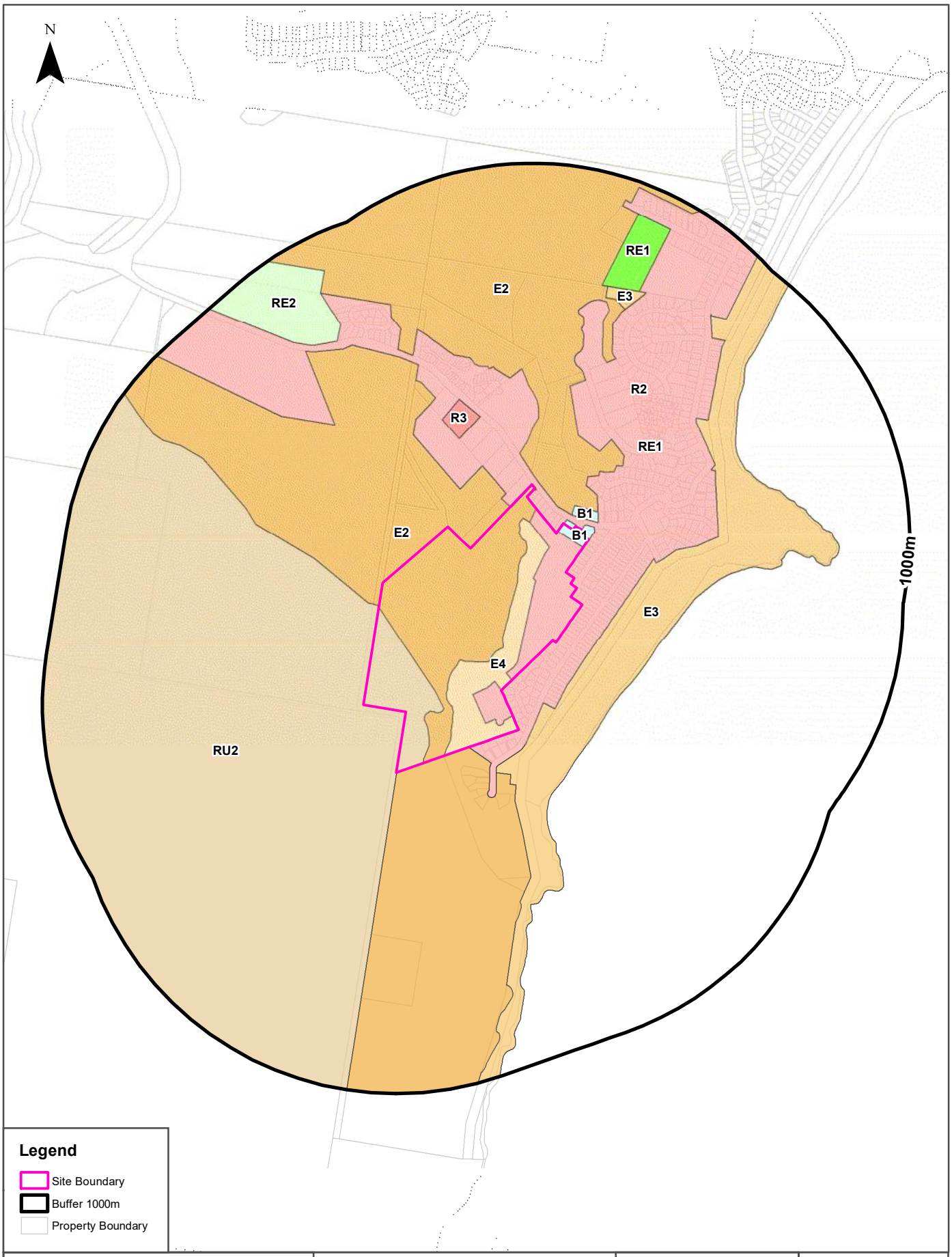
State Significant Precincts

What SEPP State Significant Precincts exist within the dataset buffer?

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

EPI Planning Zones

Boomerang Drive, Blueys Beach, NSW 2428



Environmental Planning Instrument

Boomerang Drive, Blueys Beach, NSW 2428

Land Zoning

What EPI Land Zones exist within the dataset buffer?

Zone	Description	Purpose	EPI Name	Published Date	Commenced Date	Currency Date	Amendment	Distance	Direction
E2	Environmental Conservation		Great Lakes Local Environmental Plan 2014	18/12/2020	18/12/2020	18/12/2020	Amendment No 22	0m	On-site
B1	Neighbourhood Centre		Great Lakes Local Environmental Plan 2014	04/04/2014	04/04/2014	18/12/2020		0m	On-site
E4	Environmental Living		Great Lakes Local Environmental Plan 2014	04/04/2014	04/04/2014	18/12/2020		0m	On-site
R2	Low Density Residential		Great Lakes Local Environmental Plan 2014	04/04/2014	04/04/2014	18/12/2020		0m	On-site
RU2	Rural Landscape		Great Lakes Local Environmental Plan 2014	16/10/2020	16/10/2020	18/12/2020	Amendment No 21	0m	On-site
B1	Neighbourhood Centre		Great Lakes Local Environmental Plan 2014	04/04/2014	04/04/2014	18/12/2020		32m	North East
E3	Environmental Management		Great Lakes Local Environmental Plan 2014	04/04/2014	04/04/2014	18/12/2020		36m	East
R3	Medium Density Residential		Great Lakes Local Environmental Plan 2014	04/04/2014	04/04/2014	18/12/2020		264m	North
RE1	Public Recreation		Great Lakes Local Environmental Plan 2014	04/04/2014	04/04/2014	18/12/2020		322m	North East
E3	Environmental Management		Great Lakes Local Environmental Plan 2014	04/04/2014	04/04/2014	18/12/2020		617m	North East
RE1	Public Recreation		Great Lakes Local Environmental Plan 2014	04/04/2014	04/04/2014	18/12/2020		657m	North East
RE2	Private Recreation		Great Lakes Local Environmental Plan 2014	18/12/2020	18/12/2020	18/12/2020	Amendment No 22	674m	North West

Heritage

Boomerang Drive, Blueys Beach, NSW 2428

Commonwealth Heritage List

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

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

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

National Heritage List

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

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

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

State Heritage Register - Curtilages

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

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

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

Environmental Planning Instrument - Heritage

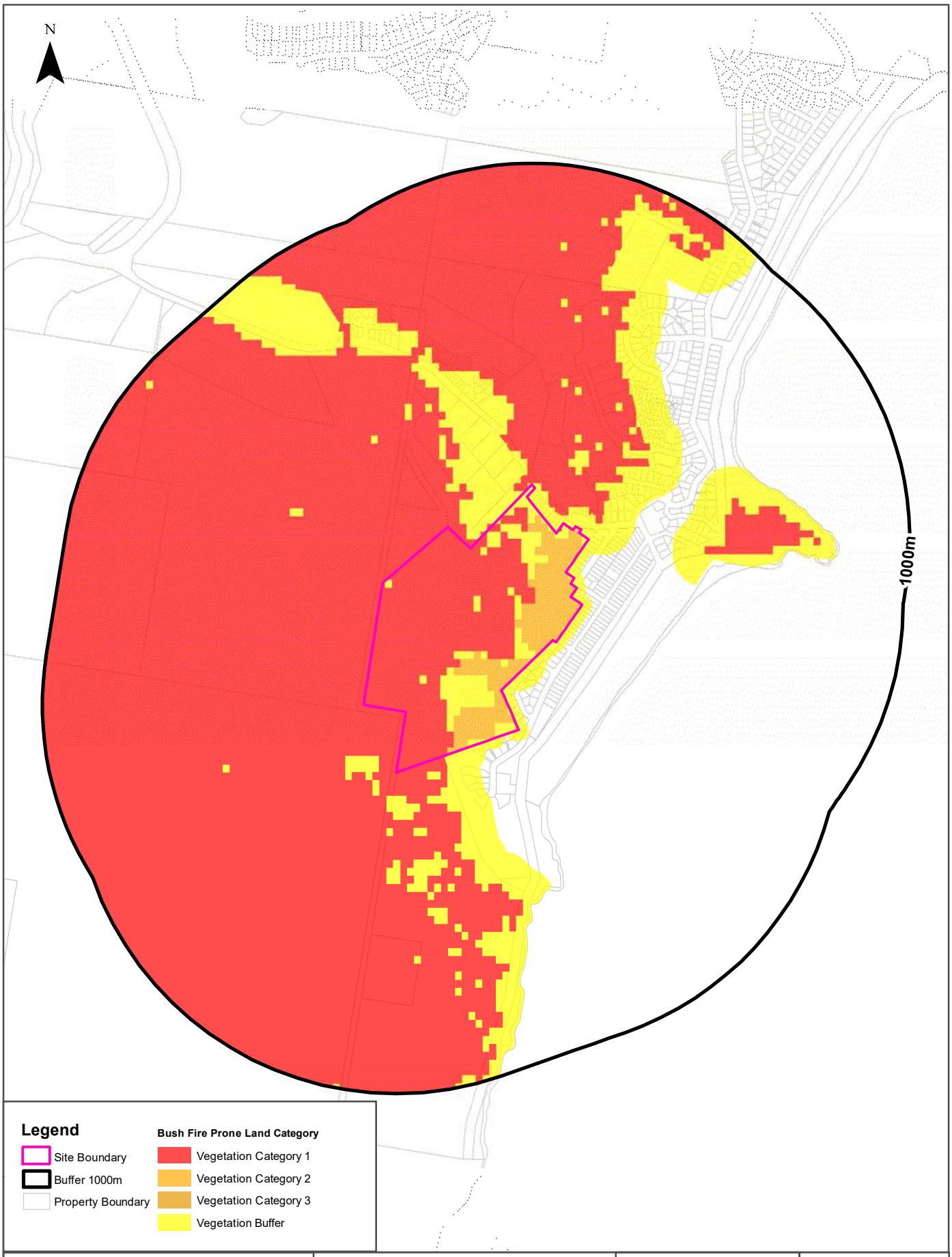
What are the EPI Heritage Items located within the dataset buffer?

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

Heritage Data Source: NSW Crown Copyright - Planning & Environment

Natural Hazards - Bush Fire Prone Land

Boomerang Drive, Blueys Beach, NSW 2428



Data Sources: Bush Fire Prone Land: © NSW Rural Fire Service 2022. Property Boundaries: © Department Finance, Services & Innovation 2022

Coordinate System: GDA 1994 MGA Zone 56

Date: 18 January 2022

Natural Hazards

Boomerang Drive, Blueys Beach, NSW 2428

Bush Fire Prone Land

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

Bush Fire Prone Land Category	Distance	Direction
Vegetation Category 1	0m	On-site
Vegetation Category 2	0m	On-site
Vegetation Buffer	0m	On-site

Ecological Constraints - Vegetation & Ramsar Wetlands

Boomerang Drive, Blueys Beach, NSW 2428

Ecological Constraints

Boomerang Drive, Blueys Beach, NSW 2428

Vegetation - Eastern Bushland Database (North Region)

What Vegetation exists within the dataset buffer?

Veg Code	Veg Desc	NVISCode	NVISDesc	Distance	Direction
2/3	moist forest / dry open forest	8	Moist forest system	0m	On-site
x	disturbed forest woodland	23	Disturbed bushland	17m	North East

Vegetation Eastern Bushland Database Data Source: NSW Office of Environment and Heritage

Ramsar Wetlands

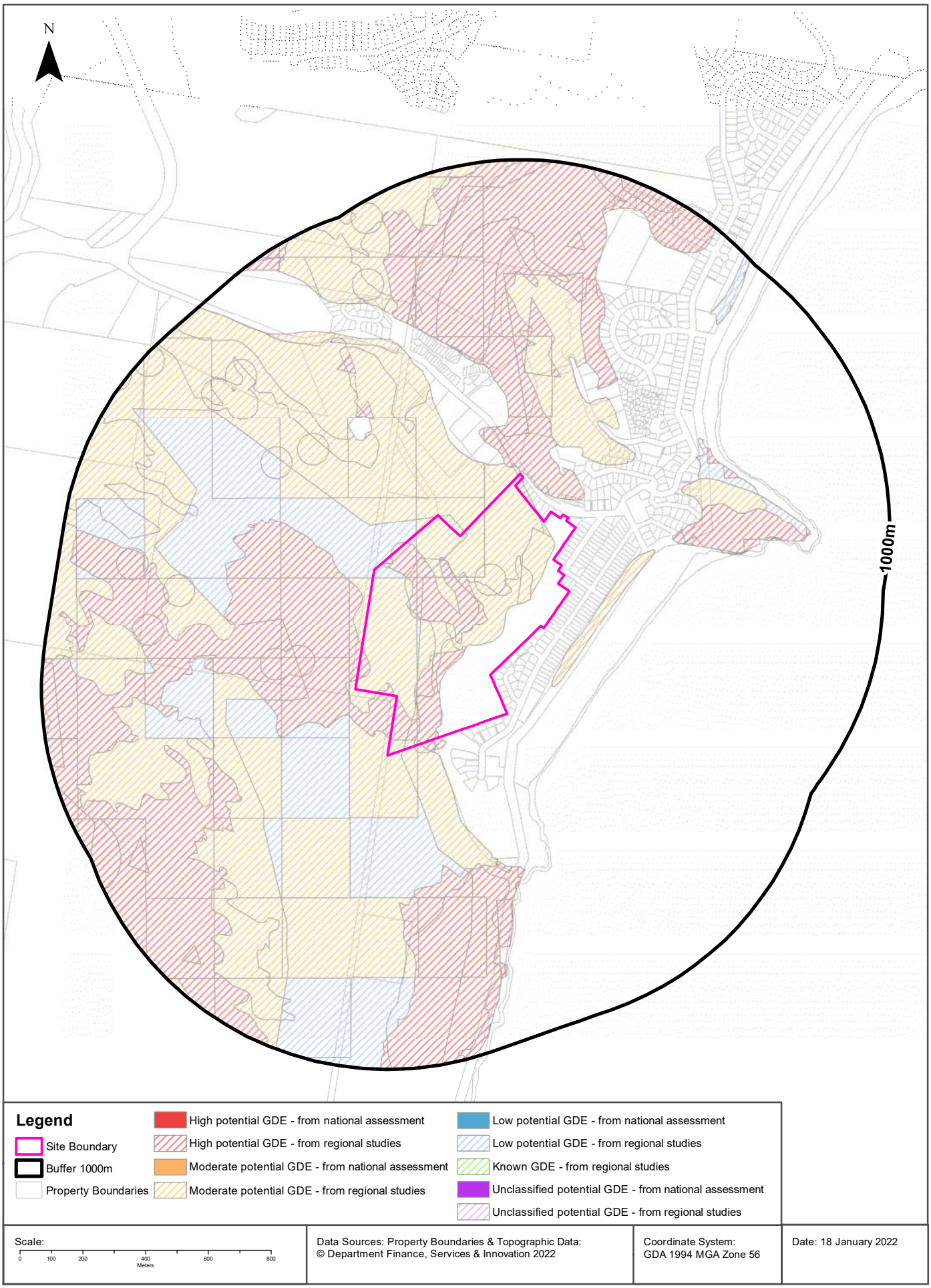
What Ramsar Wetland areas exist within the dataset buffer?

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

Ramsar Wetlands Data Source: © Commonwealth of Australia - Department of Agriculture, Water and the Environment

Ecological Constraints - Groundwater Dependent Ecosystems Atlas

Boomerang Drive, Blueys Beach, NSW 2428



Ecological Constraints

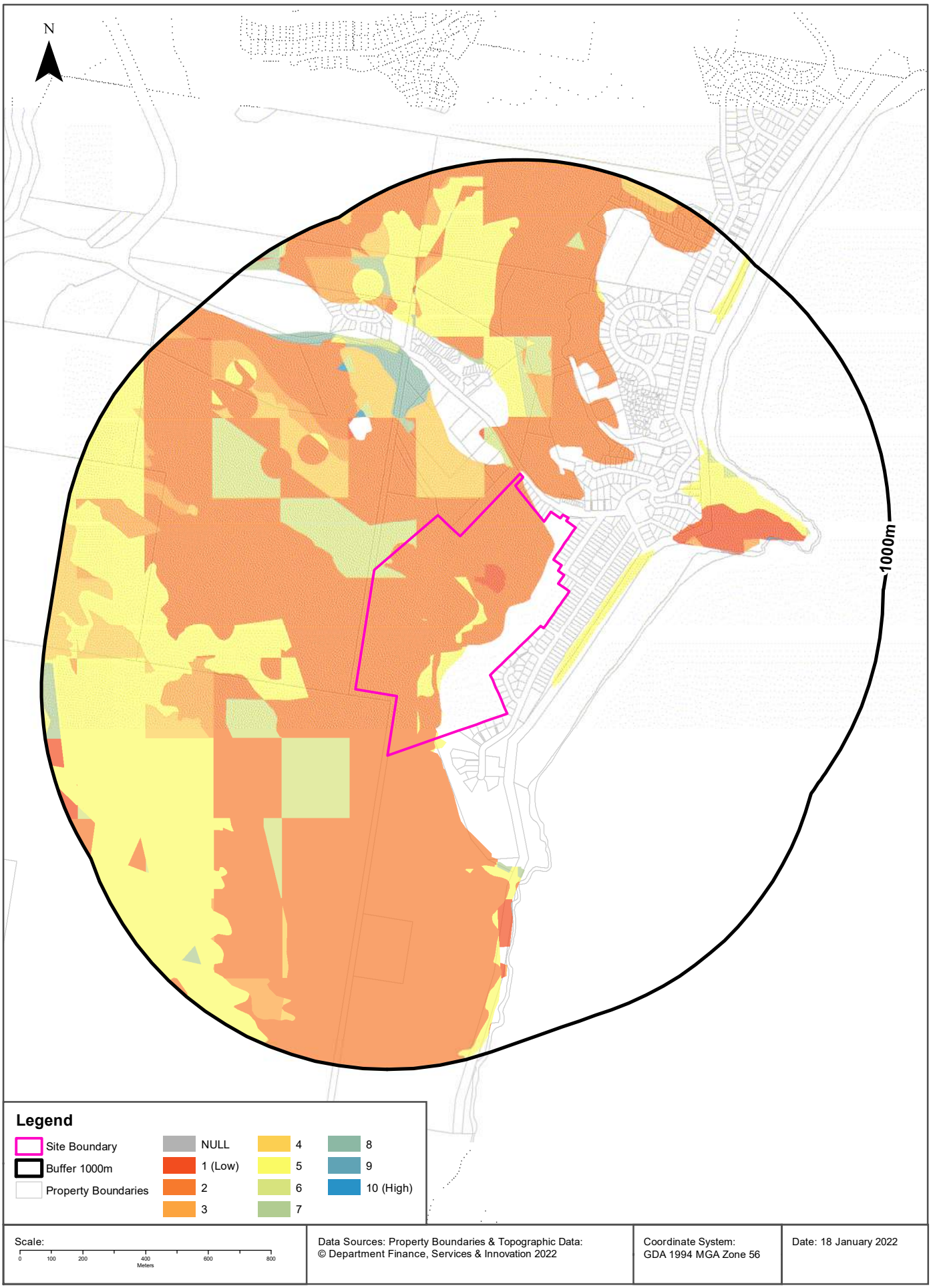
Boomerang Drive, Blueys Beach, NSW 2428

Groundwater Dependent Ecosystems Atlas

Type	GDE Potential	Geomorphology	Ecosystem Type	Aquifer Geology	Distance	Direction
Terrestrial	Moderate potential GDE - from regional studies	Dissected basaltic plateaus.	Vegetation		0m	On-site
Terrestrial	Moderate potential GDE - from regional studies	Plateau flank dissected into narrow strike ridges and valleys.	Vegetation		0m	On-site
Terrestrial	High potential GDE - from regional studies	Plateau flank dissected into narrow strike ridges and valleys.	Vegetation		0m	On-site
Terrestrial	Low potential GDE - from regional studies	Plateau flank dissected into narrow strike ridges and valleys.	Vegetation		0m	On-site
Terrestrial	Low potential GDE - from regional studies	Dissected basaltic plateaus.	Vegetation		0m	On-site
Terrestrial	High potential GDE - from regional studies		Vegetation		754m	South

Ecological Constraints - Inflow Dependent Ecosystems Likelihood

Boomerang Drive, Blueys Beach, NSW 2428



Ecological Constraints

Boomerang Drive, Blueys Beach, NSW 2428

Inflow Dependent Ecosystems Likelihood

Type	IDE Likelihood	Geomorphology	Ecosystem Type	Aquifer Geology	Distance	Direction
Terrestrial	2	Dissected basaltic plateaus.	Vegetation		0m	On-site
Terrestrial	1	Plateau flank dissected into narrow strike ridges and valleys.	Vegetation		0m	On-site
Terrestrial	6	Plateau flank dissected into narrow strike ridges and valleys.	Vegetation		0m	On-site
Terrestrial	7	Plateau flank dissected into narrow strike ridges and valleys.	Vegetation		0m	On-site
Terrestrial	5	Dissected basaltic plateaus.	Vegetation		0m	On-site
Terrestrial	2	Plateau flank dissected into narrow strike ridges and valleys.	Vegetation		0m	On-site
Terrestrial	5	Plateau flank dissected into narrow strike ridges and valleys.	Vegetation		0m	On-site
Terrestrial	4	Plateau flank dissected into narrow strike ridges and valleys.	Vegetation		32m	North West
Terrestrial	3	Plateau flank dissected into narrow strike ridges and valleys.	Vegetation		200m	North
Terrestrial	8	Plateau flank dissected into narrow strike ridges and valleys.	Vegetation		330m	North
Terrestrial	10	Plateau flank dissected into narrow strike ridges and valleys.	Vegetation		391m	North West
Terrestrial		Plateau flank dissected into narrow strike ridges and valleys.	Vegetation		433m	East
Terrestrial	2		Vegetation		754m	South

Inflow Dependent Ecosystems Likelihood Data Source: The Bureau of Meteorology

Ecological Constraints

Boomerang Drive, Blueys Beach, NSW 2428

NSW BioNet Atlas

Species on the NSW BioNet Atlas that have a NSW or federal conservation status, a NSW sensitivity status, or are listed under a migratory species agreement, and are within 10km of the site?

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Animalia	Amphibia	Crinia tinnula	Wallum Froglet	Vulnerable	Not Sensitive	Not Listed	
Animalia	Amphibia	Litoria aurea	Green and Golden Bell Frog	Endangered	Not Sensitive	Vulnerable	
Animalia	Aves	Actitis hypoleucos	Common Sandpiper	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Anthochaera phrygia	Regent Honeyeater	Critically Endangered	Not Sensitive	Critically Endangered	
Animalia	Aves	Apus pacificus	Fork-tailed Swift	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Ardenna carneipes	Flesh-footed Shearwater	Vulnerable	Not Sensitive	Not Listed	ROKAMBA;JAMBA
Animalia	Aves	Ardenna pacifica	Wedge-tailed Shearwater	Not Listed	Not Sensitive	Not Listed	JAMBA
Animalia	Aves	Ardenna tenuirostris	Short-tailed Shearwater	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Artamus cyanopterus cyanopterus	Dusky Woodswallow	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Botaurus poiciloptilus	Australasian Bittern	Endangered	Not Sensitive	Endangered	
Animalia	Aves	Calidris acuminata	Sharp-tailed Sandpiper	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Calidris ferruginea	Curlew Sandpiper	Endangered	Not Sensitive	Critically Endangered	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Calidris melanotos	Pectoral Sandpiper	Not Listed	Not Sensitive	Not Listed	ROKAMBA;JAMBA
Animalia	Aves	Calidris ruficollis	Red-necked Stint	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Calyptorhynchus lathami	Glossy Black-Cockatoo	Vulnerable	Category 2	Not Listed	
Animalia	Aves	Chthonicola sagittata	Speckled Warbler	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Circus assimilis	Spotted Harrier	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Climacteris picumnus victoriae	Brown Treecreeper (eastern subspecies)	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Daphoenositta chrysoptera	Varied Sittella	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Ephippiorhynchus asiaticus	Black-necked Stork	Endangered	Not Sensitive	Not Listed	
Animalia	Aves	Epthianura albifrons	White-fronted Chat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Esacus magnirostris	Beach Stone-curlew	Critically Endangered	Not Sensitive	Not Listed	
Animalia	Aves	Gallinago hardwickii	Latham's Snipe	Not Listed	Not Sensitive	Not Listed	ROKAMBA;JAMBA
Animalia	Aves	Gelochelidon nilotica	Gull-billed Tern	Not Listed	Not Sensitive	Not Listed	CAMBA
Animalia	Aves	Glossopsitta pusilla	Little Lorikeet	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Haematopus fuliginosus	Sooty Oystercatcher	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Haematopus longirostris	Pied Oystercatcher	Endangered	Not Sensitive	Not Listed	

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Animalia	Aves	Haliaeetus leucogaster	White-bellied Sea-Eagle	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Hieraaetus morphnoides	Little Eagle	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Hirundapus caudacutus	White-throated Needletail	Not Listed	Not Sensitive	Vulnerable	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Hydroprogne caspia	Caspian Tern	Not Listed	Not Sensitive	Not Listed	JAMBA
Animalia	Aves	Ixobrychus flavicollis	Black Bittern	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Limosa lapponica	Bar-tailed Godwit	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Limosa limosa	Black-tailed Godwit	Vulnerable	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Lophoictinia isura	Square-tailed Kite	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Macronectes giganteus	Southern Giant Petrel	Endangered	Not Sensitive	Endangered	
Animalia	Aves	Melanodryas cucullata cucullata	Hooded Robin (south-eastern form)	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Neophema pulchella	Turquoise Parrot	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Ninox connivens	Barking Owl	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Ninox strenua	Powerful Owl	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Numenius madagascariensis	Eastern Curlew	Not Listed	Not Sensitive	Critically Endangered	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Onychoprion fuscata	Sooty Tern	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Pachycephala pectoralis contempta	Golden Whistler (Lord Howe Is. subsp.)	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Pandion cristatus	Eastern Osprey	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Petroica boodang	Scarlet Robin	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Pluvialis fulva	Pacific Golden Plover	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Pterodroma leucoptera leucoptera	Gould's Petrel	Vulnerable	Not Sensitive	Endangered	
Animalia	Aves	Ptilinopus magnificus	Wompoo Fruit-Dove	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Ptilinopus superbus	Superb Fruit-Dove	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Stercorarius pomarinus	Pomarine Jaeger	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Sterna hirundo	Common Tern	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Sternula albifrons	Little Tern	Endangered	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Thalasseus bergii	Crested Tern	Not Listed	Not Sensitive	Not Listed	JAMBA
Animalia	Aves	Tringa brevipes	Grey-tailed Tattler	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Tyto novaehollandiae	Masked Owl	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Tyto tenebricosa	Sooty Owl	Vulnerable	Category 3	Not Listed	
Animalia	Insecta	Petalura gigantea	Giant Dragonfly	Endangered	Not Sensitive	Not Listed	
Animalia	Mammalia	Arctocephalus pusillus doriferus	Australian Fur-seal	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Balaenoptera musculus	Blue Whale	Endangered	Not Sensitive	Endangered	
Animalia	Mammalia	Cercartetus nanus	Eastern Pygmy-possum	Vulnerable	Not Sensitive	Not Listed	

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Animalia	Mammalia	Dasyurus maculatus	Spotted-tailed Quoll	Vulnerable	Not Sensitive	Endangered	
Animalia	Mammalia	Falsistrellus tasmaniensis	Eastern False Pipistrelle	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Isoodon obesulus obesulus	Southern Brown Bandicoot (eastern)	Endangered	Not Sensitive	Endangered	
Animalia	Mammalia	Macropus parma	Parma Wallaby	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Megaptera novaeangliae	Humpback Whale	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Mammalia	Micronomus norfolkensis	Eastern Coastal Free-tailed Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Miniopterus australis	Little Bent-winged Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Miniopterus orianae oceanensis	Large Bent-winged Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Myotis macropus	Southern Myotis	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Petauroides volans	Greater Glider	Not Listed	Not Sensitive	Vulnerable	
Animalia	Mammalia	Petaurus australis	Yellow-bellied Glider	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Petaurus norfolcensis	Squirrel Glider	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Phascogale tapoatafa	Brush-tailed Phascogale	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Phascolarctos cinereus	Koala	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Mammalia	Pseudomys gracilicaudatus	Eastern Chestnut Mouse	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Pseudomys novaehollandiae	New Holland Mouse	Not Listed	Not Sensitive	Vulnerable	
Animalia	Mammalia	Pteropus poliocephalus	Grey-headed Flying-fox	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Mammalia	Saccolaimus flaviventris	Yellow-bellied Sheathtail-bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Scoteanax rueppellii	Greater Broad-nosed Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Syconycteris australis	Common Blossom-bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Vespadelus troughtoni	Eastern Cave Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Reptilia	Chelonia mydas	Green Turtle	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Reptilia	Dermochelys coriacea	Leatherback Turtle	Endangered	Not Sensitive	Endangered	
Animalia	Reptilia	Hoplocephalus stephensii	Stephens' Banded Snake	Vulnerable	Not Sensitive	Not Listed	
Plantae	Flora	Allocasuarina simulans	Nabiac Casuarina	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Chamaesyce psammogeton	Sand Spurge	Endangered	Not Sensitive	Not Listed	
Plantae	Flora	Cynanchum elegans	White-flowered Wax Plant	Endangered	Not Sensitive	Endangered	
Plantae	Flora	Diuris praecox	Rough Doubletail	Vulnerable	Category 2	Vulnerable	
Plantae	Flora	Genoplesium littorale	Tuncurry Midge Orchid	Critically Endangered	Category 2	Critically Endangered	
Plantae	Flora	Lindernia alsinoides	Noah's False Chickweed	Endangered	Not Sensitive	Not Listed	
Plantae	Flora	Melaleuca biconvexa	Biconvex Paperbark	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Rhodamnia rubescens	Scrub Turpentine	Critically Endangered	Not Sensitive	Critically Endangered	
Plantae	Flora	Rhodomyrtus psidioides	Native Guava	Critically Endangered	Not Sensitive	Not Listed	
Plantae	Flora	Senecio spathulatus	Coast Groundsel	Endangered	Not Sensitive	Not Listed	

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Plantae	Flora	Senna acclinis	Rainforest Cassia	Endangered	Not Sensitive	Not Listed	
Plantae	Flora	Syzygium paniculatum	Magenta Lilly Pilly	Endangered	Not Sensitive	Vulnerable	
Plantae	Flora	Thesium australe	Austral Toadflax	Vulnerable	Not Sensitive	Vulnerable	

Data does not include NSW category 1 sensitive species.

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

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

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    (b) any loss of profit, loss of revenue, loss of interest, loss of data, loss of goodwill or loss of business opportunities, business interruption arising directly or indirectly out of or in relation to the Report or these Terms,

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12. These Terms are subject to New South Wales law.

2 Biripi Way | PO Box 482
Taree NSW 2430

PLANNING CERTIFICATE

Information provided pursuant to SCHEDULE 4 of the
Environment Planning and Assessment Regulation 2000

APPLICANT:	**C & L Solicitors** **605/431, Sussex Street** **SYDNEY NSW 2000**
Certificate No:	PC2021/5412
Certificate Date:	15/09/2021
Property:	**Boomerang Drive BLUEYS BEACH NSW 2428**
Title:	**Lot 23 DP 537919**
Land No:	625721
Applicant's Ref:	6346

IMPORTANT: Please read this certificate carefully.

The information provided in this certificate relates only to the land described above. If you need information about an adjoining property or nearby land, a separate certificate will be required.

All information provided is correct as at the date above. Please note, it is possible for changes to occur within a short time and we recommend you only rely upon a very recent certificate.

For more information on this Planning Certificate please contact our Customer Experience team on 02 7955 7777.

Adrian Panuccio
GENERAL MANAGER

SECTION 10.7(2)

The following matters relate to the land, as required by section 10.7(2) of the Environmental Planning and Assessment Act (1979) ("the Act").

ITEM 1 - Names of relevant planning instruments and DCPs

1. The following environmental planning instruments apply to the carrying out of development on the land:

Local Environmental Planning Instrument

Great Lakes Local Environmental Plan 2014

State Environmental Planning Policies

Affordable Rental Housing 2009
Building Sustainability Index: BASIX 2004
Coastal Management 2018
Concurrences and Consents 2018
Educational Establishments and Child Care Facilities 2017
Exempt and Complying Development Codes 2008
Housing for Seniors or People with a Disability 2004
Infrastructure 2007
Koala Habitat Protection 2020
Koala Habitat Protection 2021
Mining, Petroleum Production and Extractive Industries 2007
No 21—Caravan Parks
No 33—Hazardous and Offensive Development
No 36—Manufactured Home Estates
No 50—Canal Estate Development
No 55—Remediation of Land
No 64—Advertising and Signage
No 65—Design Quality of Residential Apartment Development
No 70—Affordable Housing (Revised Schemes)
Primary Production and Rural Development 2019
State and Regional Development 2011
Vegetation in Non-Rural Areas 2017

Detailed information on the local environmental plans and State Environmental Planning Policies listed in this certificate is available at NSW Legislation – In force legislation

2. The following proposed environmental planning instruments apply to the carrying out of development on the land and are or have been the subject of community consultation or on public exhibition under the Environmental Planning and Assessment Act 1979:

The following proposed environmental planning instruments apply to the land:

No proposed State Environmental Planning instruments apply to the land.

No proposed Local Environmental Planning instruments apply to the land.

Detailed information on draft environmental planning instruments is available at the NSW Department of Planning, Industry and Environment Current LEP Proposals website; or MidCoast Council's Current Planning Proposals and DCP Amendments website.

Detailed information on draft State Environmental Planning Policies is available at the NSW Department of Planning, Industry and Environment Draft Plans and Policies and State Environmental Planning Policies review program websites.

3. The following development control plans apply to the carrying out of development on the land:

Great Lakes Development Control Plan 2014

ITEM 2 - Zoning and land use under relevant LEPs

For each environmental planning instrument or proposed instrument referred to in clause 1 (other than a SEPP or proposed SEPP)

1. (a)-(d) Zoning details in the instruments identified in ITEM 1(1) above

Zone B1 Neighbourhood Centre

1 Objectives of zone

- To provide a range of small-scale retail, business and community uses that serve the needs of people who live or work in the surrounding neighbourhood.
- To enable a range of residential accommodation and tourist and visitor accommodation to be located above commercial uses to promote housing diversity and community activity within the business centre.
- To ensure that traffic generation from development can be managed in a way that avoids conflict with the desired pedestrian environment.

2 Permitted without consent

Home occupations

3 Permitted with consent

Boarding houses; Business premises; Centre-based child care facilities; Community facilities; Medical centres; Neighbourhood shops; Neighbourhood supermarkets; Oyster aquaculture; Respite day care centres; Roads; Seniors housing; Shop top housing; Tank-based aquaculture; Any other development not specified in item 2 or 4

4 Prohibited

Agriculture; Air transport facilities; Airstrips; Animal boarding or training establishments; Boat building and repair facilities; Boat launching ramps; Boat sheds; Camping grounds; Caravan parks; Cemeteries; Correctional centres; Crematoria; Depots; Eco-tourist facilities; Electricity generating works; Exhibition villages; Extractive industries; Farm buildings; Farm stay accommodation; Forestry; Freight transport facilities; Heavy industrial storage establishments;

Highway service centres; Industrial retail outlets; Industrial training facilities; Industries; Mooring pens; Moorings; Mortuaries; Open cut mining; Pond-based aquaculture Recreation facilities (major); Residential accommodation; Resource recovery facilities; Rural industries; Storage premises; Transport depots; Truck depots; Vehicle body repair workshops; Vehicle repair stations; Warehouse or distribution centres; Waste disposal facilities; Wharf or boating facilities

Zone E2 Environmental Conservation

1 Objectives of zone

- To protect, manage and restore areas of high ecological, scientific, cultural or aesthetic values.
- To prevent development that could destroy, damage or otherwise have an adverse effect on those values.

2 Permitted without consent

Home occupations

3 Permitted with consent

Bed and breakfast accommodation; Building identification signs; Business identification signs; Car parks; Community facilities; Dwelling houses; Eco-tourist facilities; Emergency services facilities; Environmental facilities; Environmental protection works; Home-based child care; Home businesses; Information and education facilities; Oyster aquaculture Research stations; Roads; Sewerage systems; Water supply systems

4 Prohibited

Business premises; Hotel or motel accommodation; Industries; Multi dwelling housing; Pond-based aquaculture; Recreation facilities (major); Residential flat buildings; Restricted premises; Retail premises; Seniors housing; Service stations; Tank-based aquaculture; Warehouse or distribution centres; Any other development not specified in item 2 or 3

Zone E4 Environmental Living

1 Objectives of zone

- To provide for low-impact residential development in areas with special ecological, scientific or aesthetic values.
- To ensure that residential development does not have an adverse effect on those values.
- To provide for other types of low-impact development that complement and support residential development and do not have an adverse effect on the special ecological, scientific or aesthetic values of the land.

2 Permitted without consent

Home occupations

3 Permitted with consent

Animal boarding or training establishments; Backpackers' accommodation; Bed and breakfast accommodation; Boat launching ramps; Boat sheds; Building identification signs; Business identification signs; Camping grounds; Caravan parks; Centre-based child care facilities; Community facilities; Dual occupancies (attached); Dwelling houses; Eco-tourist facilities; Emergency services facilities; Environmental facilities; Environmental protection works; Extensive agriculture; Farm buildings; Farm stay accommodation; Flood mitigation works; Function centres; Helipads; Home-based child care; Home businesses; Information and education facilities; Jetties; Kiosks; Landscaping material supplies; Neighbourhood shops; Oyster aquaculture; Pond-based aquaculture; Plant nurseries; Recreation areas; Research stations; Respite day care centres; Restaurants or cafes; Roads; Roadside stalls; Sewerage systems; Tank-based aquaculture; Water recreation structures; Water supply systems

4 Prohibited

Industries; Service stations; Warehouse or distribution centres; Any other development not specified in item 2 or 3

Zone R2 Low Density Residential

1 Objectives of zone

- To provide for the housing needs of the community within a low density residential environment.
- To enable other land uses that provide facilities or services to meet the day to day needs of residents.

2 Permitted without consent

Home occupations

3 Permitted with consent

Attached dwellings; Bed and breakfast accommodation; Boarding houses; Boat launching ramps; Building identification signs; Business identification signs; Camping grounds; Car parks; Caravan parks; Centre-based child care facilities; Community facilities; Dual occupancies; Dwelling houses; Educational establishments; Emergency services facilities; Environmental protection works; Exhibition homes; Flood mitigation works; Group homes; Health consulting rooms; Helipads; Home-based child care; Home businesses; Hostels; Hotel or motel accommodation; Information and education facilities; Jetties; Medical centres; Moorings; Multi dwelling housing; Neighbourhood shops; Oyster aquaculture; Places of public worship; Pond-based aquaculture; Recreation areas; Recreation facilities (indoor); Respite day care centres; Roads; Secondary dwellings; Seniors housing; Sewerage systems; Shop top housing; Tank-based aquaculture; Water recreation structures; Water supply systems; Wharf or boating facilities

4 Prohibited

Any development not specified in item 2 or 3

Zone RU2 Rural Landscape

1 Objectives of zone

- To encourage sustainable primary industry production by maintaining and enhancing the natural resource base.
- To maintain the rural landscape character of the land.
- To provide for a range of compatible land uses, including extensive agriculture.
- To provide for rural tourism in association with the primary industry capability of the land which is based on the rural attributes of the land.
- To secure a future for agriculture in the area by minimising the fragmentation of rural land and loss of potential agricultural productivity.

2 Permitted without consent

Extensive agriculture; Home occupations

3 Permitted with consent

Agriculture; Airports; Airstrips; Animal boarding or training establishments; Aquaculture; Backpackers' accommodation; Bed and breakfast accommodation; Boat launching ramps; Boat sheds; Camping grounds; Caravan parks; Cellar door premises; Cemeteries; Centre-based child care facilities; Charter and tourism boating facilities; Community facilities; Crematoria; Depots; Dual occupancies; Dwelling houses; Eco-tourist facilities; Educational establishments; Environmental facilities; Environmental protection works; Exhibition homes; Extractive industries; Farm buildings; Farm stay accommodation; Flood mitigation works; Forestry; Hazardous storage establishments; Helipads; Heliports; Home-based child care; Home businesses; Hotel or motel accommodation; Industrial training facilities; Industries; Information and education facilities; Jetties; Kiosks; Landscaping material supplies; Marinas; Mooring pens; Moorings; Neighbourhood shops; Offensive storage establishments; Open cut mining; Places of public worship; Plant nurseries; Public administration buildings; Recreation areas; Recreation facilities (indoor); Recreation facilities (major); Recreation facilities (outdoor); Registered clubs; Respite day care centres; Restaurants or cafes; Roads; Roadside stalls; Rural industries; Rural supplies; Secondary dwellings; Sewerage systems; Signage; Timber yards; Transport depots; Truck depots; Veterinary hospitals; Water recreation structures; Water supply systems; Wharf or boating facilities

4 Prohibited

Any development not specified in item 2 or 3

Detailed information on the land zone mapping is available at the NSW Department of Planning, Industry and Environment ePlanning Spatial Viewer website; or MidCoast Council's Online Mapping website.

Additional permitted uses

No Additional Permitted Use provisions apply to this land.

(e) Are there development standards applying to the land, which fix minimum land dimensions for the erection of a dwelling house on the land?

Yes, Clause 4.2A Erection of dwelling houses on land in certain rural and environment protection zones of the local environmental plan applies a development standard, which fixes a minimum land dimension for the erection of a dwelling.

(f) Does the land include or comprise critical habitat?

The land does not include or comprise critical habitat.

(g) Is the land within a conservation area?

Note: excluding conservation areas otherwise identified under Item 9A - biodiversity certified land; Item 10 – biodiversity stewardship site; Item 10A – Native vegetation clearing set asides; or Item 12 – Property vegetation plans.

No, the land is not identified as being within a conservation area.

(h) Is there an item of environmental heritage on the land?

No environmental planning instrument identifies an item of environmental heritage on the land.

2. (a)-(d) Zoning details in any draft instruments identified in ITEM 1(2) above

The following proposed environmental planning instruments apply to the land and propose a change to the land zone or land uses that are allowed on the land:

No proposed environmental planning instruments apply to the land.

Detailed information on draft environmental planning instruments is available at the NSW Department of Planning, Industry and Environment Current LEP Proposals website; or MidCoast Council's Current Planning Proposals and DCP Amendments website.

Detailed information on draft State Environmental Planning Policies is available at the NSW Department of Planning, Industry and Environment Draft Plans and Policies and State Environmental Planning Policies review program websites.

Additional permitted uses

No proposed environmental planning instruments apply to the land that propose an additional permitted use.

(e) Are there development standards applying to the land, which fix minimum land dimensions for the erection of a dwelling house on the land?

No proposed environmental planning instruments include a development standard to fix a minimum land dimension for the erection of a dwelling house on the land.

(f) Does the land include or comprise critical habitat?

No proposed environmental planning instruments include or comprise critical habitat on the land.

(g) Is the land within a draft conservation area (however described)?

Note: excluding conservation areas otherwise identified under Item 9A - biodiversity certified land; Item 10 – biodiversity stewardship site; Item 10A – Native vegetation clearing set asides; or Item 12 – Property vegetation plans.

No proposed environmental planning instrument identifies the land as being within a draft conservation area.

(h) Is there a draft item of environmental heritage situated on the land?

No proposed environmental planning instrument identifies a draft item of environmental heritage on the land.

ITEM 2A - Zoning and land use under State Environmental Planning Policy (Sydney Region Growth Centres) 2006

Is the land identified within any zone under Part 3 of State Environmental Planning Policy (Sydney Region Growth Centres) 2006, a Precinct Plan, or a Proposed Precinct Plan that is or has been the subject of community consultation or on public exhibition under the Act?

No, the Land is not located within a Sydney Regional Growth Centre.

ITEM 3 – Complying Development Exclusions

The extent to which complying development may be carried out on the land, under clauses 1.17A(1) (c) to (e), (2), (3) and (4), 1.18 (1)(c3) and 1.19 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008?

Complying development may or may not be carried out on the subject land under an Environmental Planning Policy.

Council does not have sufficient information to determine the extent to which specific complying development may or may not be carried out.

For further information on complying development, please refer to the NSW Government Planning Portal at https://www.planningportal.nsw.gov.au/onlinecdc

ITEM 4 – (Repealed)

ITEM 4A – (Repealed)

ITEM 4B – Annual charges under Local Government Act 1993 for coastal protection services that relate to existing coastal protection works

Has the owner (or any previous owner) of the land consented in writing to the land being subject to annual charges under section 496B of the Local Government Act 1993 for coastal protection services that relate to existing coastal protection works (within the meaning of section 553B of that Act)?

No, the land is not subject to annual charges under the Local Government Act 1993 for coastal protections works.

ITEM 5 – Mine subsidence

Is the land proclaimed to be in a mine subsidence district within the meaning of the Coal Mine Subsidence Compensation Act 2017?

No, the land is not in a mine subsidence district within the meaning of the Coal Mine Subsidence Compensation Act 2017.

ITEM 6 – Road widening and road realignment

Is the land affected by any road widening or road realignment under:

(a) Division 2 of Part 3 of the Roads Act 1993; or
(b) Any environmental planning instrument; or
(c) Any resolution of the Council?

No, the land is not identified as being affected by a proposed road widening or realignment under the provisions above.

ITEM 7 – Council and other public authority policies on hazard risk restrictions

(a) Whether or not the land is affected by a policy adopted by the Council that restricts the development of the land because of the likelihood of:-

(i) land slip	No
(ii) bushfire	No
(iii) tidal inundation	No
(iv) subsidence	No
(v) acid sulphate soils	No
(vi) land contamination	No
(vii) Other Risk	No

(b) Whether or not the land is affected by a policy adopted by any other public authority and notified to the Council for the express purpose of its adoption by that authority being referred to in planning certificates issued by the Council that restricts the development of the land because of the likelihood of:-

(i) land slip	No
(ii) bushfire	Yes
(iii) tidal inundation	No
(iv) subsidence	No
(v) acid sulphate soils	No
(vi) land contamination	No
(vii) Other Risk	No

ITEM 7A – Flood related development controls information

1. Whether or not development on the land or part of the land for the purposes of dwelling houses, dual occupancies, multi dwelling housing or residential flat buildings (not including development for the purposes of group homes or seniors housing) is subject to flood related development controls.

No, the land is not affected by flood related development controls.

2. Whether or not development on the land or part of the land for any other purpose is subject to flood related development controls.

No, the land is not subject to flood related development controls associated with an identified Probable Maximum Flood (PMF) within an adopted Council policy or environmental planning instrument.

Details relating to flood risk and flood planning levels may be provided on a Flood Level Certificate. The application form is available at https://www.midcoast.nsw.gov.au/Council/Forms-Library/Certificates on Council's website.

ITEM 8 – Land reserved for acquisition

Is there an environmental planning instrument, or proposed environmental planning instrument referred to in clause 1 which makes provision in relation to the acquisition of the land by a public authority, as referred to in section 3.15 of the Environmental Planning and Assessment Act 1979?

No, the land is not identified in the Land Acquisition Layer of the local environmental plan or a draft environmental planning instrument.

ITEM 9 – Contributions plans

The name of each contributions plan applying to the land is:-

Great Lakes - Forster District Contributions Plan 2015
Great Lakes Wide Contributions Plan 2015

ITEM 9A - Biodiversity certified land

Is the land biodiversity certified land under Part 8 of the Biodiversity Conservation Act 2016 (including land certified under Part 7AA of the Threatened Species Conservation Act 1995)?

Note. *Biodiversity certified land includes land certified under Part 7AA of the Threatened Species Conservation Act 1995 that is taken to be certified under Part 8 of the Biodiversity Conservation Act 2016.*

No, the land is not identified as biodiversity certified land.

ITEM 10 – Biodiversity stewardship sites

Has Council been notified by the Chief Executive of the Office of Environment and Heritage that the land is a biodiversity stewardship site under a biodiversity stewardship agreement under Part 5 of the Biodiversity Conservation Act 2016 (including biobanking agreements under Part 7A of the Threatened Species Conservation Act 1995)?

Note. *Biodiversity stewardship agreements include biobanking agreements under Part 7A of the Threatened Species Conservation Act 1995 that are taken to be biodiversity stewardship agreements under Part 5 of the Biodiversity Conservation Act 2016.*

No, Council has not been notified that the land is a biodiversity stewardship site.

ITEM 10A – Native vegetation clearing set asides

Under section 60ZC of the Local Land Service Act 2013, has Council been notified by Local Land Services (or is it registered in the public register under that section) that the land contains a set aside area?

No, Council has not been notified that the land contains a native vegetation clearing set asides site.

ITEM 11 – Bush fire prone land

Yes, the land is identified in whole or part as bushfire prone.

ITEM 12 – Property vegetation plans

Has Council been notified (by the person or body that approved the plan) of the existence of a property vegetation plan approved under Part 4 of the Native Vegetation Act 2003 (and that continues in force) applying to the land?

No, Council has not been advised that an approved Property Vegetation Plan applies to this land and continues in force under Part 4 of the Native Vegetation Act 2003.

ITEM 13 – Orders under Trees (Disputes Between Neighbours) Act 2006

Has Council been notified that an order has been made under the Trees (Disputes Between Neighbours) Act 2006 to carry out work in relation to a tree on the land?

No, Council has not been notified of an order under the Trees (Disputes Between Neighbours) Act 2006 that affects the subject land.

ITEM 14 – Directions under Part 3A

Is there a direction by the Minister in force under section 75P (2) (c1) of the Environmental Planning and Assessment Act 1979 that a provision of an environmental planning instrument prohibiting or restricting the carrying out of a project or a stage of a project on the land under Part 4 of the Act does not have effect?

No, there is no direction by the Minister in force under section 75P (2) (c1) of the Environmental Planning and Assessment Act 1979, that a provision of an environmental planning instrument prohibiting or restricting the carrying out of a project or a stage of a project on the land under Part 4 of the Act does not have effect, applying to the land.

ITEM 15 – Site compatibility certificates and conditions for seniors housing

(a) Has a current site compatibility certificate (seniors housing), of which the Council is aware, been issued under State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004 in respect of proposed development on the land?

No, Council is not aware of a current site compatibility certificate (seniors housing) issued under State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004 in respect of proposed development on the land.

(b) Have any terms of a kind referred to in clause 18(2) of State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004 been imposed as a condition of consent to a development application granted after 11 October 2007 in respect of the land?

No, Council is not aware of a condition of consent being imposed in terms of a kind referred to in clause 18(2) of the State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004 in respect of development on the land.

ITEM 16 – Site compatibility certificates for infrastructure, schools or TAFE establishments

Has a valid site compatibility certificate (infrastructure) or a site compatibility certificate (schools or TAFE establishments), of which the Council is aware, been issued?

No, Council is not aware of a site compatibility verification certificate for infrastructure, schools or TAFE establishments on the land.

ITEM 17 – Site compatibility certificates and conditions for affordable rental housing

1. Has a current site compatibility certificate (affordable rental housing), of which the Council is aware, been issued in respect of proposed development on the land?

No, Council is not aware of a site compatibility verification certificate for affordable rental housing on the land.

2. Have any terms of a kind referred to in clause 17(1) or 38(1) of State Environmental Planning Policy (Affordable Rental Housing) 2009 been imposed as a condition of consent to a development application in respect of the land?

No, Council is not aware of a condition of consent being imposed in terms of a kind referred to in clause 17(1) or 38(1) of State Environmental Planning Policy (Affordable Rental Housing) 2009 in respect of development on the land.

ITEM 18 – Paper subdivision information

(1) The name of any development plan adopted by a relevant authority that applies to the land or that is proposed to be subject to a consent ballot.

A development plan has not been adopted that applies to the land.

(2) The date of any subdivision order that applies to the land.

A subdivision order does not apply to the land.

ITEM 19 – Site verification certificates

Has Council been made aware of a current site verification certificate that has been issued in respect of the land?

No, Council is not aware of a current site verification certificate that applies to the land.

ITEM 20 – Loose – fill asbestos insulation

Has Council been notified that the land includes any residential premises (within the meaning of Division 1A of Part 8 of the Home Building Act 1989) that are listed on the register that is required to be maintained under that Division?

No, Council has not been notified that the land is identified on the register of residential premises under Division 1A of Part 8 of the Home Building Act 1989.

ITEM 21 – Affected building notices and building product rectification orders

1. Is any affected building notice in force in respect of the land?

No, Council is not aware of any notice of intention to make a building product rectification order on the land which is outstanding.

2. Is any building product rectification order in force in respect of the land that has not been fully complied with?

No, Council is not aware of any building product rectification order is in force on the land that has not been fully complied with.

3. Has a notice of intention to make a building product rectification order been given in respect of that land that is outstanding?

No, Council is not aware of any notice of intention to make a building product rectification order on the land which is outstanding.

NOTE 1 – Matters arising under the Contaminated Land Management Act 1997

Section 59(2) of the Contaminated Land Management Act 1997 prescribes the following additional matters to be specified in planning certificates:-

(a) At the date of this certificate, is the land (or part of the land) to which this certificate relates significantly contaminated land?

No, the land is not declared to be significantly contaminated land under Part 3 of the Contaminated Land Management Act 1997 at the date of issue of the certificate.

(b) At the date of this certificate, is the land to which this certificate relates subject to a management order?

No, the land is not subject to a management order within the meaning of the Contaminated Land Management Act 1997 at the date of issue of the certificate.

(c) At the date of this certificate, is the land to which this certificate relates the subject of an approved voluntary management proposal?

No, the land is not subject to an approved voluntary management proposal within the meaning of the Contaminated Land Management Act 1997 at the date of issue of the certificate.

(d) At the date of this certificate, is the land to which this certificate relates subject to an ongoing maintenance order?

No, the land is not subject to an ongoing maintenance order within the meaning of the Contaminated Land Management Act 1997 at the date of issue of the certificate.

(e) At the date of this certificate, is the land to which this certificate relates the subject of a site audit statement and a copy of such a statement has been provided to the Council?

No, Council has not been provided with a site audit statement that applies to the land within the meaning of the Contaminated Land Management Act 1997 at the date of issue of the certificate.

GENERAL INFORMATION

The absence of any reference to a matter affecting the land shall not imply that the land is not affected by that matter not referred to in this certificate.

Information provided under section 10.7(2) is in accordance with the matters prescribed under schedule 4 of the Environmental Planning and Assessment Regulation 2000 and is provided only to the extent that the Council has been notified by the Department of Planning.

Any enquiries regarding State and Regional Environmental Planning Policies should be directed to the Department of Planning at **http:// www.planning.nsw.gov.au**

Please contact Council's Customer Service team for further information about this Planning Certificate.

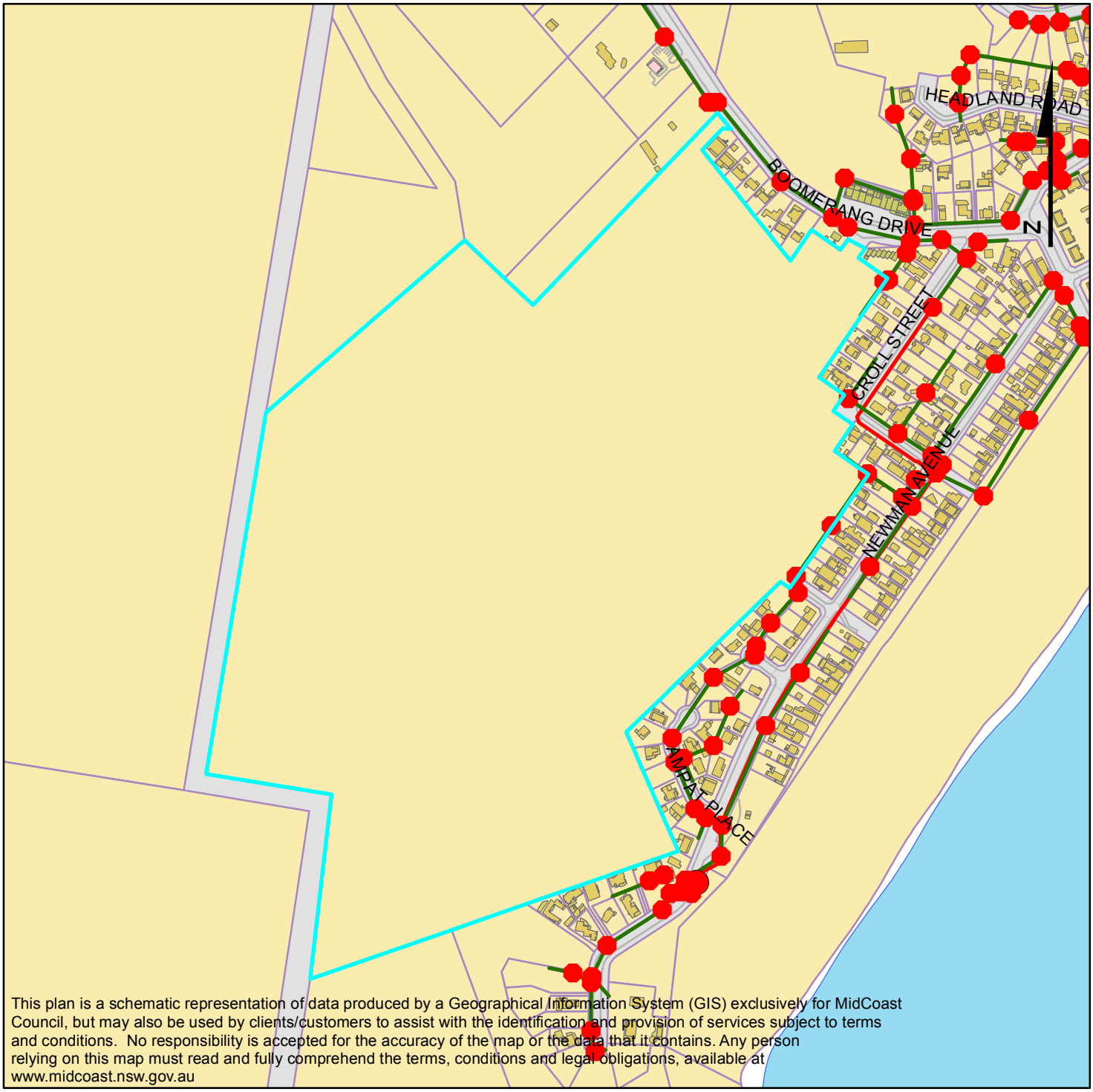
Adrian Panuccio
GENERAL MANAGER

MIDCOAST council

Sewer Drainage Diagram **55887**

Lot **23** Section Plan **DP537919**

Address **Boomerang Dr BLUEYS BEACH NSW 2428**



0 37.5 75 150 225 300 Meters

1:5,820

Legend

- Manholes
- MidCoast Water
- Gravity Main
- Rising Main

Sewer Junction existing at metres from D.S.M.H.

Depth of Junction approx. m

Depth of Riser approx. m

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

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

Search Report

Address: - Boomerang Drive, Blueys Beach

Description: - Lot 23 D.P. 537919.

As regards the part numbered (1) on the attached Cadastral Records Enquiry Report.

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
30.01.1934 (1934 to 1954)	Samuel Thomas Newman (Farmer)	Crown Tenure Crown Lease 1934/1 Taree Now Crown Tenure Conditional Purchase 1946/10 Taree
16.09.1954 (1954 to 1969)	Ray Allen Williams (Farmer) Now Raymond Allen Williams	Crown Tenure Conditional Purchase 1946/10 Taree (Book 2311 No. 46) Then Vol 8222 Fol 133 Now Vol 11161 Fol 69

As regards the part numbered (2) on the attached Cadastral Records Enquiry Report.

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
21.05.1919 (1919 to 1941?)	John James Newman (Died? 1929)	Crown Tenure Conditional Lease 1919/17 Taree
1929 (1929 to 1954)	Bertha Rose Newman (Spinster)	Crown Tenure Conditional Lease 1919/17 Taree Then Crown Tenure Conditional Purchase 1941/7 Taree Vol 5791 Fol 190 Vol 5980 Fol 108 Now Vol 6120 Fol 225
02.09.1954 (1954 to 1969)	Ray Allen Williams (Farmer) Now Raymond Allen Williams	Vol 6120 Fol 225 Then Vol 9270 Fol 209 Now Vol 11161 Fol 69

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

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

Continued as regards the whole of the subject land.

Date of Acquisition and term held	**Registered Proprietor(s) & Occupations where available**	**Reference to Title at Acquisition and sale**
29.12.1969 (1969 to date)	# Wilmar Enterprises Pty Limited	Vol 11161 Fol 69 Now 23/537919

# Denotes current registered proprietor

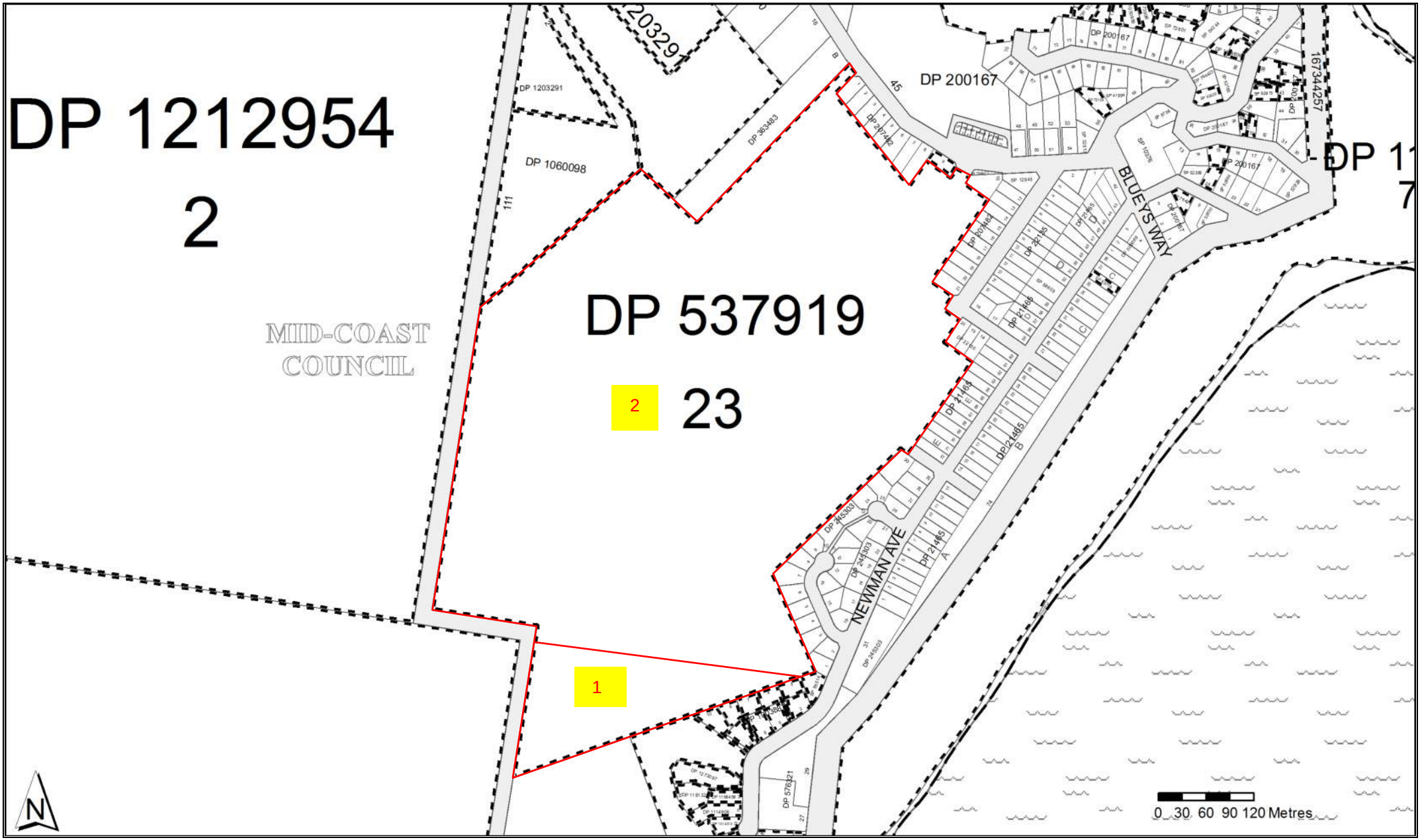
Leases and Easements: - NIL

Yours Sincerely,
Mark Groll
20 January 2022

Cadastral Records Enquiry Report : Lot 23 DP 537919

Ref : LS028382_EP - Boomerang Drive,

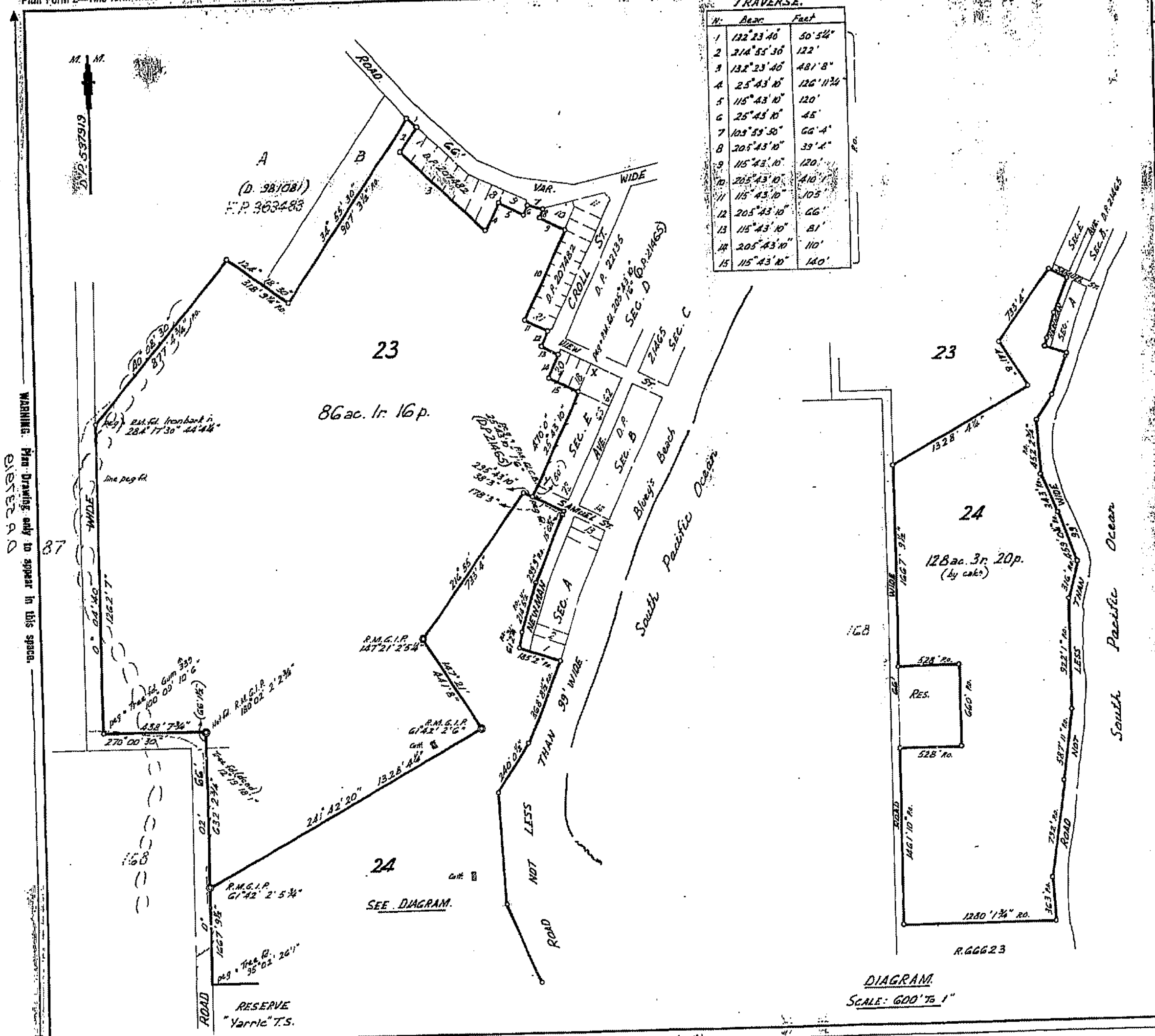
Locality : BLUEYS BEACH
Parish : FORSTER
LGA : MID-COAST
County : GLOUCESTER



This information is provided as a searching aid only.Whilst every endeavour is made to ensure that current map, plan and titling information is accurately reflected, the Registrar General cannot guarantee the information provided. For ALL ACTIVITY PRIOR TO SEPTEMBER 2002 you must refer to the RGs Charting and Reference Maps

Plan Form 2—This form must NOT be used where it is intended to dedicate public roads or public reserves or create drainage reserves, easements, or restrictions as to user.—See Form 3.

DP 537919 WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION.



TRAVERSE.

N°	Bear.	Feet
1	132°23'40"	50'5¼"
2	314°55'30"	122'
3	132°23'40"	481'8"
4	25°43'10"	126'11¾"
5	115°43'10"	120'
6	25°43'10"	45'
7	103°53'30"	66'4"
8	205°43'10"	39'4"
9	115°43'10"	120'
10	205°43'10"	410'1"
11	115°43'10"	105'
12	205°43'10"	66'
13	115°43'10"	81'
14	205°43'10"	110'
15	115°43'10"	140'

WARNING. Plan Drawing only to appear in this space.

D P 537919

Registered: 30-9-1969. [signature]

C.A. No 15/1969 of 22-8-1969

Title System: Torrens

Purpose: Subdivision

Ref. Map: Parish #

Last Plan D.P. 207482 #

OFFICE USE ONLY. N 0 0 2 A / A

PLAN OF SUBDIVISION OF LOT 22 D.P. 207482 & PORTION 256 BEING LAND IN C.T. VOL. 9270 FOL. 209 & C.G. VOL. 8222 FOL. 133

Scale: 300 feet to an Inch

~~Mun.~~/Shire ~~City~~: Stroud

Locality: Bluey's Beach

Parish: Forster

County: Gloucester

I, Brian Crisp, of TAREE, a surveyor registered under the Surveyors Act, 1929, as amended, hereby certify that the survey represented in this plan is accurate and has been made *(1) by me ~~(2) under my immediate supervision~~ in accordance with the Survey Practice Regulations, 1933, and was completed on † 16th July, 1969.

Signature [signature]

Surveyor registered under Surveyors Act, 1929, or amended.

Datum Line of Azimuth. X-Y

*Strike out either (1) or (2). †Insert date of survey.

Council Clerk's Certificate.

I hereby certify that—

(a) the requirements of the Local Government Act, 1919 (other than the requirements for the registration of plans), ~~and~~

*(b) ~~the requirements of section 34B of the †Metropolitan Water, Sewerage, and Drainage Act, 1924, as amended; †Hunter District Water, Sewerage, and Drainage Act, 1938, or amended,~~

have been complied with by the applicant in relation to the proposed Subdivision (insert "new road" or "subdivision") set out herein.

Subdivision No. 15/1969

Date 2nd August 1969

(Signature) [signature] Council Clerk.

*This part of certificate to be deleted where the application is only for the opening of a new road or where the land to be subdivided is wholly outside the areas of operations of the Metropolitan Water Sewerage and Drainage Board and the Hunter District Water Board.

†Delete if inapplicable.

SURVEYOR'S REFERENCE. F 380 A(2)

WARNING. Plan Drawing only to appear in this space.

CONVERSION TABLE ADDED IN REGISTRAR GENERAL'S DEPARTMENT

DP 537919

FEET	INCHES	METRES
1	6	0.457
2	2 3/4	0.679
2	5 1/4	0.743
2	5 3/4	0.756
2	6	0.762
10	6	3.200
15	6 1/2	4.737
18	1	5.512
26	1	7.950
38	3	11.659
39	4	11.989
44	4 1/4	13.519
45	-	13.716
50	-	15.240
50	5 1/4	15.373
59	0 1/4	17.990
61	2 3/4	18.663
63	2 3/4	19.272
66	-	20.117
66	1 1/2	20.155
66	4	20.218
81	-	24.689
99	-	30.175
105	-	32.004
110	-	33.528
120	-	36.576
122	-	37.186
126	11 3/4	38.703
140	-	42.672
178	3	54.331
182	2	55.524
185	2	56.439
214	5 1/2	65.367
240	0 1/2	73.165
299	9	91.364
316	-	96.317
318	9 1/4	97.161
343	-	104.546
363	-	110.642
368	8 1/2	112.382
410	1	124.993
438	7 3/4	133.699
441	8	134.620
452	2 3/4	137.839
459	0 1/4	139.910
470	-	143.256
481	8	146.812
528	-	160.934
587	11	179.197
632	2 3/4	192.703
660	-	201.168
733	4	223.520
792	-	241.402
877	4 3/4	267.430
907	3 1/2	276.543
922	1	281.051
1262	7	384.835
1280	1 3/4	390.188
1328	4 1/4	404.882
1461	-	445.313
1461	10	445.567
1667	9 1/2	508.343

AC	RO	P	HA
86	1	16	34.94
128	3	20	52.15

I, Jack Hayward Watson, Registrar General for New South Wales, certify that this negative is a photograph made as a permanent record of a document in my custody this 9th day of July, 1976.

[signature]

A-293

Papers L.B.34.177

PLAN OF PORTION 256

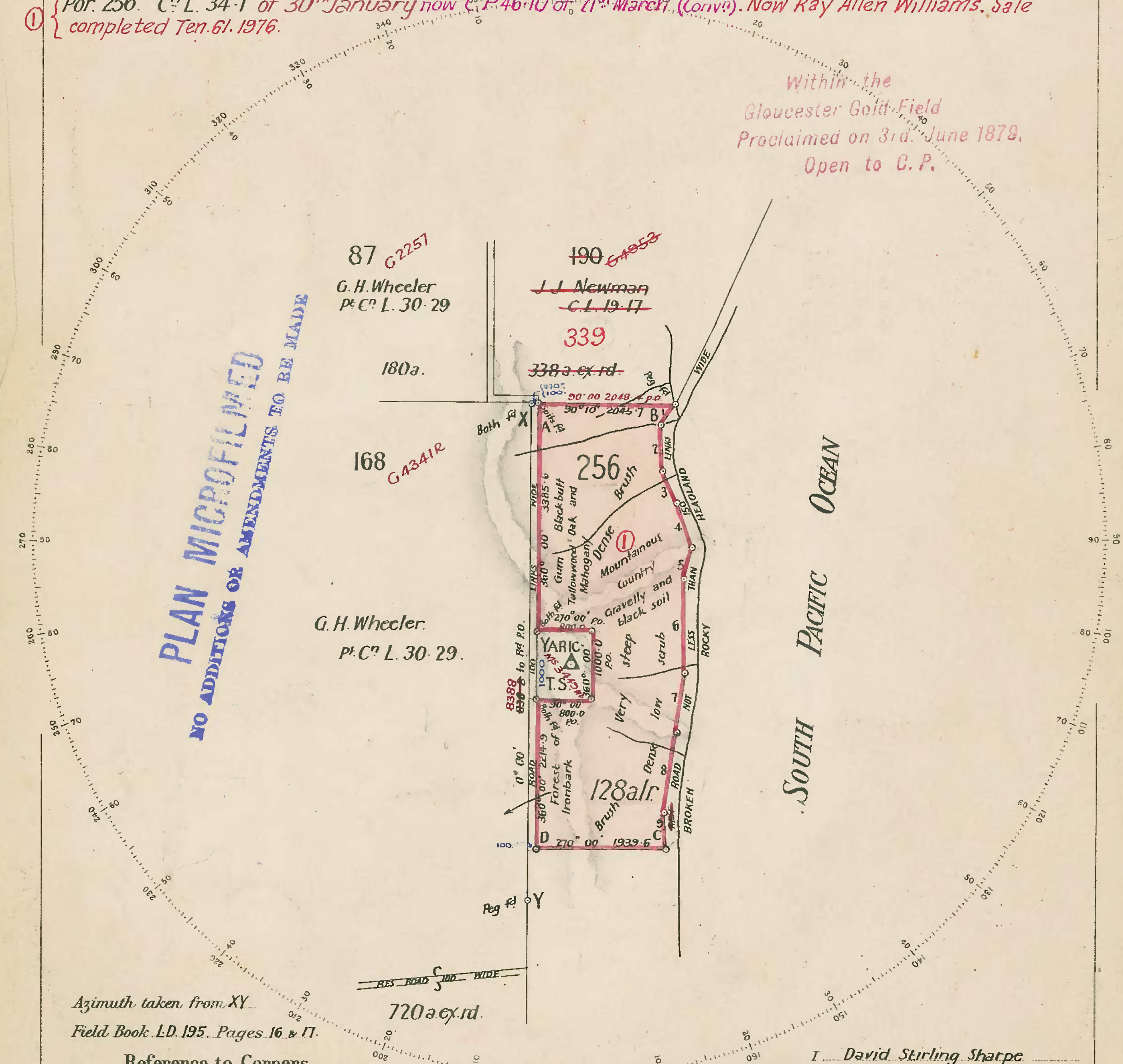
Parish of Foster County of Gloucester

LAND DISTRICT OF TAREE LAND BOARD DISTRICT OF MAITLAND

STROUD SHIRE

Applied for under the 130 B th Section of the Crown Lands Consolidation Act 1913 by Samuel Thomas Newman.

① {Por. 256. Cp L. 34·1 of 30th January now C.P.46·10 of 21st March (Conv'd). Now Ray Allen Williams. Sale completed Ten.61.1976.



Azimuth taken from XY.

Field Book L.D.195. Pages 16 & 17.

Reference to Corners

Corner	Bearing	From	Links	Nº on Tree
A	12° 17'	Gum	27·4	256
B		Numbered Stake		190. 256 (New)
C		Numbered Stake		256
D	78 50	Gum	29·7	256.

Improvements Nil.

Reference to Traverse

Line	Bearing	Distance
1	215° 06'	363·7
2	177° 21'	685·2
3	156° 48'	519·7
4	160° 39'	695·5
5	194° 28'	478·8
6	179° 15'	1397·1
7	188° 14'	890·8
8	188° 17'	1200·0
9	176° 02'	550·0

Cal. Book Nº DCI. Folio 72.

I David Stirling Sharpe of Taree a Surveyor registered under the Surveyors Act, 1929 do hereby solemnly and sincerely declare that the survey represented in this plan has been made by me in accordance with the Survey Practice Regulations 1933 and the special requirements of the Department of Lands and the reference marks placed as shown hereon was completed on the 11th September 1934.

And I make this solemn declaration conscientiously believing the same to be true and by virtue of the provisions of the Oaths Act, 1900.

D.S.Sharpe
Surveyor registered under the Surveyors Act 1929.

Subscribed and declared before me at Taree this 14th day of November 1934.

F.G. Hole J.P.
Justice of the Peace.

Transmitted to the District Surveyor with my letter of 15th November 1934 Nº 65.

Checked and Charted Cecil A. [illegible] 8th April 1935.

Examined [illegible] 24.4.35

Plan approved [illegible] Officer-in-charge 24th April 1935

Scale 20 Chains to an Inch

Charted on Head Office Maps [illegible] 11/6/35

Examined [illegible] 14/6/35

Lithographed & printed at the Department of Lands, Sydney, N.S.W. 33.1096

Cat Nº G5576.1497

H.0 163

Within the Gloucester Gold Field, Proc.d 3rd June 1879

PLAN OF PORTION 190 & 339

County of Gloucester   Parish of Forster

LAND DISTRICT OF Taree   LAND BOARD DISTRICT OF Maitland

Resumed Area No ....   Pastoral Holding, Eastern Division.

Applied for under the 44th Section of the Crown Lands Consolidation Act 1913 by John James Newman

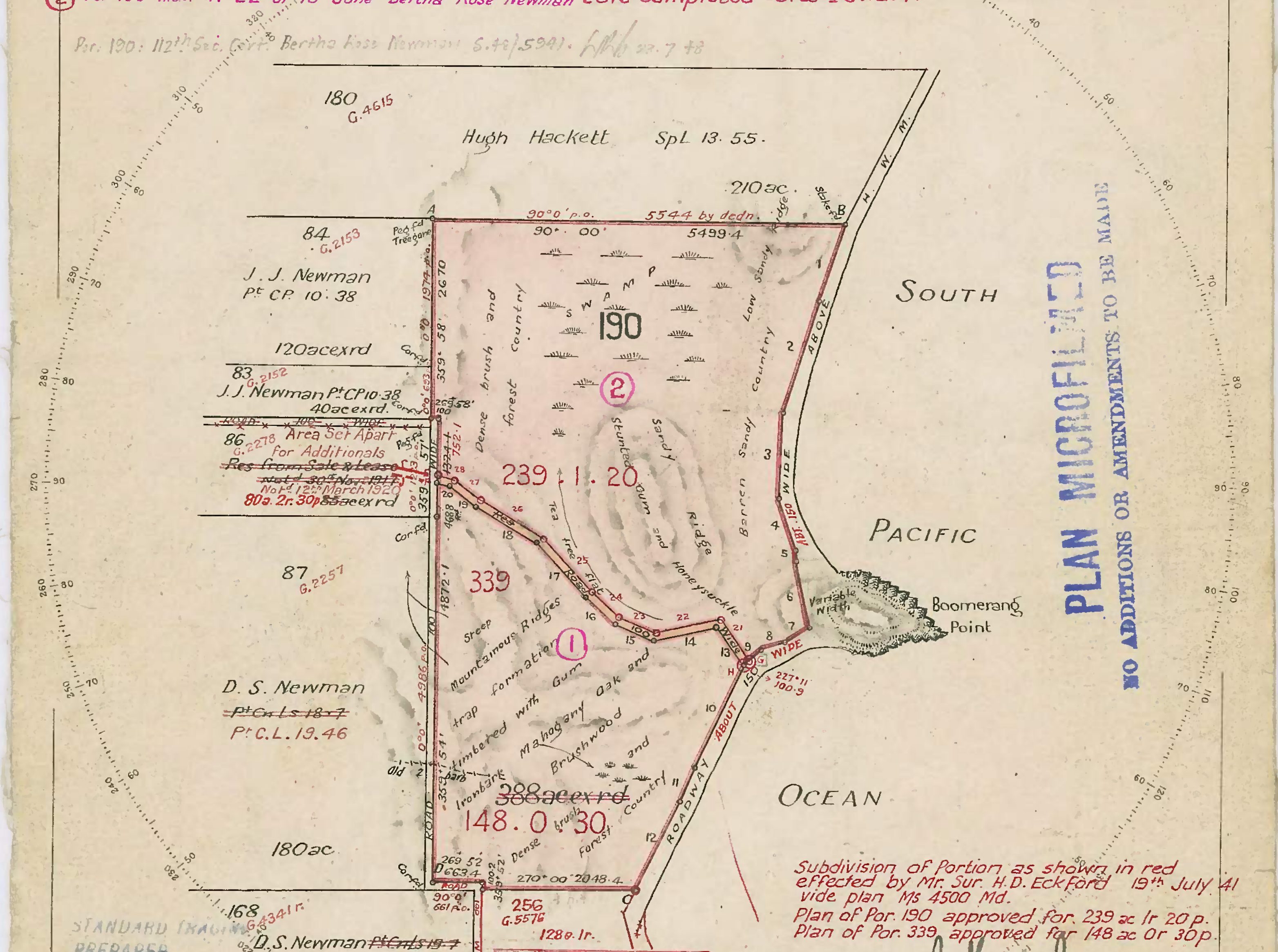
Por. No .... C.P. No ....

Pors No 339 & 190 C.L. No 19.17, May 21st {Por 339 now A.C.P. 41.7 May 19th (Conv.) ~~120ac.~~ Bertha Rose Newman

(1) Por. 339 Bertha Rose Newman. Sale completed. Sales 46.12958

(2) Por 190 A.C.P. 47.22 of 18th June Bertha Rose Newman Sale completed Sales 48.12571

Por. 190: 112th Sec. Cert. Bertha Rose Newman S.48/5941. [illegible] 22.7.48



21	324° 47'	683.6
22	257 38	893.7
23	292 58	508.6
24	312 18	517.1
25	317 33	996.4
26	300 40	954.0
27	306 56	476.1
28	284 20	229.2

Subdivision of Portion as shown in red effected by Mr. Sur. H.D. Eckford 19th July 41 vide plan Ms 4500 Md.
Plan of Por. 190 approved for 239 ac 1r 20p.
Plan of Por. 339 approved for 148 ac 0r 30p.
[signature]
30 January 1942

STANDARD TRACING PREPARED

Azimuth taken from A.B

Field Book Vol. 8220 Folios 3 to 6

Reference to Corners

Corner	Bearing	From	Links	No on Tree
A	109° 04'	Tallowwd	81.9	84 . 190 New
B	Stake at Corner			180 . 190
C	270° 0' Stake at Corner	Iron pipe	2.53	~~190~~ 339
D	100° 01	Grey Gum	15.9	~~190~~ 339
E	298° 58'	Blackbutt	54.5	190
F	281 28	Gum	50.7	339
G	47 11	Iron pipe	2.29	Peg 190
H	227 11	Iron pipe	2.29	Peg 339

Reference to Traverse

Line	Bearing	Distance
1	197° 49'	1061.3
2	197 18	1573.3
3	181 35	1138.8
4	161 37	740.9
5	173 05	148.5
6	167 50	926.1
7	236 53	358.4
8	250 22	322.3
9	227 11	~~377.2~~ 276.3
10	204 56	1507.3
11	204 06	472.8
12	206 16	1334.6
13	324 47	630.6
14	257 38	859.2
15	292 58	557.5
16	312 18	538.7
17	317 33	986.1
18	300 40	944.6
19	306 56	461.6
20	284 20	183.6

I hereby certify that I in person made and on the 17th January 1920 completed the survey represented on this plan on which are written the bearings and lengths of the lines measured by me and I declare that the survey has been executed in accordance with the regulations published for the guidance of Licensed Surveyors and the practice of the Department of Lands.

L.A. Kimber Tempy. Staff ~~Licensed~~ Surveyor

Transmitted to the District Surveyor with my letter of 27th Feb.y 1920 No 4.

Voucher No —— Passed Staff
Calculation Book No C.300 Folio 37
Checked and Charted J.G. Miller 27th April 1920
Examined H. Cobcroft 27th April 1920
Plan approved 28th April 1920
[signature]
Draftsman-in-Charge.

Value of Improvements
Old 2 barb fence (No val.)

Charted on Head Office Maps
[signature] 18 May 1920

Scale 20 Chains to an Inch.

No of Lith 18.769 O. O.S.

Lithographed & Printed at the Department of Lands, Sydney, N.S.W. 1918.

G.4953.1497

09270209

M

NEW SOUTH WALES

(For Grant and title reference prior to first edition see Deposited Plan.)

[redacted]FICATE OF TITLE

[redacted]ERTY ACT, 1900, as amended.

Vol. 3270 Fol. 209

1st Edition issued 14-9-1962

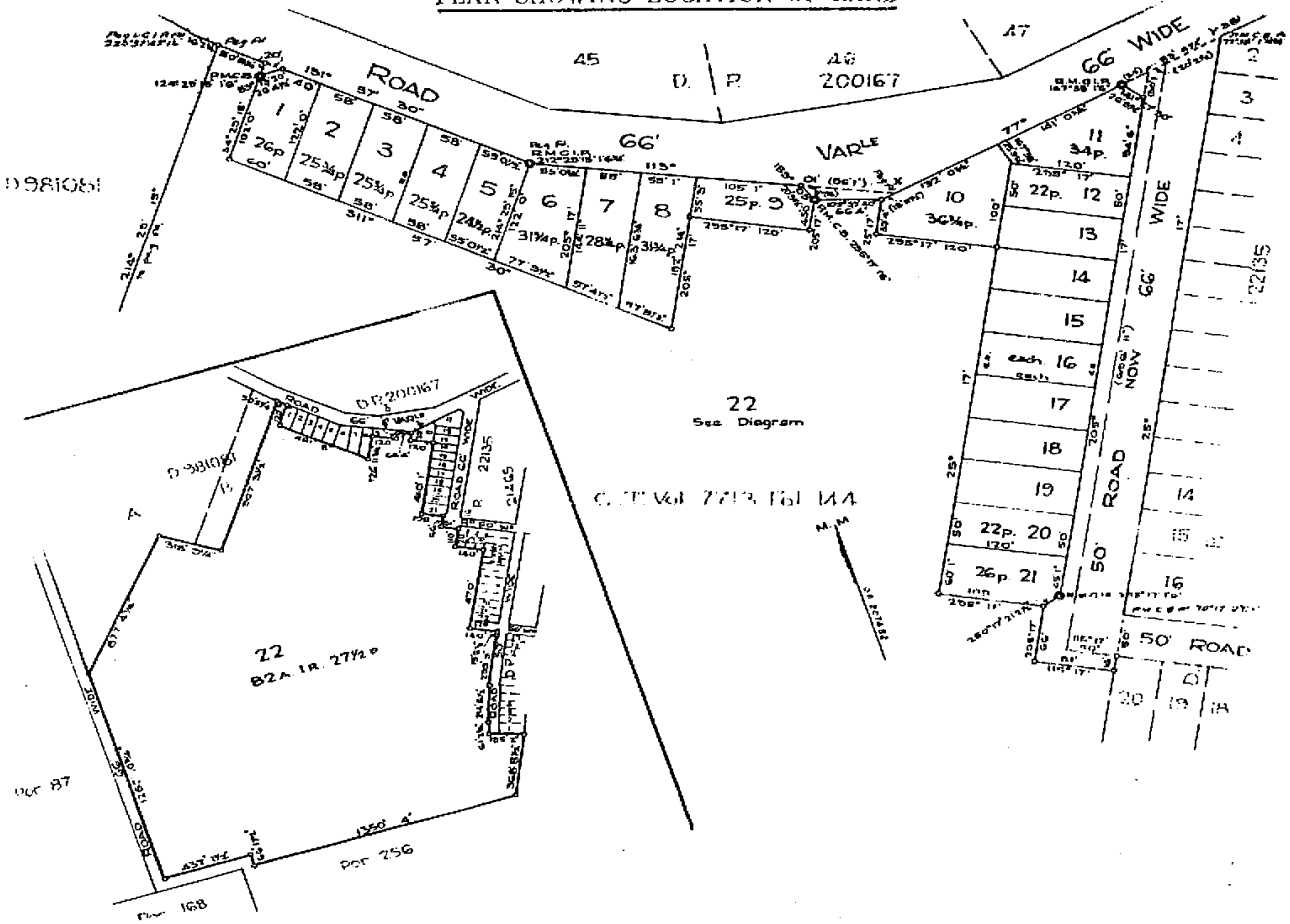
Fol. 209 Vol. 3270 (Page 1) Vol.

I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

Witness R. Brown

Registrar-General.

PLAN SHOWING LOCATION OF LAND



ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 22 in Deposited Plan 207482 at Bluey's Beach in the Shire of Stroud Parish of Forster and County of Gloucester excepting thereout the minerals reserved by the Crown Grant.

FIRST SCHEDULE (Continued overleaf)

RAY ALLEN WILLIAMS of Charlotte Bay, Farmer.

Registrar General.

SECOND SCHEDULE (Continued overleaf)

1. Reservations and conditions, if any, contained in the Crown Grant referred to in the said Deposited Plan.
2. Restrictions on transfer – See Section 272 Crown Lands Consolidation Act 1913.

Registrar General.

70929 1 62 ST 1600 V. C. N. BLIGHT, GOVERNMENT PRINTER

Vol. 2270 Fol 209

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	ENTERED	Signature of Registrar-General
The name of the proprietor is Raymond Allen Williams This deed is cancelled as to the whole New Certificates of Title have issued on 16-10-1969 for lots in Deposited Plan No. 537919 as follows: Lots 23 & 24 Vol. 11161 Fols 69 & 70 respectively. Jawatson	Change of Name	L118442		26 7 1968	Jawatson

SECOND SCHEDULE (continued)

INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	PARTICULARS	ENTERED	Signature of Registrar-General	CANCELLATION
Mortgage	L118442	8 7 1968	to The National Bank of Australasia Limited	26 7 1968	Jawatson	

(Page 2 of 2 pages)

FORM No. 184A

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR-GENERAL ARE CANCELLED

(Page 1) Vol. 11161 Fol. 69

NEW SOUTH WALES

FICATE OF TITLE

ROPERTY ACT, 1900, as amended.

Vol. 11161 Fol. 69

Crown Grants Volume 5791 Folio 199
Volume 8222 Folio 133
Prior Titles Volume 8222 Folio 133
Volume 9270 Folio 209

Edition 1 dated 16-12-1969

CANCELLED

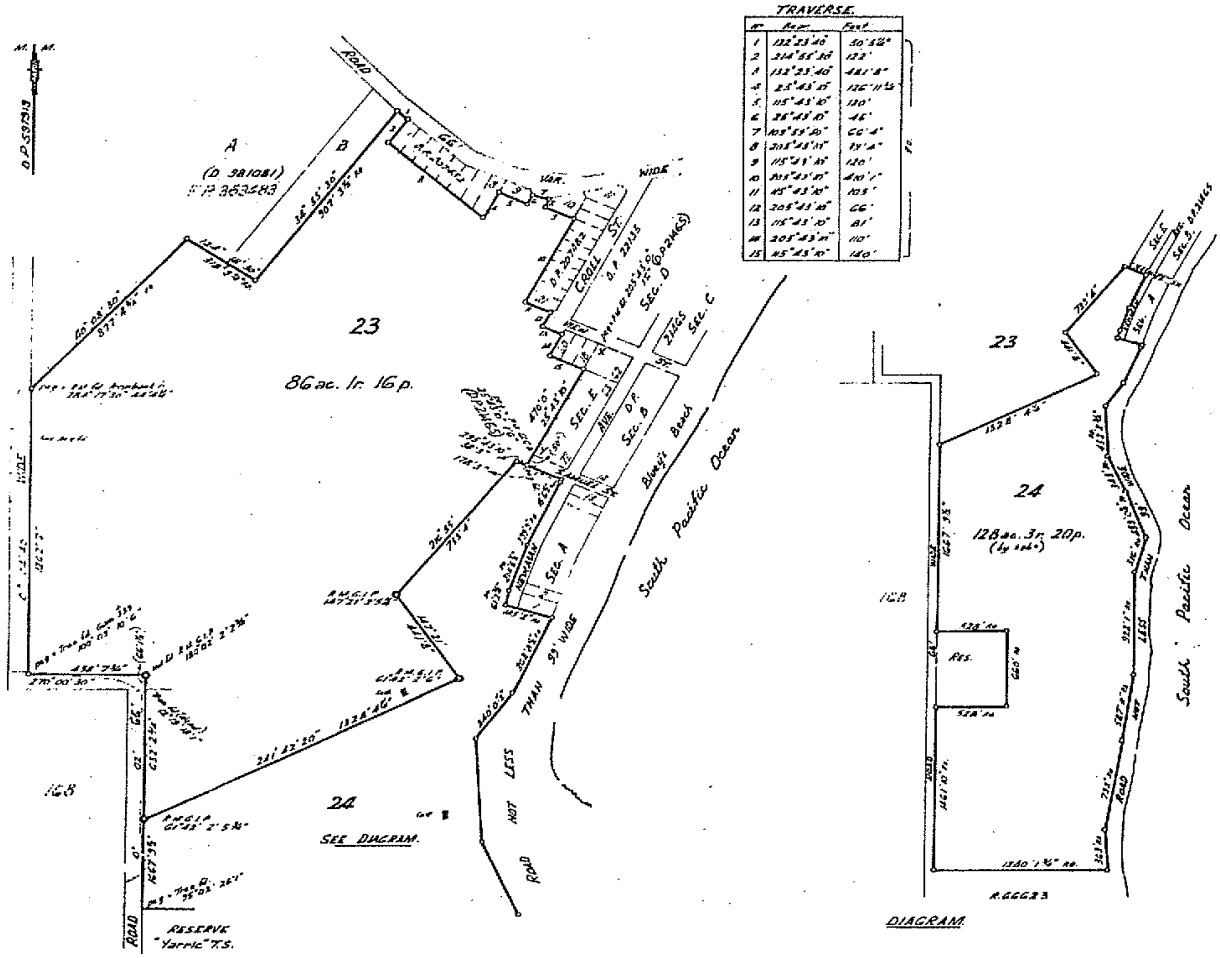
I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

Witness L. Bollivier

SEE AUTO FOLIO

Registrar General.

PLAN SHOWING LOCATION OF LAND



ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 23 in Deposited Plan 537919 at Bluey's Beach in the Shire of Stroud Parish of Forster and County of Gloucester EXCEPTING THEREOUT the minerals reserved by the Crown Grant.

FIRST SCHEDULE

~~RAYMOND ALLEN WILLIAMS of Charlotte Bay, Farmer.~~

GRM

SECOND SCHEDULE

1. Reservations and conditions, if any, contained in the Crown Grants above referred to.
2. Restrictions on transfer - see Section 272 Crown Lands Consolidation Act, 1913 (C.P.s 1941/7 and 1946/10 Taree as regards parts).
3. ~~Mortgage No. L118442 as to the part of the land above described formerly comprised in Certificate of Title Volume 9270 Folio 209 to The National Bank of Australasia Limited Entered 26-7-1968.~~ Discharged L696649
4. ~~Mortgage No. L118443 as to the part formerly comprised in Certificate of Title Volume 8222 Folio 133 to The National Bank of Australasia Limited Entered 7-8-1968.~~ Discharged L696649

Registrar General

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED.

Vol. 11161 Fol 69

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	ENTERED	Signature of Registrar General
Wilmar Enterprises Pty Limited	Transfer	L696650	19-12-1969	2-2-1970	

SECOND SCHEDULE (continued)

INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	PARTICULARS	ENTERED	Signature of Registrar General	CANCELLATION
M Mortgage	L738196	5-2-1970	to Bank of New South Wales	18-2-1970		

CANCELLED

SEE AUTO FOLIO

(Page 2 of 2 pages)

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED

Historical Title

NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE
20/1/2022 7:48AM

FOLIO: 23/537919

First Title(s): SEE PRIOR TITLE(S)
Prior Title(s): VOL 11161 FOL 69

Recorded	Number	Type of Instrument	C.T. Issue
28/3/1988		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
8/7/1988		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
16/9/1993	I649592	DISCHARGE OF MORTGAGE	
16/9/1993	I649593	MORTGAGE	EDITION 1
12/5/1998	3979230	DEPARTMENTAL DEALING	
15/7/1999	DP1003887	DEPOSITED PLAN	
16/8/2001	7859256	DISCHARGE OF MORTGAGE	EDITION 2
9/4/2015	AJ366405	APPLICATION FOR REPLACEMENT CERTIFICATE OF TITLE	EDITION 3

*** END OF SEARCH ***

Received: 20/01/2022 07:47:15

Title Search

NEW SOUTH WALES LAND REGISTRY SERVICES - TITLE SEARCH

FOLIO: 23/537919

SEARCH DATE	TIME	EDITION NO	DATE
20/1/2022	7:48 AM	3	9/4/2015

LAND

LOT 23 IN DEPOSITED PLAN 537919
AT BLUEY'S BEACH
LOCAL GOVERNMENT AREA MID-COAST
PARISH OF FORSTER COUNTY OF GLOUCESTER
TITLE DIAGRAM DP537919

FIRST SCHEDULE

WILMAR ENTERPRISES PTY LIMITED (T L696650)

SECOND SCHEDULE (4 NOTIFICATIONS)

1 LAND EXCLUDES MINERALS AND IS SUBJECT TO RESERVATIONS AND CONDITIONS IN FAVOUR OF THE CROWN - SEE CROWN GRANT(S)
2 DP1003887 EASEMENT TO DRAIN WATER 6 METRES WIDE APPURTENANT TO THE LAND ABOVE DESCRIBED
3 DP1003887 RIGHT OF CARRIAGEWAY 6 METRES WIDE APPURTENANT TO THE LAND ABOVE DESCRIBED
4 AJ366405 THIS EDITION ISSUED PURSUANT TO S.111 REAL PROPERTY ACT, 1900

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

APPENDIX

D

ENGINEERING LOGS

Cardno

now

Stantec

Cardno

TEST PIT LOG SHEET

Client: Addenbrooke Pty Ltd
Project: Blueys Beach Subdivision
Location: Blueys Beach

Hole No: TP001

Job No: 50522033 **Sheet:** 1 of 1

Position: Refer to site plan **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 13.5 tonne Excavator **Excavation Method:** 800mm Tooth Bucket

Excavation Dimensions: **Contractor:** Cardno

Date Excavated: 24/1/22 **Logged By:** KS **Checked By:** GA

Excavation			Water	Sampling & Testing		Depth (m)	Material Description					
Method	Resistance	Stability		Sample or Field Test	DCP (blows per 150 mm) 1 3 6 12		Graphic Log	Classification	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	STRUCTURE & Other Observations
EX						0		CL	Silty CLAY: low plasticity, dark brown, with fine to coarse grained sand, trace fine to medium sub-angular gravel	M (<PL)	St	TOPSOIL 0.00 m: Organically impacted to 0.1 m from surface.
				ES 0.10 - 0.20 m ES1				CL	0.10m Silty CLAY: low plasticity, dark brown, with fine to coarse grained sand, trace fine to medium sub-angular gravel			COLLUVIUM
						0.5		CH	0.30m CLAY: high plasticity, grey mottled yellow and red, with silt	M (≈PL)	St	RESIDUAL SOIL
	E					1.0		CH	0.85m Silty CLAY: high plasticity, grey mottled red, trace fine to coarse grained sand	M (≈PL)	St to VSt	
		Stable	Groundwater Not Encountered			1.5						
						2.0			2.20m			
	F					2.5		CI	Silty CLAY: medium plasticity, pale grey mottled orange and red, with fine sub-angular ironstone gravel, trace fine to coarse grained sand	M (≈PL)	H	EXTREMELY WEATHERED
						3.0			3.00m TERMINATED AT 3.00 m Target depth			

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
PS Percussion sampler
AS Short spiral auger
AD/V Solid flight auger: V-Bit
AD/T Solid flight auger: TC-Bit
HFA Hollow flight auger
WB Washbore drilling
RR Rock roller

PENETRATION
VE Very Easy (No Resistance)
E Easy
F Firm
H Hard
VH Very Hard (Refusal)

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
SPT - Standard Penetration Test
HP - Hand/Pocket Penetrometer
DCP - Dynamic Cone Penetrometer
PSP - Perth Sand Penetrometer
MC - Moisture Content
PBT - Plate Bearing Test
IMP - Borehole Impression Test
PID - Photoionisation Detector
VS - Vane Shear; P=Peak, R=Resdual (uncorrected kPa)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - Moisture content

SOIL CONSISTENCY
VS - Very Soft
S - Soft
F - Firm
St - Stiff
VSt - Very Stiff
H - Hard

RELATIVE DENSITY
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

Refer to explanatory notes for details of abbreviations and basis of descriptions

CARDNO (NSW/ACT) PTY LTD

Cardno

TEST PIT LOG SHEET

Client: Addendbrooke Pty Ltd
Project: Blueys Beach Subdivision
Location: Blueys Beach

Hole No: TP002

Job No: 50522033 **Sheet:** 1 of 1

Position: Refer to site plan **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 13.5 tonne Excavator **Excavation Method:** 800mm Tooth Bucket

Excavation Dimensions: **Contractor:** Cardno

Date Excavated: 24/1/22 **Logged By:** KS **Checked By:** GA

Excavation			Water	Sampling & Testing		Depth (m)	Material Description					
Method	Resistance	Stability		Sample or Field Test	DCP (blows per 150 mm) 1 3 6 12		Graphic Log	Classification	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	STRUCTURE & Other Observations
EX	E	Stable	Groundwater Not Encountered	ES 0.00 - 0.10 m ES3		0		CL	Sandy CLAY: low plasticity, dark brown-black, fine to coarse grained sand, with fine to coarse, sub-angular to angular gravel, trace cobbles			TOPSOIL 0.00 m: Organically impacted to 0.1 m from surface.
									0.10m			COLLUVIUM
								CL	Sandy CLAY: low plasticity, dark brown-black, fine to coarse grained sand, with fine to coarse, sub-angular to angular gravel, trace cobbles	M (<PL)	St	
						0.5			0.55m			
				B 0.60 - 0.80 m				CH	CLAY: high plasticity, grey mottled yellow, with fine to coarse, angular gravel, with silt	M (≈PL)	St	RESIDUAL SOIL
					REF				0.90m			
	F					1.0			SILTSTONE, grey mottled yellow, highly weathered			WEATHERED ROCK
	H					1.5						
	VH								As above; decrease in fracturing/defects			
									1.90m			
						2.0			TERMINATED AT 1.90 m Refusal / Slow Progress on Weathered Rock			
						2.5						
						3.0						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
PS Percussion sampler
AS Short spiral auger
AD/V Solid flight auger: V-Bit
AD/T Solid flight auger: TC-Bit
HFA Hollow flight auger
WB Washbore drilling
RR Rock roller

PENETRATION
VE Very Easy (No Resistance)
E Easy
F Firm
H Hard
VH Very Hard (Refusal)

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
SPT - Standard Penetration Test
HP - Hand/Pocket Penetrometer
DCP - Dynamic Cone Penetrometer
PSP - Perth Sand Penetrometer
MC - Moisture Content
PBT - Plate Bearing Test
IMP - Borehole Impression Test
PID - Photoionisation Detector
VS - Vane Shear; P=Peak, R=Resdual (uncorrected kPa)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - Moisture content

SOIL CONSISTENCY
VS - Very Soft
S - Soft
F - Firm
St - Stiff
VSt - Very Stiff
H - Hard

RELATIVE DENSITY
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

Refer to explanatory notes for details of abbreviations and basis of descriptions

CARDNO (NSW/ACT) PTY LTD

TEST PIT LOG SHEET

Client: Addenbrooke Pty Ltd
Project: Blueys Beach Subdivision
Location: Blueys Beach

Hole No: TP003

Job No: 50522033 **Sheet:** 1 of 1

Position: Refer to site plan **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 13.5 tonne Excavator **Excavation Method:** 800mm Tooth Bucket

Excavation Dimensions: **Contractor:** Cardno

Date Excavated: 24/1/22 **Logged By:** KS **Checked By:** GA

Excavation			Water	Sampling & Testing		Depth (m)	Material Description					
Method	Resistance	Stability		Sample or Field Test	DCP (blows per 150 mm) 1 3 6 12		Graphic Log	Classification	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	STRUCTURE & Other Observations
EX	E-F	Stable	Groundwater Not Encountered			0.5		SM	Silty SAND: fine to coarse grained, grey, with fine angular gravel	D	St	TOPSOIL 0.00 m: Organically impacted to 0.1 m from surface.
									0.10m			
								GP	Sandy GRAVEL: fine to coarse, sub-angular to angular, grey, fine to coarse grained sand	D	MD	COLLUVIUM
									0.50m			
	H				REF	1.0			SANDSTONE, fine to medium grained, grey mottled yellow, highly weathered			WEATHERED ROCK
									1.00m			
	VH								As above; decrease in fracturing/defects			
									1.20m			
						1.5			TERMINATED AT 1.20 m Refusal / Slow Progress on Weathered Rock			
						2.0						
						2.5						
						3.0						

METHOD
- EX Excavator bucket
- R Ripper
- HA Hand auger
- PT Push tube
- SON Sonic drilling
- AH Air hammer
- PS Percussion sampler
- AS Short spiral auger
- AD/V Solid flight auger: V-Bit
- AD/T Solid flight auger: TC-Bit
- HFA Hollow flight auger
- WB Washbore drilling
- RR Rock roller

PENETRATION
- VE Very Easy (No Resistance)
- E Easy
- F Firm
- H Hard
- VH Very Hard (Refusal)

WATER
- Water Level on Date shown
- water inflow
- water outflow

FIELD TESTS
- SPT - Standard Penetration Test
- HP - Hand/Pocket Penetrometer
- DCP - Dynamic Cone Penetrometer
- PSP - Perth Sand Penetrometer
- MC - Moisture Content
- PBT - Plate Bearing Test
- IMP - Borehole Impression Test
- PID - Photoionisation Detector
- VS - Vane Shear; P=Peak, R=Resdual (uncorrected kPa)

SAMPLES
- B - Bulk disturbed sample
- D - Disturbed sample
- ES - Environmental sample
- U - Thin wall tube 'undisturbed'

MOISTURE
- D - Dry
- M - Moist
- W - Wet
- PL - Plastic limit
- LL - Liquid limit
- *w* - Moisture content

SOIL CONSISTENCY
- VS - Very Soft
- S - Soft
- F - Firm
- St - Stiff
- VSt - Very Stiff
- H - Hard

RELATIVE DENSITY
- VL - Very Loose
- L - Loose
- MD - Medium Dense
- D - Dense
- VD - Very Dense

Refer to explanatory notes for details of abbreviations and basis of descriptions

CARDNO (NSW/ACT) PTY LTD

TEST PIT LOG SHEET

Client: Addenbrooke Pty Ltd
Project: Blueys Beach Subdivision
Location: Blueys Beach

Hole No: TP004

Job No: 50522033 **Sheet:** 1 of 1

Position: Refer to site plan **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 13.5 tonne Excavator **Excavation Method:** 800mm Tooth Bucket

Excavation Dimensions: **Contractor:** Cardno

Date Excavated: 24/1/22 **Logged By:** KS **Checked By:** GA

Excavation			Water	Sampling & Testing		Depth (m)	Material Description					
Method	Resistance	Stability		Sample or Field Test	DCP (blows per 150 mm) 1 3 6 12		Graphic Log	Classification	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	STRUCTURE & Other Observations
EX			Groundwater Not Encountered			0.0		SM	Silty SAND: fine to coarse grained, grey, with fine angular gravel	D	St	TOPSOIL 0.00 m: Organically impacted to 0.1 m from surface.
						0.20m						
								Cl	Gravelly CLAY: medium plasticity, yellow mottled grey, fine to coarse, sub-angular to angular gravel, with fine to coarse grained sand	M (<PL)	St	COLLUVIUM
						0.45m						
	E-F	Stable				0.5		GC	Clayey GRAVEL: fine to coarse, angular, grey mottled yellow, with cobbles, trace fine to coarse grained sand	M (<PL)	L	EXTREMELY WEATHERED
						1.0						
						1.30m						
	H				REF	1.40m			SANDSTONE, fine to medium grained, blue grey mottled yellow			WEATHERED ROCK
						1.5			TERMINATED AT 1.40 m Refusal / Slow Progress on Weathered Rock			
						2.0						
						2.5						
						3.0						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
PS Percussion sampler
AS Short spiral auger
AD/V Solid flight auger: V-Bit
AD/T Solid flight auger: TC-Bit
HFA Hollow flight auger
WB Washbore drilling
RR Rock roller

PENETRATION
VE Very Easy (No Resistance)
E Easy
F Firm
H Hard
VH Very Hard (Refusal)

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
SPT - Standard Penetration Test
HP - Hand/Pocket Penetrometer
DCP - Dynamic Cone Penetrometer
PSP - Perth Sand Penetrometer
MC - Moisture Content
PBT - Plate Bearing Test
IMP - Borehole Impression Test
PID - Photoionisation Detector
VS - Vane Shear; P=Peak, R=Resdual (uncorrected kPa)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - Moisture content

SOIL CONSISTENCY
VS - Very Soft
S - Soft
F - Firm
St - Stiff
VSt - Very Stiff
H - Hard

RELATIVE DENSITY
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

Refer to explanatory notes for details of abbreviations and basis of descriptions

CARDNO (NSW/ACT) PTY LTD

Cardno

TEST PIT LOG SHEET

Client: Addenbrooke Pty Ltd
Project: Blueys Beach Subdivision
Location: Blueys Beach

Hole No: TP005

Job No: 50522033 **Sheet:** 1 of 1

Position: Refer to site plan **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 13.5 tonne Excavator **Excavation Method:** 800mm Tooth Bucket

Excavation Dimensions: **Contractor:** Cardno

Date Excavated: 24/1/22 **Logged By:** KS **Checked By:** GA

Excavation			Water	Sampling & Testing		Depth (m)	Material Description					
Method	Resistance	Stability		Sample or Field Test	DCP (blows per 150 mm) 1 3 6 12		Graphic Log	Classification	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	STRUCTURE & Other Observations
EX		Stable	Groundwater Not Encountered			0.0		CL	Sandy Silty CLAY: low plasticity, dark brown-black, fine to coarse grained sand	M (≈PL)	St	TOPSOIL 0.00 m: Organically impacted to 0.1 m from surface.
						0.10m		CL	Sandy Silty CLAY: low plasticity, dark brown-black, fine to coarse grained sand			COLLUVIUM
						0.30m			Silty CLAY: medium to high plasticity, grey mottled white and orange, with fine to medium, angular gravel, trace fine to coarse grained sand		St	RESIDUAL SOIL
	E-F			B 0.80 - 1.00 m 2 x B		0.5						
						1.0		CI-CH		M (>PL)		
						1.5					VSt	
						1.80m			Silty CLAY: medium plasticity, pale grey mottled orange and red, with fine to coarse, angular gravel, trace fine to coarse grained sand			
	F					2.0		CI		M (>PL)	H	
						2.5						
						3.00m			TERMINATED AT 3.00 m Target depth			
						3.0						

METHOD
- EX Excavator bucket
- R Ripper
- HA Hand auger
- PT Push tube
- SON Sonic drilling
- AH Air hammer
- PS Percussion sampler
- AS Short spiral auger
- AD/V Solid flight auger: V-Bit
- AD/T Solid flight auger: TC-Bit
- HFA Hollow flight auger
- WB Washbore drilling
- RR Rock roller

PENETRATION
- VE Very Easy (No Resistance)
- E Easy
- F Firm
- H Hard
- VH Very Hard (Refusal)

WATER
- Water Level on Date shown
- water inflow
- water outflow

FIELD TESTS
- SPT - Standard Penetration Test
- HP - Hand/Pocket Penetrometer
- DCP - Dynamic Cone Penetrometer
- PSP - Perth Sand Penetrometer
- MC - Moisture Content
- PBT - Plate Bearing Test
- IMP - Borehole Impression Test
- PID - Photoionisation Detector
- VS - Vane Shear; P=Peak, R=Resdual (uncorrected kPa)

SAMPLES
- B - Bulk disturbed sample
- D - Disturbed sample
- ES - Environmental sample
- U - Thin wall tube 'undisturbed'

MOISTURE
- D - Dry
- M - Moist
- W - Wet
- PL - Plastic limit
- LL - Liquid limit
- *w* - Moisture content

SOIL CONSISTENCY
- VS - Very Soft
- S - Soft
- F - Firm
- St - Stiff
- VSt - Very Stiff
- H - Hard

RELATIVE DENSITY
- VL - Very Loose
- L - Loose
- MD - Medium Dense
- D - Dense
- VD - Very Dense

Refer to explanatory notes for details of abbreviations and basis of descriptions

CARDNO (NSW/ACT) PTY LTD

Cardno

TEST PIT LOG SHEET

Client: Addenbrooke Pty Ltd
Project: Blueys Beach Subdivision
Location: Blueys Beach

Hole No: TP006

Job No: 50522033 **Sheet:** 1 of 1

Position: Refer to site plan **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 13.5 tonne Excavator **Excavation Method:** 800mm Tooth Bucket

Excavation Dimensions: **Contractor:** Cardno

Date Excavated: 24/1/22 **Logged By:** KS **Checked By:** GA

Excavation			Water	Sampling & Testing		Depth (m)	Material Description					
Method	Resistance	Stability		Sample or Field Test	DCP (blows per 150 mm) 1 3 6 12		Graphic Log	Classification	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	STRUCTURE & Other Observations
EX	E	Stable	Groundwater Not Encountered			0.5			Silty SAND: fine to coarse grained, dark grey 0.15m	D	MD	TOPSOIL 0.00 m: Organically impacted to 0.1 m from surface.
						1.0			SAND: fine to medium grained, pale grey 1.10m	D	L to MD	AEOLIAN
				ASS 1.20 - 1.30 m ASS1		1.5			SAND: fine to medium grained, brown, with silt 2.20m	M	L to MD	ALLUVIUM
				ASS 2.30 - 2.40 m ASS2		2.0			SAND: fine to coarse grained, mottled brown and black, with clay 2.90m	M	L to MD	
				ASS 2.90 - 3.00 m ASS3		2.5			Clayey SAND: fine to coarse grained, brown 3.30m	M	L to MD	
						3.0			TERMINATED AT 3.30 m Target depth			

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
PS Percussion sampler
AS Short spiral auger
AD/V Solid flight auger: V-Bit
AD/T Solid flight auger: TC-Bit
HFA Hollow flight auger
WB Washbore drilling
RR Rock roller

PENETRATION
VE Very Easy (No Resistance)
E Easy
F Firm
H Hard
VH Very Hard (Refusal)

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
SPT - Standard Penetration Test
HP - Hand/Pocket Penetrometer
DCP - Dynamic Cone Penetrometer
PSP - Perth Sand Penetrometer
MC - Moisture Content
PBT - Plate Bearing Test
IMP - Borehole Impression Test
PID - Photoionisation Detector
VS - Vane Shear; P=Peak, R=Resdual (uncorrected kPa)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - Moisture content

SOIL CONSISTENCY
VS - Very Soft
S - Soft
F - Firm
St - Stiff
VSt - Very Stiff
H - Hard

RELATIVE DENSITY
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

Refer to explanatory notes for details of abbreviations and basis of descriptions

CARDNO (NSW/ACT) PTY LTD

Cardno

TEST PIT LOG SHEET

Client: Addenbrooke Pty Ltd
Project: Blueys Beach Subdivision
Location: Blueys Beach

Hole No: TP007

Job No: 50522033 **Sheet:** 1 of 1

Position: Refer to site plan **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 13.5 tonne Excavator **Excavation Method:** 800mm Tooth Bucket

Excavation Dimensions: **Contractor:** Cardno

Date Excavated: 24/1/22 **Logged By:** KS **Checked By:** GA

Excavation			Water	Sampling & Testing		Depth (m)	Material Description					
Method	Resistance	Stability		Sample or Field Test	DCP (blows per 150 mm) 1 3 6 12		Graphic Log	Classification	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	STRUCTURE & Other Observations
EX	E	Unstable	Groundwater Not Encountered	ES 0.05 - 0.15 m ES4					Silty SAND: fine to coarse grained, dark grey	D	MD	TOPSOIL 0.00 m: Organically impacted to 0.1 m from surface.
				B 0.40 - 0.60 m		0.5			0.20m SAND: fine to medium grained, pale grey	M	L	AEOLIAN
						1.0						
						1.5						
						2.0						
						2.5			2.90m			
						3.0			TERMINATED AT 2.90 m Collapse			

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
PS Percussion sampler
AS Short spiral auger
AD/V Solid flight auger: V-Bit
AD/T Solid flight auger: TC-Bit
HFA Hollow flight auger
WB Washbore drilling
RR Rock roller

PENETRATION
VE Very Easy (No Resistance)
E Easy
F Firm
H Hard
VH Very Hard (Refusal)

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
SPT - Standard Penetration Test
HP - Hand/Pocket Penetrometer
DCP - Dynamic Cone Penetrometer
PSP - Perth Sand Penetrometer
MC - Moisture Content
PBT - Plate Bearing Test
IMP - Borehole Impression Test
PID - Photoionisation Detector
VS - Vane Shear; P=Peak, R=Resdual (uncorrected kPa)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - Moisture content

SOIL CONSISTENCY
VS - Very Soft
S - Soft
F - Firm
St - Stiff
VSt - Very Stiff
H - Hard

RELATIVE DENSITY
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

Refer to explanatory notes for details of abbreviations and basis of descriptions

CARDNO (NSW/ACT) PTY LTD

TEST PIT LOG SHEET

Client: Addendbrooke Pty Ltd
Project: Blueys Beach Subdivision
Location: Blueys Beach

Hole No: TP008

Job No: 50522033 **Sheet:** 1 of 1

Position: Refer to site plan **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 13.5 tonne Excavator **Excavation Method:** 800mm Tooth Bucket

Excavation Dimensions: **Contractor:** Cardno

Date Excavated: 24/1/22 **Logged By:** KS **Checked By:** GA

Excavation			Water	Sampling & Testing		Depth (m)	Material Description					
Method	Resistance	Stability		Sample or Field Test	DCP (blows per 150 mm) 1 3 6 12		Graphic Log	Classification	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	STRUCTURE & Other Observations
EX	E-F	Stable	Groundwater Not Encountered	B 0.65 - 0.85 m	REF	0.5		Cl	0.10m Silty CLAY: medium plasticity, dark brown-black, trace fine to coarse gained sand, trace fine to coarse, angular gravel	M (<PL)	St	TOPSOIL 0.00 m: Organically impacted to 0.1 m from surface.
								Cl	0.25m Silty CLAY: medium plasticity, dark brown-black, trace fine to coarse gained sand, trace fine to coarse, angular gravel			COLLUVIUM
								Cl	Sandy CLAY: medium plasticity, yellow brown mottled orange, fine to coarse grained sand, trace fine, angular gravel	M (<PL)	St	RESIDUAL SOIL
								Cl	0.55m Gravelly CLAY: medium plasticity, pale grey mottled yellow, fine to coarse, angular gravel	M (>PL)	H	
	F					1.0			0.90m SILTSTONE, fine grained, blue-grey mottled yellow			WEATHERED ROCK
	VH								As above; decrease in fracturing/defects 1.40m			
						1.5			TERMINATED AT 1.40 m Refusal / Slow Progress on Weathered Rock			
						2.0						
						2.5						
						3.0						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
PS Percussion sampler
AS Short spiral auger
AD/V Solid flight auger: V-Bit
AD/T Solid flight auger: TC-Bit
HFA Hollow flight auger
WB Washbore drilling
RR Rock roller

PENETRATION
VE Very Easy (No Resistance)
E Easy
F Firm
H Hard
VH Very Hard (Refusal)

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
SPT - Standard Penetration Test
HP - Hand/Pocket Penetrometer
DCP - Dynamic Cone Penetrometer
PSP - Perth Sand Penetrometer
MC - Moisture Content
PBT - Plate Bearing Test
IMP - Borehole Impression Test
PID - Photoionisation Detector
VS - Vane Shear; P=Peak, R=Resdual (uncorrected kPa)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - Moisture content

SOIL CONSISTENCY
VS - Very Soft
S - Soft
F - Firm
St - Stiff
VSt - Very Stiff
H - Hard

RELATIVE DENSITY
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

Refer to explanatory notes for details of abbreviations and basis of descriptions

CARDNO (NSW/ACT) PTY LTD

Cardno

TEST PIT LOG SHEET

Client: Addendbrooke Pty Ltd
Project: Blueys Beach Subdivision
Location: Blueys Beach

Hole No: TP009

Job No: 50522033 **Sheet:** 1 of 1

Position: Refer to site plan **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 13.5 tonne Excavator **Excavation Method:** 800mm Tooth Bucket

Excavation Dimensions: **Contractor:** Cardno

Date Excavated: 24/1/22 **Logged By:** KS **Checked By:** GA

Excavation			Water	Sampling & Testing		Depth (m)	Material Description					
Method	Resistance	Stability		Sample or Field Test	DCP (blows per 150 mm) 1 3 6 12		Graphic Log	Classification	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	STRUCTURE & Other Observations
EX	E	Stable	Groundwater Not Encountered	ES 0.10 - 0.20 m ES7	REF	0.5		SM	Silty SAND: fine to coarse grained, dark grey-brown	D	St	TOPSOIL 0.00 m: Organically impacted to 0.1 m from surface.
									0.10m			
								GP	Sandy GRAVEL: fine to coarse, angular, grey, fine to coarse grained sand, with clay	D	MD	COLLUVIUM
									0.45m			
	F					1.0			SANDSTONE, fine grained, with clay seams, highly weathered			WEATHERED ROCK
	VH								As above; decrease in fracturing/defect spacing.			
									1.30m			
						1.5			TERMINATED AT 1.30 m Refusal / Slow Progress on Weathered Rock			
						2.0						
						2.5						
						3.0						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
PS Percussion sampler
AS Short spiral auger
AD/V Solid flight auger: V-Bit
AD/T Solid flight auger: TC-Bit
HFA Hollow flight auger
WB Washbore drilling
RR Rock roller

PENETRATION
VE Very Easy (No Resistance)
E Easy
F Firm
H Hard
VH Very Hard (Refusal)

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
SPT - Standard Penetration Test
HP - Hand/Pocket Penetrometer
DCP - Dynamic Cone Penetrometer
PSP - Perth Sand Penetrometer
MC - Moisture Content
PBT - Plate Bearing Test
IMP - Borehole Impression Test
PID - Photoionisation Detector
VS - Vane Shear; P=Peak, R=Resdual (uncorrected kPa)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - Moisture content

SOIL CONSISTENCY
VS - Very Soft
S - Soft
F - Firm
St - Stiff
VSt - Very Stiff
H - Hard

RELATIVE DENSITY
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

Refer to explanatory notes for details of abbreviations and basis of descriptions

CARDNO (NSW/ACT) PTY LTD

Cardno

TEST PIT LOG SHEET

Client: Addenbrooke Pty Ltd
Project: Blueys Beach Subdivision
Location: Blueys Beach

Hole No: TP010

Job No: 50522033 **Sheet:** 1 of 1

Position: Refer to site plan **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 13.5 tonne Excavator **Excavation Method:** 800mm Tooth Bucket

Excavation Dimensions: **Contractor:** Cardno

Date Excavated: 24/1/22 **Logged By:** KS **Checked By:** GA

Excavation			Water	Sampling & Testing		Depth (m)	Material Description					
Method	Resistance	Stability		Sample or Field Test	DCP (blows per 150 mm) 1 3 6 12		Graphic Log	Classification	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	STRUCTURE & Other Observations
EX	E	Stable	Groundwater Not Encountered	B 0.55 - 0.65 m		0.5		CL	0.10m Silty Sandy CLAY: low plasticity, dark brown-black, trace fine to coarse grained sand, trace fine angular gravel	M (<PL)	St	TOPSOIL 0.00 m: Organically impacted to 0.1 m from surface.
								CL	0.30m Silty Sandy CLAY: low plasticity, dark brown-black, trace fine to coarse grained sand, trace fine angular gravel			COLLUVIUM
						1.0		CH	CLAY: high plasticity, pale grey mottled yellow, orange and red, trace silt	M (>PL)	F	RESIDUAL SOIL
	F					1.5		CI	1.45m Gravelly CLAY: medium plasticity, pale grey mottled yellow, fine to coarse angular gravel	M (>PL)	VSt	EXTREMELY WEATHERED
	H					2.0			1.80m SILTSTONE, pale grey mottled dark brown			WEATHERED ROCK
									As above; decrease in fracturing/defects 2.15m			
						2.5			TERMINATED AT 2.15 m Refusal / Slow Progress on Weathered Rock			
						3.0						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
PS Percussion sampler
AS Short spiral auger
AD/V Solid flight auger: V-Bit
AD/T Solid flight auger: TC-Bit
HFA Hollow flight auger
WB Washbore drilling
RR Rock roller

PENETRATION
VE Very Easy (No Resistance)
E Easy
F Firm
H Hard
VH Very Hard (Refusal)

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
SPT - Standard Penetration Test
HP - Hand/Pocket Penetrometer
DCP - Dynamic Cone Penetrometer
PSP - Perth Sand Penetrometer
MC - Moisture Content
PBT - Plate Bearing Test
IMP - Borehole Impression Test
PID - Photoionisation Detector
VS - Vane Shear; P=Peak, R=Resdual (uncorrected kPa)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - Moisture content

SOIL CONSISTENCY
VS - Very Soft
S - Soft
F - Firm
St - Stiff
VSt - Very Stiff
H - Hard

RELATIVE DENSITY
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

Refer to explanatory notes for details of abbreviations and basis of descriptions

CARDNO (NSW/ACT) PTY LTD

Cardno

TEST PIT LOG SHEET

Client: Addenbrooke Pty Ltd
Project: Blueys Beach Subdivision
Location: Blueys Beach

Hole No: TP011

Job No: 50522033 **Sheet:** 1 of 1

Position: Refer to site plan **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 13.5 tonne Excavator **Excavation Method:** 800mm Tooth Bucket

Excavation Dimensions: **Contractor:** Cardno

Date Excavated: 24/1/22 **Logged By:** KS **Checked By:** GA

Excavation: Method	Excavation: Resistance	Excavation: Stability	Water	Sampling & Testing: Sample or Field Test	Sampling & Testing: DCP (blows per 150 mm) 1 3 6 12	Depth (m)	Material Description: Graphic Log	Classification	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	STRUCTURE & Other Observations
EX	E	Stable	Groundwater Not Encountered			0.2m		CL	Silty Sandy CLAY: low plasticity, dark brown, fine to coarse grained sand, trace fine, angular gravel	D	St	TOPSOIL 0.00 m: Organically impacted to 0.1 m from surface.
	E					0.5		CL	Gravelly CLAY: low plasticity, orange mottled pale grey, fine to coarse, angular gravel	M (>PL)	VSt	RESIDUAL SOIL
	F				REF	0.95m			Clayey GRAVEL: fine to coarse, angular, pale grey mottled orange clay As above; decrease in fracturing/defects			WEATHERED ROCK
	H					1.0			TERMINATED AT 0.95 m Refusal / Slow Progress on Weathered Rock			
						1.5						
						2.0						
						2.5						
						3.0						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
PS Percussion sampler
AS Short spiral auger
AD/V Solid flight auger: V-Bit
AD/T Solid flight auger: TC-Bit
HFA Hollow flight auger
WB Washbore drilling
RR Rock roller

PENETRATION
VE Very Easy (No Resistance)
E Easy
F Firm
H Hard
VH Very Hard (Refusal)

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
SPT - Standard Penetration Test
HP - Hand/Pocket Penetrometer
DCP - Dynamic Cone Penetrometer
PSP - Perth Sand Penetrometer
MC - Moisture Content
PBT - Plate Bearing Test
IMP - Borehole Impression Test
PID - Photoionisation Detector
VS - Vane Shear; P=Peak, R=Resdual (uncorrected kPa)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - Moisture content

SOIL CONSISTENCY
VS - Very Soft
S - Soft
F - Firm
St - Stiff
VSt - Very Stiff
H - Hard

RELATIVE DENSITY
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

Refer to explanatory notes for details of abbreviations and basis of descriptions

CARDNO (NSW/ACT) PTY LTD

TEST PIT LOG SHEET

Client: Addenbrooke Pty Ltd
Project: Blueys Beach Subdivision
Location: Blueys Beach

Hole No: TP012

Job No: 50522033 **Sheet:** 1 of 1

Position: Refer to site plan **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 13.5 tonne Excavator **Excavation Method:** 800mm Tooth Bucket

Excavation Dimensions: **Contractor:** Cardno

Date Excavated: 24/1/22 **Logged By:** KS **Checked By:** GA

Excavation			Water	Sampling & Testing		Depth (m)	Material Description					
Method	Resistance	Stability		Sample or Field Test	DCP (blows per 150 mm) 1 3 6 12		Graphic Log	Classification	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	STRUCTURE & Other Observations
EX		Stable	Groundwater Not Encountered	B 0.70 - 0.90 m		0.5		CL	Sandy CLAY: low plasticity, grey, fine to coarse grained sand, trace fine to coarse, angular gravel 0.10m			TOPSOIL 0.00 m: Organically impacted to 0.1 m from surface.
								CL	Sandy CLAY: low plasticity, grey, fine to coarse grained sand, trace fine to coarse, angular gravel 0.50m	D	St	COLLUVIUM
						1.0		CI-CH	CLAY: medium to high plasticity, pale grey mottled orange and red, trace silt 1.50m	M (<PL)	VSt	RESIDUAL SOIL
						1.5		CI	Silty CLAY: medium plasticity, grey mottled yellow, trace fine to coarse grained sand, trace fine to coarse, angular gravel 1.80m	M (≈PL)	VSt	EXTREMELY WEATHERED
						2.0			SILTSTONE, fractured As above; decrease in fracturing/defects 2.20m			WEATHERED ROCK
						2.5			TERMINATED AT 2.20 m Refusal / Slow Progress on Weathered Rock			
						3.0						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
PS Percussion sampler
AS Short spiral auger
AD/V Solid flight auger: V-Bit
AD/T Solid flight auger: TC-Bit
HFA Hollow flight auger
WB Washbore drilling
RR Rock roller

PENETRATION
VE Very Easy (No Resistance)
E Easy
F Firm
H Hard
VH Very Hard (Refusal)

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
SPT - Standard Penetration Test
HP - Hand/Pocket Penetrometer
DCP - Dynamic Cone Penetrometer
PSP - Perth Sand Penetrometer
MC - Moisture Content
PBT - Plate Bearing Test
IMP - Borehole Impression Test
PID - Photoionisation Detector
VS - Vane Shear; P=Peak, R=Resdual (uncorrected kPa)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - Moisture content

SOIL CONSISTENCY
VS - Very Soft
S - Soft
F - Firm
St - Stiff
VSt - Very Stiff
H - Hard

RELATIVE DENSITY
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

Refer to explanatory notes for details of abbreviations and basis of descriptions

CARDNO (NSW/ACT) PTY LTD

Cardno

TEST PIT LOG SHEET

Client: Addenbrooke Pty Ltd
Project: Blueys Beach Subdivision
Location: Blueys Beach

Hole No: TP013

Job No: 50522033 **Sheet:** 1 of 1

Position: Refer to site plan **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 13.5 tonne Excavator **Excavation Method:** 800mm Tooth Bucket

Excavation Dimensions: **Contractor:** Cardno

Date Excavated: 24/1/22 **Logged By:** KS **Checked By:** GA

Excavation			Water	Sampling & Testing		Depth (m)	Material Description					
Method	Resistance	Stability		Sample or Field Test	DCP (blows per 150 mm) 1 3 6 12		Graphic Log	Classification	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	STRUCTURE & Other Observations
EX						0		CL	Sandy CLAY: low plasticity, grey, fine to coarse grained sand	M (≈PL)	St	TOPSOIL 0.00 m: Organically impacted to 0.15 m from surface.
									0.15m			
						0.5		Cl	Silty CLAY: medium plasticity, grey mottled yellow	M (>PL)	F to St	ALLUVIUM
									0.80m			
	E					1.0		Cl-CH	Silty CLAY: medium to high plasticity, pale grey mottled yellow	M (>PL)	VSt	
									1.95m			
				ASS 2.00 - 2.10 m ASS5		2.0		Cl	Gravelly CLAY: medium plasticity, grey, fine to coarse, rounded gravel	M (>PL)	VSt	
									2.80m			
				ASS 2.90 - 3.00 m ASS6		3.0		CH	Silty CLAY: high plasticity, dark grey, trace fine to medium, angular gravel	M (>PL)	VSt	RESIDUAL SOIL
	E-F								As above: with fine to medium, angular gravel			
									3.50m			
		Stable	24/01/22	ASS 1.60 - 1.70 m ASS4		1.5						

TERMINATED AT 3.50 m Target depth

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
PS Percussion sampler
AS Short spiral auger
AD/V Solid flight auger: V-Bit
AD/T Solid flight auger: TC-Bit
HFA Hollow flight auger
WB Washbore drilling
RR Rock roller

PENETRATION
VE Very Easy (No Resistance)
E Easy
F Firm
H Hard
VH Very Hard (Refusal)

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
SPT - Standard Penetration Test
HP - Hand/Pocket Penetrometer
DCP - Dynamic Cone Penetrometer
PSP - Perth Sand Penetrometer
MC - Moisture Content
PBT - Plate Bearing Test
IMP - Borehole Impression Test
PID - Photoionisation Detector
VS - Vane Shear; P=Peak, R=Resdual (uncorrected kPa)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - Moisture content

SOIL CONSISTENCY
VS - Very Soft
S - Soft
F - Firm
St - Stiff
VSt - Very Stiff
H - Hard

RELATIVE DENSITY
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

Refer to explanatory notes for details of abbreviations and basis of descriptions

CARDNO (NSW/ACT) PTY LTD

TEST PIT LOG SHEET

Client: Addendbrooke Pty Ltd
Project: Blueys Beach Subdivision
Location: Blueys Beach

Hole No: TP014

Job No: 50522033 **Sheet:** 1 of 1

Position: Refer to site plan **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 13.5 tonne Excavator **Excavation Method:** 800mm Tooth Bucket

Excavation Dimensions: **Contractor:** Cardno

Date Excavated: 24/1/22 **Logged By:** KS **Checked By:** GA

Excavation			Water	Sampling & Testing		Depth (m)	Material Description					
Method	Resistance	Stability		Sample or Field Test	DCP (blows per 150 mm) 1 3 6 12		Graphic Log	Classification	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	STRUCTURE & Other Observations
EX	E	Stable	Groundwater Not Encountered	B 0.30 - 0.40 m	REF	0.5		CL-CI	Sandy CLAY: low to medium plasticity, dark brown, fine to coarse grained sand, trace fine to coarse, rounded gravel	D	St	TOPSOIL 0.00 m: Organically impacted to 0.1 m from surface. COLLUVIUM
									0.10m			
								CL-CI	Sandy CLAY: low to medium plasticity, dark brown, fine to coarse grained sand, trace fine to coarse, rounded gravel			
									0.40m			
								CI-CH	CLAY: medium to high plasticity, pale grey mottled orange, trace fine, angular gravel, trace silt	M (<PL)	VSt	RESIDUAL SOIL
						1.0			0.90m			
								CL-CI	Gravelly CLAY: low to medium plasticity, grey mottled orange, fine to coarse angular to sub-angular gravel	M (<PL)	VSt	
									1.10m			
	F							GC	Clayey GRAVEL: fine to coarse, angular, grey mottled orange	M (<PL)	MD	EXTREMELY WEATHERED
									1.40m			
	H					1.5			SILTSTONE, fine grained, grey mottled orange, fractured			WEATHERED ROCK
									1.65m As above; decrease in fracturing/defects			
									TERMINATED AT 1.65 m Refusal / Slow Progress on Weathered Rock			
						2.0						
						2.5						
						3.0						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
PS Percussion sampler
AS Short spiral auger
AD/V Solid flight auger: V-Bit
AD/T Solid flight auger: TC-Bit
HFA Hollow flight auger
WB Washbore drilling
RR Rock roller

PENETRATION
VE Very Easy (No Resistance)
E Easy
F Firm
H Hard
VH Very Hard (Refusal)

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
SPT - Standard Penetration Test
HP - Hand/Pocket Penetrometer
DCP - Dynamic Cone Penetrometer
PSP - Perth Sand Penetrometer
MC - Moisture Content
PBT - Plate Bearing Test
IMP - Borehole Impression Test
PID - Photoionisation Detector
VS - Vane Shear; P=Peak, R=Resdual (uncorrected kPa)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - Moisture content

SOIL CONSISTENCY
VS - Very Soft
S - Soft
F - Firm
St - Stiff
VSt - Very Stiff
H - Hard

RELATIVE DENSITY
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

Refer to explanatory notes for details of abbreviations and basis of descriptions

CARDNO (NSW/ACT) PTY LTD

Cardno

TEST PIT LOG SHEET

Client: Addenbrooke Pty Ltd
Project: Blueys Beach Subdivision
Location: Blueys Beach

Hole No: TP015

Job No: 50522033 **Sheet:** 1 of 1

Position: Refer to site plan **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 13.5 tonne Excavator **Excavation Method:** 800mm Tooth Bucket

Excavation Dimensions: **Contractor:** Cardno

Date Excavated: 24/1/22 **Logged By:** KS **Checked By:** GA

Excavation			Water	Sampling & Testing		Depth (m)	Material Description					
Method	Resistance	Stability		Sample or Field Test	DCP (blows per 150 mm) 1 3 6 12		Graphic Log	Classification	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	STRUCTURE & Other Observations
EX	E-F	Stable	Groundwater Not Encountered			0.5		CL-CI	Sandy CLAY: low to medium plasticity, dark brown, fine to coarse grained sand, trace fine to coarse gravel	D	St	TOPSOIL 0.00 m: Organically impacted to 0.1 m from surface.
									0.10m			
								CL-CI	Sandy CLAY: low to medium plasticity, dark brown, fine to coarse grained sand, trace fine to coarse gravel			COLLUVIUM
									0.30m			
								CI-CH	Silty CLAY: medium to high plasticity, pale grey mottled brown, trace fine angular gravel, trace fine to coarse grained sand	M (<PL)	St	RESIDUAL SOIL
				B 1.00 - 1.20 m		1.0			1.00m			
								CL-CI	Gravelly CLAY: low to medium plasticity, grey mottled orange, fine to coarse angular to sub-angular gravel	M (<PL)	St	
						1.5			1.45m			
								GC	Clayey GRAVEL: fine to coarse, angular, grey mottled orange	M (<PL)	MD	EXTREMELY WEATHERED
									1.80m			
	H					2.0			SILTSTONE, grey mottled orange			WEATHERED ROCK
									As above; decrease in fracturing/defects			
									2.20m			
						2.5			TERMINATED AT 2.20 m Refusal / Slow Progress on Weathered Rock			
						3.0						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
PS Percussion sampler
AS Short spiral auger
AD/V Solid flight auger: V-Bit
AD/T Solid flight auger: TC-Bit
HFA Hollow flight auger
WB Washbore drilling
RR Rock roller

PENETRATION
VE Very Easy (No Resistance)
E Easy
F Firm
H Hard
VH Very Hard (Refusal)

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
SPT - Standard Penetration Test
HP - Hand/Pocket Penetrometer
DCP - Dynamic Cone Penetrometer
PSP - Perth Sand Penetrometer
MC - Moisture Content
PBT - Plate Bearing Test
IMP - Borehole Impression Test
PID - Photoionisation Detector
VS - Vane Shear; P=Peak, R=Resdual (uncorrected kPa)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - Moisture content

SOIL CONSISTENCY
VS - Very Soft
S - Soft
F - Firm
St - Stiff
VSt - Very Stiff
H - Hard

RELATIVE DENSITY
VL - Very Loose
L - Loose
MD - Medium Dense
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Refer to explanatory notes for details of abbreviations and basis of descriptions

CARDNO (NSW/ACT) PTY LTD

Cardno

TEST PIT LOG SHEET

Client: Addenbrooke Pty Ltd
Project: Blueys Beach Subdivision
Location: Blueys Beach

Hole No: TP016

Job No: 50522033 **Sheet:** 1 of 1

Position: Refer to site plan **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 13.5 tonne Excavator **Excavation Method:** 800mm Tooth Bucket

Excavation Dimensions: **Contractor:** Cardno

Date Excavated: 24/1/22 **Logged By:** KS **Checked By:** GA

Excavation			Water	Sampling & Testing		Depth (m)	Material Description					
Method	Resistance	Stability		Sample or Field Test	DCP (blows per 150 mm) 1 3 6 12		Graphic Log	Classification	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	STRUCTURE & Other Observations
EX	E-F	Stable	24/01/22			0.5		SC	Silty Clayey SAND: fine to coarse grained, brown 0.20m	M (<PL)	St	TOPSOIL 0.00 m: Organically impacted to 0.1 m from surface.
								CI-CH	CLAY: medium to high plasticity, orange mottled grey 0.60m	M (<PL)	St	RESIDUAL SOIL
				SB 1.20 - 1.40 m		1.0		CI-CH	Silty CLAY: medium to high plasticity, grey mottled orange As above; trace fine to coarse grained sand, trace fine angular gravel 1.80m	M (>PL)	VSt	
	F					2.0		CI-CH	Silty CLAY: medium to high plasticity, pale grey mottled orange, with fine to coarse, angular gravel 2.50m	M (≈PL)	H	
						2.5		CL	Silty Gravelly CLAY: low plasticity, pale grey, fine to coarse, angular gravel 3.00m	M (<PL)	H	EXTREMELY WEATHERED
						3.0			TERMINATED AT 3.00 m Target depth			

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
PS Percussion sampler
AS Short spiral auger
AD/V Solid flight auger: V-Bit
AD/T Solid flight auger: TC-Bit
HFA Hollow flight auger
WB Washbore drilling
RR Rock roller

PENETRATION
VE Very Easy (No Resistance)
E Easy
F Firm
H Hard
VH Very Hard (Refusal)

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
SPT - Standard Penetration Test
HP - Hand/Pocket Penetrometer
DCP - Dynamic Cone Penetrometer
PSP - Perth Sand Penetrometer
MC - Moisture Content
PBT - Plate Bearing Test
IMP - Borehole Impression Test
PID - Photoionisation Detector
VS - Vane Shear; P=Peak, R=Resdual (uncorrected kPa)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - Moisture content

SOIL CONSISTENCY
VS - Very Soft
S - Soft
F - Firm
St - Stiff
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H - Hard

RELATIVE DENSITY
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
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Refer to explanatory notes for details of abbreviations and basis of descriptions

CARDNO (NSW/ACT) PTY LTD

TEST PIT LOG SHEET

Client: Addendbrooke Pty Ltd
Project: Blueys Beach Subdivision
Location: Blueys Beach

Hole No: TP017

Job No: 50522033 **Sheet:** 1 of 1

Position: Refer to site plan **Angle from Horizontal:** 90° **Surface Elevation:**

Machine Type: 13.5 tonne Excavator **Excavation Method:** 800mm Tooth Bucket

Excavation Dimensions: **Contractor:** Cardno

Date Excavated: 24/1/22 **Logged By:** KS **Checked By:** GA

Excavation			Water	Sampling & Testing		Depth (m)	Material Description					
Method	Resistance	Stability		Sample or Field Test	DCP (blows per 150 mm) 1 3 6 12		Graphic Log	Classification	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	STRUCTURE & Other Observations
EX	E	Stable	Groundwater Not Encountered			0.5		SM	Silty SAND: fine to coarse grained, dark brown 0.10m	D	St	TOPSOIL 0.00 m: Organically impacted to 0.1 m from surface.
						1.0		SP	SAND: fine to coarse grained, grey, with silt 1.40m	D	F to St	AEOLIAN
						1.5		SC	Clayey SAND: fine to coarse grained, brown 1.90m	M	St to VSt	ALLUVIUM
						2.0		Cl	Sandy CLAY: medium plasticity, brown, fine to coarse grained sand 2.20m			RESIDUAL SOIL
						2.5			TERMINATED AT 2.20 m Target depth			
						3.0						

METHOD
- EX Excavator bucket
- R Ripper
- HA Hand auger
- PT Push tube
- SON Sonic drilling
- AH Air hammer
- PS Percussion sampler
- AS Short spiral auger
- AD/V Solid flight auger: V-Bit
- AD/T Solid flight auger: TC-Bit
- HFA Hollow flight auger
- WB Washbore drilling
- RR Rock roller

PENETRATION
- VE Very Easy (No Resistance)
- E Easy
- F Firm
- H Hard
- VH Very Hard (Refusal)

WATER
- Water Level on Date shown
- water inflow
- water outflow

FIELD TESTS
- SPT - Standard Penetration Test
- HP - Hand/Pocket Penetrometer
- DCP - Dynamic Cone Penetrometer
- PSP - Perth Sand Penetrometer
- MC - Moisture Content
- PBT - Plate Bearing Test
- IMP - Borehole Impression Test
- PID - Photoionisation Detector
- VS - Vane Shear; P=Peak, R=Resdual (uncorrected kPa)

SAMPLES
- B - Bulk disturbed sample
- D - Disturbed sample
- ES - Environmental sample
- U - Thin wall tube 'undisturbed'

MOISTURE
- D - Dry
- M - Moist
- W - Wet
- PL - Plastic limit
- LL - Liquid limit
- *w* - Moisture content

SOIL CONSISTENCY
- VS - Very Soft
- S - Soft
- F - Firm
- St - Stiff
- VSt - Very Stiff
- H - Hard

RELATIVE DENSITY
- VL - Very Loose
- L - Loose
- MD - Medium Dense
- D - Dense
- VD - Very Dense

Refer to explanatory notes for details of abbreviations and basis of descriptions

CARDNO (NSW/ACT) PTY LTD

APPENDIX

E

LABORATORY TEST REPORTS

Cardno

now

Stantec

					BTEX						TPH					CRC Care TPH Fractions							PAH													
					Vic EPA IWRG 621 Other OCP (Total)*	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	C6 - C9	C10 - C14	C15 - C28	C29-C36	+C10 - C36 (Sum of total)	C6-C10	C10-C16	C16-C34	C34-C40	C10 - C40 (Sum of total)	F1: C6-C10 less BTEX	F2: >C10-C16 less Naphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(a)pyrene TEQ (half LOR)	Benzo(a)pyrene TEQ (LOR)	Benzo(a)pyrene TEQ (zero)	Benzo(b+j)fluoranthene	Benzo(k)fluoranthene	Benzo(g,h,i)perylene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene
					MG/KG	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL					0.1	0.1	0.1	0.1	0.2	0.1	0.3	20	20	50	50	50	20	50	100	100	100	20	50	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
NEPM 2013 EIL UR/POS, low pH, CEC, clay content - aged 0-2m																																				
NEPM 2013 ESL UR/POS, Coarse Soil 0-2m						50	85	70			105		120					120	300	2800		180						0.7								
NEPM 2013 HIL, Residential A																													3							
NEPM 2013 Soil HSL Residential A&B, for Vapour Intrusion, Clay 0-1m						0.7	480	NL			110											50	280													
NEPM 2013 Management Limits, R/P&POS, Coarse Soil												700	1000				700	1000	2500	10000																
Field_ID	**Location_Code**	**Sample_Depth_Range**	**Sampled_Date_Time**	**Matrix_Description**																																
ES1	ES1	0.1-0.2	24/01/2022	Silty CLAY (dark brown)	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	<20	<50	<50	<50	<20	<50	<100	<100	<100	<20	<50	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2	ES2	0.0-0.1	24/01/2022	Sandy CLAY (dark brown)	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	<20	<50	<50	<50	<20	<50	<100	<100	<100	<20	<50	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES3	ES3	0.0-0.1	24/01/2022	Sandy CLAY (dark brown-black)	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	<20	<50	<50	<50	<20	<50	<100	<100	<100	<20	<50	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES4	ES4	0.05-0.15	24/01/2022	Silty SAND (dark grey)	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	<20	<50	<50	<50	<20	<50	<100	<100	<100	<20	<50	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES5	ES5	0.0-0.1	24/01/2022	Silty Sandy CLAY (dark brown)	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	<20	<50	<50	<50	<20	<50	<100	<100	<100	<20	<50	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES6	ES6	0.0-0.1	24/01/2022	Silty Sandy CLAY (dark brown)	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	<20	110	120	230	<20	<50	220	110	330	<20	<50	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Statistical Summary																																				
Number of Results					6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Number of Detects					0	0	0	0	0	0	0	0	0	1	1	1	0	0	1	1	1	0	0	0	0	0	0	0	6	6	0	0	0	0	0	0	0
Minimum Concentration					<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	<20	<50	<50	<50	<20	<50	<100	<100	<100	<20	<50	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Minimum Detect					ND	ND	ND	ND	ND	ND	ND	ND	ND	110	120	230	ND	ND	220	110	330	ND	ND	ND	ND	ND	ND	ND	0.6	1.2	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration					<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	<20	110	120	230	<20	<50	220	110	330	<20	<50	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Maximum Detect					ND	ND	ND	ND	ND	ND	ND	ND	ND	110	120	230	ND	ND	220	110	330	ND	ND	ND	ND	ND	ND	ND	0.6	1.2	ND	ND	ND	ND	ND	ND	ND
Average Concentration					0.05	0.05	0.05	0.05	0.1	0.05	0.15	10	10	39	41	59	10	25	78	60	97	10	25	0.25	0.25	0.25	0.25	0.25	0.6	1.2	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Median Concentration					0.05	0.05	0.05	0.05	0.1	0.05	0.15	10	10	25	25	25	10	25	50	50	50	10	25	0.25	0.25	0.25	0.25	0.25	0.6	1.2	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Standard Deviation					0	0	0	0	0	0	0	0	0	35	39	84	0	0	69	24	114	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances					0	4	4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	4	6	0	0	0	0	4	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)					0	4	4	4	0	0	4	0	0	0	0	0	0	0	0	0	0	4	6	0	0	0	0	4	0	0	0	0	0	0	0	0	0

							Metals								Inorganics			SVOCs	Organochlorine Pestic												
	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	PAHs (Sum of total)	Phenanthrene	Pyrene	Arsenic	Cadmium	Chromium (III+VI)	Copper	Lead	Mercury	Nickel	Zinc	Conductivity (1:5 aqueous extract)	Moisture Content (dried @ 103°C)	pH (aqueous extract)	EPN	Vic EPA IWRG 621 OCP (Total)*	4,4-DDE	a-BHC	Aldrin	Aldrin + Dieldrin	b-BHC	Chlordane	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	US/CM	%	pH_Units	mg/kg	MG/KG	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.5	0.5	0.5	0.5	0.5	0.5	2	0.4	5	5	5	0.1	5	5	10	1	0.1	0.2	0.1	0.05	0.05	0.05	0.05	0.05	0.1	0.05	0.05	0.05	0.05	0.05	0.05
NEPM 2013 EIL UR/POS, low pH, CEC, clay content - aged 0-2m			170				100		190	60	1100		30	70														180			
NEPM 2013 ESL UR/POS, Coarse Soil 0-2m																															
NEPM 2013 HIL, Residential A				300			100	20		6000	300	40	400	7400									6		50				240		
NEPM 2013 Soil HSL Residential A&B, for Vapour Intrusion, Clay 0-1m			5																												
NEPM 2013 Management Limits, R/P&POS, Coarse Soil																															

Field_ID	Location_Code	Sample_Depth_Range	Sampled_Date_Time	Matrix_Description	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	PAHs (Sum of total)	Phenanthrene	Pyrene	Arsenic	Cadmium	Chromium (III+VI)	Copper	Lead	Mercury	Nickel	Zinc	Conductivity (1:5 aqueous extract)	Moisture Content (dried @ 103°C)	pH (aqueous extract)	EPN	Vic EPA IWRG 621 OCP (Total)*	4,4-DDE	a-BHC	Aldrin	Aldrin + Dieldrin	b-BHC	Chlordane	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I
ES1	ES1	0.1-0.2	24/01/2022	Silty CLAY (dark brown)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	5.3	<0.4	5.9	<5	10	<0.1	<5	28	21	18	6.2	<0.2	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
ES2	ES2	0.0-0.1	24/01/2022	Sandy CLAY (dark brown)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	7.1	<0.4	11	6.5	17	<0.1	<5	22	22	20	5.5	<0.2	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
ES3	ES3	0.0-0.1	24/01/2022	Sandy CLAY (dark brown-black)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	18	<0.4	7.1	<5	17	<0.1	<5	9.7	12	17	5.9	<0.2	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
ES4	ES4	0.05-0.15	24/01/2022	Silty SAND (dark grey)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	3.6	<0.4	5	<5	9.9	<0.1	<5	6.5	28	14	6	<0.2	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
ES5	ES5	0.0-0.1	24/01/2022	Silty Sandy CLAY (dark brown)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	2.7	<0.4	<5	<5	7.8	<0.1	<5	<5	24	9.3	6.2	<0.2	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
ES6	ES6	0.0-0.1	24/01/2022	Silty Sandy CLAY (dark brown)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	3.4	<0.4	<5	6.3	8.9	<0.1	<5	25	330	14	6.3	<0.2	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

Statistical Summary

Statistical Summary	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	PAHs (Sum of total)	Phenanthrene	Pyrene	Arsenic	Cadmium	Chromium (III+VI)	Copper	Lead	Mercury	Nickel	Zinc	Conductivity (1:5 aqueous extract)	Moisture Content (dried @ 103°C)	pH (aqueous extract)	EPN	Vic EPA IWRG 621 OCP (Total)*	4,4-DDE	a-BHC	Aldrin	Aldrin + Dieldrin	b-BHC	Chlordane	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I
Number of Results	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Number of Detects	0	0	0	0	0	0	6	0	4	2	6	0	0	5	6	6	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	2.7	<0.4	<5	<5	7.8	<0.1	<5	<5	12	9.3	5.5	<0.2	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Minimum Detect	ND	ND	ND	ND	ND	ND	2.7	ND	5	6.3	7.8	ND	ND	6.5	12	9.3	5.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	18	<0.4	11	6.5	17	<0.1	<5	28	330	20	6.3	<0.2	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Maximum Detect	ND	ND	ND	ND	ND	ND	18	ND	11	6.5	17	ND	ND	28	330	20	6.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration	0.25	0.25	0.25	0.25	0.25	0.25	6.7	0.2	5.7	3.8	12	0.05	2.5	16	73	15	6	0.1	0.05	0.025	0.025	0.025	0.025	0.025	0.05	0.025	0.025	0.025	0.025	0.025	0.025
Median Concentration	0.25	0.25	0.25	0.25	0.25	0.25	4.45	0.2	5.45	2.5	9.95	0.05	2.5	15.85	23	15.5	6.1	0.1	0.05	0.025	0.025	0.025	0.025	0.025	0.05	0.025	0.025	0.025	0.025	0.025	0.025
Standard Deviation	0	0	0	0	0	0	5.8	0	3.2	2	4.1	0	0	11	126	3.8	0.29	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances	0	0	4	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	4	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0

	ides											Organophosphorous Pesticides																					
	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Hexachlorobenzene	Methoxychlor	Toxaphene	Tokuthion	Azinophos methyl	Bolstar (Sulprofos)	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Coumaphos	Demeton-O	Demeton-S	Diazinon	Dichlorvos	Dimethoate	Disulfoton	Ethion	Ethoprop	Fenitrothion	Fensulfothion	Fenthion	Malathion	Merphos	Methyl parathion
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.5	0.2	0.2	0.2	0.2	0.2	0.2	2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
NEPM 2013 EIL UR/POS, low pH, CEC, clay content - aged 0-2m																																
NEPM 2013 ESL UR/POS, Coarse Soil 0-2m																																
NEPM 2013 HIL, Residential A			10				6		10	300	20					160																
NEPM 2013 Soil HSL Residential A&B, for Vapour Intrusion, Clay 0-1m																																
NEPM 2013 Management Limits, R/P&POS, Coarse Soil																																
Field_ID	**Location_Code**	**Sample_Depth_Range**	**Sampled_Date_Time**	**Matrix_Description**																													
ES1	ES1	0.1-0.2	24/01/2022	Silty CLAY (dark brown)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
ES2	ES2	0.0-0.1	24/01/2022	Sandy CLAY (dark brown)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
ES3	ES3	0.0-0.1	24/01/2022	Sandy CLAY (dark brown-black)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
ES4	ES4	0.05-0.15	24/01/2022	Silty SAND (dark grey)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
ES5	ES5	0.0-0.1	24/01/2022	Silty Sandy CLAY (dark brown)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
ES6	ES6	0.0-0.1	24/01/2022	Silty Sandy CLAY (dark brown)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Statistical Summary																																
Number of Results	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.25	0.1	0.1	0.1	0.1	0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Median Concentration	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.25	0.1	0.1	0.1	0.1	0.1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Standard Deviation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

												Pesticides		Polychlorinated Biphenyls							
					Mevinphos (Phosdrin)	Monocrotophos	Naled (Dibrom)	Omethoate	Phorate	Pyrazophos	Ronnel	Terbufos	Trichloronate	Tetrachlorvinphos	Parathion	Pirimiphos-methyl	Arochlor 1016	Arochlor 1221	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	PCBs (Sum of total)
					mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL					0.2	2	0.2	2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
NEPM 2013 EIL UR/POS, low pH, CEC, clay content - aged 0-2m																								
NEPM 2013 ESL UR/POS, Coarse Soil 0-2m																								
NEPM 2013 HIL, Residential A																								1
NEPM 2013 Soil HSL Residential A&B, for Vapour Intrusion, Clay 0-1m																								
NEPM 2013 Management Limits, R/P&POS, Coarse Soil																								
Field_ID	**Location_Code**	**Sample_Depth_Range**	**Sampled_Date_Time**	**Matrix_Description**																				
ES1	ES1	0.1-0.2	24/01/2022	Silty CLAY (dark brown)	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
ES2	ES2	0.0-0.1	24/01/2022	Sandy CLAY (dark brown)	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
ES3	ES3	0.0-0.1	24/01/2022	Sandy CLAY (dark brown-black)	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
ES4	ES4	0.05-0.15	24/01/2022	Silty SAND (dark grey)	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
ES5	ES5	0.0-0.1	24/01/2022	Silty Sandy CLAY (dark brown)	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
ES6	ES6	0.0-0.1	24/01/2022	Silty Sandy CLAY (dark brown)	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Statistical Summary																								
Number of Results					6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Number of Detects					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration					<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Minimum Detect					ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration					<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Maximum Detect					ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration					0.1	1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Median Concentration					0.1	1	0.1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Standard Deviation					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Cardno (NSW/ACT) Pty Ltd
Level 9, 203 Pacific Highway
St Leonards
NSW 2065

Attention: **Kosta Sykiotis**

Report **860815-S-V3**
Project name BLUEYS BEACH
Project ID 50522033
Received Date Feb 04, 2022

Client Sample ID			ES1	ES2	ES3	ES4
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N22-Fe08876	N22-Fe08877	N22-Fe08878	N22-Fe08879
Date Sampled			Jan 24, 2022	Jan 24, 2022	Jan 24, 2022	Jan 24, 2022
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50	< 50	< 50	< 50
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	78	61	100	83
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5

Client Sample ID			ES1	ES2	ES3	ES4
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N22-Fe08876	N22-Fe08877	N22-Fe08878	N22-Fe08879
Date Sampled			Jan 24, 2022	Jan 24, 2022	Jan 24, 2022	Jan 24, 2022
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	134	148	126	133
p-Terphenyl-d14 (surr.)	1	%	141	132	145	123
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
a-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
b-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
d-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
g-HCH (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Toxaphene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Dibutylchlorendate (surr.)	1	%	133	141	123	128
Tetrachloro-m-xylene (surr.)	1	%	150	146	141	148
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Bolstar	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorfenvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorpyrifos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Coumaphos	2	mg/kg	< 2	< 2	< 2	< 2
Demeton-S	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Demeton-O	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Diazinon	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Dichlorvos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Dimethoate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Disulfoton	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
EPN	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2

Client Sample ID			ES1	ES2	ES3	ES4
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			N22-Fe08876	N22-Fe08877	N22-Fe08878	N22-Fe08879
Date Sampled			Jan 24, 2022	Jan 24, 2022	Jan 24, 2022	Jan 24, 2022
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Ethoprop	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenitrothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fensulfothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Malathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Merphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Methyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Mevinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Monocrotophos	2	mg/kg	< 2	< 2	< 2	< 2
Naled	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Omethoate	2	mg/kg	< 2	< 2	< 2	< 2
Phorate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Pirimiphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Pyrazophos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ronnel	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Terbufos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Tetrachlorvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Tokuthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Trichloronate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Triphenylphosphate (surr.)	1	%	133	94	117	121
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1221	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1232	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1242	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1248	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1254	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1260	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Total PCB*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Dibutylchlorendate (surr.)	1	%	133	141	123	128
Tetrachloro-m-xylene (surr.)	1	%	150	146	141	148
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	< 100	< 100
Conductivity (1:5 aqueous extract at 25 °C as rec.)	10	uS/cm	21	22	12	28
pH (1:5 Aqueous extract at 25 °C as rec.)	0.1	pH Units	6.2	5.5	5.9	6.0
% Moisture	1	%	18	20	17	14
Heavy Metals						
Arsenic	2	mg/kg	5.3	7.1	18	3.6
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	5.9	11	7.1	5.0
Copper	5	mg/kg	< 5	6.5	< 5	< 5
Lead	5	mg/kg	10	17	17	9.9
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	< 5	< 5	< 5	< 5
Zinc	5	mg/kg	28	22	9.7	6.5

Client Sample ID			ES5	ES6
Sample Matrix			Soil	Soil
Eurofins Sample No.			N22-Fe08880	N22-Fe08881
Date Sampled			Jan 24, 2022	Jan 24, 2022
Test/Reference	LOR	Unit		
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				
TRH C6-C9	20	mg/kg	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	110
TRH C29-C36	50	mg/kg	< 50	120
TRH C10-C36 (Total)	50	mg/kg	< 50	230
BTEX				
Benzene	0.1	mg/kg	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	113	91
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50
TRH C6-C10	20	mg/kg	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20
Polycyclic Aromatic Hydrocarbons				
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	112	67
p-Terphenyl-d14 (surr.)	1	%	139	75
Organochlorine Pesticides				
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05
a-HCH	0.05	mg/kg	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05
b-HCH	0.05	mg/kg	< 0.05	< 0.05

Client Sample ID			ES5	ES6
Sample Matrix			Soil	Soil
Eurofins Sample No.			N22-Fe08880	N22-Fe08881
Date Sampled			Jan 24, 2022	Jan 24, 2022
Test/Reference	LOR	Unit		
Organochlorine Pesticides				
d-HCH	0.05	mg/kg	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05
g-HCH (Lindane)	0.05	mg/kg	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05
Toxaphene	0.5	mg/kg	< 0.5	< 0.5
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1
Dibutylchlorendate (surr.)	1	%	91	52
Tetrachloro-m-xylene (surr.)	1	%	148	73
Organophosphorus Pesticides				
Azinphos-methyl	0.2	mg/kg	< 0.2	< 0.2
Bolstar	0.2	mg/kg	< 0.2	< 0.2
Chlorfenvinphos	0.2	mg/kg	< 0.2	< 0.2
Chlorpyrifos	0.2	mg/kg	< 0.2	< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2	< 0.2
Coumaphos	2	mg/kg	< 2	< 2
Demeton-S	0.2	mg/kg	< 0.2	< 0.2
Demeton-O	0.2	mg/kg	< 0.2	< 0.2
Diazinon	0.2	mg/kg	< 0.2	< 0.2
Dichlorvos	0.2	mg/kg	< 0.2	< 0.2
Dimethoate	0.2	mg/kg	< 0.2	< 0.2
Disulfoton	0.2	mg/kg	< 0.2	< 0.2
EPN	0.2	mg/kg	< 0.2	< 0.2
Ethion	0.2	mg/kg	< 0.2	< 0.2
Ethoprop	0.2	mg/kg	< 0.2	< 0.2
Ethyl parathion	0.2	mg/kg	< 0.2	< 0.2
Fenitrothion	0.2	mg/kg	< 0.2	< 0.2
Fensulfothion	0.2	mg/kg	< 0.2	< 0.2
Fenthion	0.2	mg/kg	< 0.2	< 0.2
Malathion	0.2	mg/kg	< 0.2	< 0.2
Merphos	0.2	mg/kg	< 0.2	< 0.2
Methyl parathion	0.2	mg/kg	< 0.2	< 0.2
Mevinphos	0.2	mg/kg	< 0.2	< 0.2
Monocrotophos	2	mg/kg	< 2	< 2
Naled	0.2	mg/kg	< 0.2	< 0.2
Omethoate	2	mg/kg	< 2	< 2
Phorate	0.2	mg/kg	< 0.2	< 0.2
Pirimiphos-methyl	0.2	mg/kg	< 0.2	< 0.2

Client Sample ID			ES5	ES6
Sample Matrix			Soil	Soil
Eurofins Sample No.			N22-Fe08880	N22-Fe08881
Date Sampled			Jan 24, 2022	Jan 24, 2022
Test/Reference	LOR	Unit		
Organophosphorus Pesticides				
Pyrazophos	0.2	mg/kg	< 0.2	< 0.2
Ronnel	0.2	mg/kg	< 0.2	< 0.2
Terbufos	0.2	mg/kg	< 0.2	< 0.2
Tetrachlorvinphos	0.2	mg/kg	< 0.2	< 0.2
Tokuthion	0.2	mg/kg	< 0.2	< 0.2
Trichloronate	0.2	mg/kg	< 0.2	< 0.2
Triphenylphosphate (surr.)	1	%	95	55
Polychlorinated Biphenyls				
Aroclor-1016	0.1	mg/kg	< 0.1	< 0.1
Aroclor-1221	0.1	mg/kg	< 0.1	< 0.1
Aroclor-1232	0.1	mg/kg	< 0.1	< 0.1
Aroclor-1242	0.1	mg/kg	< 0.1	< 0.1
Aroclor-1248	0.1	mg/kg	< 0.1	< 0.1
Aroclor-1254	0.1	mg/kg	< 0.1	< 0.1
Aroclor-1260	0.1	mg/kg	< 0.1	< 0.1
Total PCB*	0.1	mg/kg	< 0.1	< 0.1
Dibutylchlorendate (surr.)	1	%	91	52
Tetrachloro-m-xylene (surr.)	1	%	148	73
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				
TRH >C10-C16	50	mg/kg	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	220
TRH >C34-C40	100	mg/kg	< 100	110
TRH >C10-C40 (total)*	100	mg/kg	< 100	330
Conductivity (1:5 aqueous extract at 25 °C as rec.)	10	uS/cm	24	330
pH (1:5 Aqueous extract at 25 °C as rec.)	0.1	pH Units	6.2	6.3
% Moisture	1	%	9.3	14
Heavy Metals				
Arsenic	2	mg/kg	2.7	3.4
Cadmium	0.4	mg/kg	< 0.4	< 0.4
Chromium	5	mg/kg	< 5	< 5
Copper	5	mg/kg	< 5	6.3
Lead	5	mg/kg	7.8	8.9
Mercury	0.1	mg/kg	< 0.1	< 0.1
Nickel	5	mg/kg	< 5	< 5
Zinc	5	mg/kg	< 5	25

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
ENM Exemption Suite -The excavated natural material order 2014 NSW EPA(excluding Foreign Material)			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	Feb 08, 2022	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Sydney	Feb 08, 2022	14 Days
- Method: LTM-ORG-2010 BTEX and Volatile TRH			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Feb 08, 2022	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Polycyclic Aromatic Hydrocarbons	Sydney	Feb 08, 2022	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Feb 08, 2022	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Conductivity (1:5 aqueous extract at 25 °C as rec.)	Sydney	Feb 08, 2022	7 Days
- Method: LTM-INO-4030 Conductivity			
pH (1:5 Aqueous extract at 25 °C as rec.)	Sydney	Feb 08, 2022	7 Days
- Method: LTM-GEN-7090 pH by ISE			
Metals M8	Sydney	Feb 08, 2022	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Eurofins Suite B15			
Organochlorine Pesticides	Sydney	Feb 08, 2022	14 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Organophosphorus Pesticides	Sydney	Feb 08, 2022	14 Days
- Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS			
Polychlorinated Biphenyls	Sydney	Feb 08, 2022	28 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
% Moisture	Sydney	Feb 07, 2022	14 Days
- Method: LTM-GEN-7080 Moisture			

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Project Name: BLUEYS BEACH
Project ID: 50522033

Order No.:
Report #: 860815
Phone: 0294967700
Fax: 02 9499 3902

Received: Feb 4, 2022 8:30 AM
Due: Feb 11, 2022
Priority: 5 Day
Contact Name: Kosta Sykiotis

Eurofins Analytical Services Manager : Ursula Long

Sample Detail						Asbestos - AS4964	HOLD	Acid Sulfate Soils Field pH Test	Eurofins Suite B15	Moisture Set	ENM Exemption Suite - The excavated natural material order 2014 NSW
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X	X
External Laboratory											
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**						
1	ES1	Jan 24, 2022		Soil	N22-Fe08876	X			X	X	X
2	ES2	Jan 24, 2022		Soil	N22-Fe08877	X			X	X	X
3	ES3	Jan 24, 2022		Soil	N22-Fe08878	X			X	X	X
4	ES4	Jan 24, 2022		Soil	N22-Fe08879	X			X	X	X
5	ES5	Jan 24, 2022		Soil	N22-Fe08880	X			X	X	X
6	ES6	Jan 24, 2022		Soil	N22-Fe08881	X			X	X	X
7	ASS1	Jan 24, 2022		Soil	N22-Fe08882			X			
8	ASS2	Jan 24, 2022		Soil	N22-Fe08883			X			
9	ASS3	Jan 24, 2022		Soil	N22-Fe08884			X			
10	ASS4	Jan 24, 2022		Soil	N22-Fe08885			X			
11	ASS5	Jan 24, 2022		Soil	N22-Fe08886			X			
12	ASS6	Jan 24, 2022		Soil	N22-Fe08887			X			
13	ES7	Jan 24, 2022		Soil	N22-Fe08888		X				

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Company Name: Cardno (NSW/ACT) Pty Ltd PLEASE USE STANTEC
Address: Level 9, 203 Pacific Highway
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NSW 2065

Project Name: BLUEYS BEACH
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Received: Feb 4, 2022 8:30 AM
Due: Feb 11, 2022
Priority: 5 Day
Contact Name: Kosta Sykiotis

Eurofins Analytical Services Manager : Ursula Long

Sample Detail						Asbestos - AS4964	HOLD	Acid Sulfate Soils Field pH Test	Eurofins Suite B15	Moisture Set	ENM Exemption Suite - The excavated natural material order 2014 NSW
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X	X
14	ES8	Jan 24, 2022		Soil	N22-Fe08889		X				
Test Counts						6	2	6	6	6	6

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

Units

mg/kg: milligrams per kilogram
mg/L: milligrams per litre
µg/L: micrograms per litre
ppm: parts per million
ppb: parts per billion
%: Percentage
org/100 mL: Organisms per 100 millilitres
NTU: Nephelometric Turbidity Units
MPN/100 mL: Most Probable Number of organisms per 100 millilitres

Terms

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment however free tributyltin was measured and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should be used as a guide only and may be different when site specific Sampling Analysis and Quality Plan (SAQP) have been implemented

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR: No Limit

Results between 10-20 times the LOR: RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.4 where no positive PFAS results have been reported have been reviewed and no data was affected.

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QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time.Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total*	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Total PAH*	mg/kg	-			0.5	N/A	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4.4'-DDD	mg/kg	< 0.05			0.05	Pass	
4.4'-DDE	mg/kg	< 0.05			0.05	Pass	
4.4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-HCH	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-HCH	mg/kg	< 0.05			0.05	Pass	
d-HCH	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-HCH (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.05			0.05	Pass	
Toxaphene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organophosphorus Pesticides							
Azinphos-methyl	mg/kg	< 0.2			0.2	Pass	
Bolstar	mg/kg	< 0.2			0.2	Pass	
Chlorfenvinphos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos-methyl	mg/kg	< 0.2			0.2	Pass	
Coumaphos	mg/kg	< 2			2	Pass	
Demeton-S	mg/kg	< 0.2			0.2	Pass	
Demeton-O	mg/kg	< 0.2			0.2	Pass	
Diazinon	mg/kg	< 0.2			0.2	Pass	
Dichlorvos	mg/kg	< 0.2			0.2	Pass	
Dimethoate	mg/kg	< 0.2			0.2	Pass	
Disulfoton	mg/kg	< 0.2			0.2	Pass	
EPN	mg/kg	< 0.2			0.2	Pass	
Ethion	mg/kg	< 0.2			0.2	Pass	
Ethoprop	mg/kg	< 0.2			0.2	Pass	
Ethyl parathion	mg/kg	< 0.2			0.2	Pass	
Fenitrothion	mg/kg	< 0.2			0.2	Pass	
Fensulfothion	mg/kg	< 0.2			0.2	Pass	
Fenthion	mg/kg	< 0.2			0.2	Pass	
Malathion	mg/kg	< 0.2			0.2	Pass	
Merphos	mg/kg	< 0.2			0.2	Pass	
Methyl parathion	mg/kg	< 0.2			0.2	Pass	
Mevinphos	mg/kg	< 0.2			0.2	Pass	
Monocrotophos	mg/kg	< 2			2	Pass	
Naled	mg/kg	< 0.2			0.2	Pass	
Omethoate	mg/kg	< 2			2	Pass	
Phorate	mg/kg	< 0.2			0.2	Pass	
Pirimiphos-methyl	mg/kg	< 0.2			0.2	Pass	
Pyrazophos	mg/kg	< 0.2			0.2	Pass	
Ronnel	mg/kg	< 0.2			0.2	Pass	
Terbufos	mg/kg	< 0.2			0.2	Pass	
Tetrachlorvinphos	mg/kg	< 0.2			0.2	Pass	
Tokuthion	mg/kg	< 0.2			0.2	Pass	
Trichloronate	mg/kg	< 0.2			0.2	Pass	
Method Blank							
Polychlorinated Biphenyls							
Aroclor-1016	mg/kg	< 0.1			0.1	Pass	
Aroclor-1221	mg/kg	< 0.1			0.1	Pass	
Aroclor-1232	mg/kg	< 0.1			0.1	Pass	
Aroclor-1242	mg/kg	< 0.1			0.1	Pass	
Aroclor-1248	mg/kg	< 0.1			0.1	Pass	
Aroclor-1254	mg/kg	< 0.1			0.1	Pass	
Aroclor-1260	mg/kg	< 0.1			0.1	Pass	
Total PCB*	mg/kg	< 0.005			0.1	Pass	
Method Blank							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Conductivity (1:5 aqueous extract at 25 °C as rec.)	uS/cm	< 10			10	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	87			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	84			70-130	Pass	
Toluene	%	77			70-130	Pass	
Ethylbenzene	%	81			70-130	Pass	
m&p-Xylenes	%	84			70-130	Pass	
o-Xylene	%	85			70-130	Pass	
Xylenes - Total*	%	84			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	83			70-130	Pass	
TRH C6-C10	%	86			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1					
TRH C6-C9	S22-Fe08498	NCP	%	86			70-130	Pass	
TRH C10-C14	S22-Fe08271	NCP	%	121			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S22-Fe08498	NCP	%	88			70-130	Pass	
Toluene	S22-Fe08498	NCP	%	81			70-130	Pass	
Ethylbenzene	S22-Fe08498	NCP	%	83			70-130	Pass	
m&p-Xylenes	S22-Fe08498	NCP	%	84			70-130	Pass	
o-Xylene	S22-Fe08498	NCP	%	85			70-130	Pass	
Xylenes - Total*	S22-Fe08498	NCP	%	84			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	S22-Fe08498	NCP	%	103			70-130	Pass	
TRH C6-C10	S22-Fe08498	NCP	%	86			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Benzo(g.h.i)perylene	S22-Fe08275	NCP	%	99			70-130	Pass	
Benzo(k)fluoranthene	S22-Fe08275	NCP	%	97			70-130	Pass	
Dibenz(a.h)anthracene	S22-Fe08275	NCP	%	101			70-130	Pass	
Indeno(1.2.3-cd)pyrene	S22-Fe08275	NCP	%	104			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
4.4'-DDD	S22-Fe08275	NCP	%	107			70-130	Pass	
Aldrin	S22-Fe08275	NCP	%	106			70-130	Pass	
Spike - % Recovery									
Organophosphorus Pesticides				Result 1					
Diazinon	S22-Fe08275	NCP	%	108			70-130	Pass	
Methyl parathion	S22-Fe08275	NCP	%	102			70-130	Pass	
Mevinphos	S22-Fe08275	NCP	%	99			70-130	Pass	
Spike - % Recovery									
Polychlorinated Biphenyls				Result 1					
Aroclor-1260	S22-Fe08275	NCP	%	107			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	S22-Fe08271	NCP	%	118			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	N22-Fe08878	CP	%	79			70-130	Pass	
Acenaphthylene	N22-Fe08878	CP	%	74			70-130	Pass	
Anthracene	N22-Fe08878	CP	%	72			70-130	Pass	
Benz(a)anthracene	N22-Fe08878	CP	%	101			70-130	Pass	
Benzo(a)pyrene	N22-Fe08878	CP	%	76			70-130	Pass	
Benzo(b&j)fluoranthene	N22-Fe08878	CP	%	95			70-130	Pass	
Chrysene	N22-Fe08878	CP	%	78			70-130	Pass	
Fluoranthene	N22-Fe08878	CP	%	82			70-130	Pass	
Fluorene	N22-Fe08878	CP	%	86			70-130	Pass	
Naphthalene	N22-Fe08878	CP	%	74			70-130	Pass	
Phenanthrene	N22-Fe08878	CP	%	81			70-130	Pass	
Pyrene	N22-Fe08878	CP	%	80			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Chlordanes - Total	N22-Fe08878	CP	%	118			70-130	Pass	
4.4'-DDE	N22-Fe08878	CP	%	127			70-130	Pass	
4.4'-DDT	N22-Fe08878	CP	%	111			70-130	Pass	
a-HCH	N22-Fe08878	CP	%	114			70-130	Pass	
b-HCH	N22-Fe08878	CP	%	125			70-130	Pass	
d-HCH	N22-Fe08878	CP	%	117			70-130	Pass	
Dieldrin	N22-Fe08878	CP	%	119			70-130	Pass	
Endosulfan I	N22-Fe08878	CP	%	123			70-130	Pass	
Endosulfan II	N22-Fe08878	CP	%	99			70-130	Pass	
Endosulfan sulphate	N22-Fe08878	CP	%	106			70-130	Pass	
Endrin	N22-Fe08878	CP	%	116			70-130	Pass	
Endrin aldehyde	N22-Fe08878	CP	%	109			70-130	Pass	
Endrin ketone	N22-Fe08878	CP	%	106			70-130	Pass	
g-HCH (Lindane)	N22-Fe08878	CP	%	112			70-130	Pass	
Heptachlor	N22-Fe08878	CP	%	120			70-130	Pass	
Heptachlor epoxide	N22-Fe08878	CP	%	120			70-130	Pass	
Hexachlorobenzene	N22-Fe08878	CP	%	125			70-130	Pass	
Methoxychlor	N22-Fe08878	CP	%	93			70-130	Pass	
Spike - % Recovery									
Organophosphorus Pesticides				Result 1					
Dimethoate	N22-Fe08878	CP	%	101			70-130	Pass	
Ethion	N22-Fe08878	CP	%	123			70-130	Pass	
Fenitrothion	N22-Fe08878	CP	%	111			70-130	Pass	
Spike - % Recovery									
Polychlorinated Biphenyls				Result 1					
Aroclor-1016	N22-Fe08878	CP	%	115			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	N22-Fe08880	CP	%	88			75-125	Pass	
Cadmium	N22-Fe08880	CP	%	97			75-125	Pass	
Chromium	N22-Fe08880	CP	%	94			75-125	Pass	
Copper	N22-Fe08880	CP	%	98			75-125	Pass	
Lead	N22-Fe08880	CP	%	85			75-125	Pass	
Mercury	N22-Fe08880	CP	%	78			75-125	Pass	
Nickel	N22-Fe08880	CP	%	94			75-125	Pass	
Zinc	N22-Fe08880	CP	%	98			75-125	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	S22-Fe10331	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	S22-Fe08595	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S22-Fe08595	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	S22-Fe08595	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S22-Fe10331	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S22-Fe10331	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S22-Fe10331	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S22-Fe10331	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S22-Fe10331	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total*	S22-Fe10331	NCP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S22-Fe10331	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S22-Fe10331	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH >C10-C16	S22-Fe08595	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S22-Fe08595	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	S22-Fe08595	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	N22-Fe08864	NCP	%	13	12	8.0	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	N22-Fe08876	CP	mg/kg	5.3	31	140	30%	Fail	Q15
Cadmium	N22-Fe08876	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	N22-Fe08876	CP	mg/kg	5.9	13	77	30%	Fail	Q15
Copper	N22-Fe08876	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Lead	N22-Fe08876	CP	mg/kg	10	21	69	30%	Fail	Q15
Mercury	N22-Fe08876	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	N22-Fe08876	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Zinc	N22-Fe08876	CP	mg/kg	28	12	82	30%	Fail	Q15
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	N22-Fe08877	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	N22-Fe08877	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	N22-Fe08877	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	N22-Fe08877	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	N22-Fe08877	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	N22-Fe08877	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	N22-Fe08877	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	N22-Fe08877	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	N22-Fe08877	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	N22-Fe08877	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	N22-Fe08877	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	N22-Fe08877	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	N22-Fe08877	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	N22-Fe08877	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	N22-Fe08877	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	N22-Fe08877	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	N22-Fe08877	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	N22-Fe08877	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	N22-Fe08877	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	N22-Fe08877	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-HCH	N22-Fe08877	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	N22-Fe08877	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-HCH	N22-Fe08877	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-HCH	N22-Fe08877	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	N22-Fe08877	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	N22-Fe08877	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	N22-Fe08877	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	N22-Fe08877	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	N22-Fe08877	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	N22-Fe08877	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	N22-Fe08877	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-HCH (Lindane)	N22-Fe08877	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	N22-Fe08877	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	N22-Fe08877	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	N22-Fe08877	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	N22-Fe08877	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Toxaphene	N22-Fe08877	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Azinphos-methyl	N22-Fe08877	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Bolstar	N22-Fe08877	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorfenvinphos	N22-Fe08877	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos	N22-Fe08877	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos-methyl	N22-Fe08877	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Coumaphos	N22-Fe08877	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Demeton-S	N22-Fe08877	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Demeton-O	N22-Fe08877	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Diazinon	N22-Fe08877	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dichlorvos	N22-Fe08877	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dimethoate	N22-Fe08877	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Disulfoton	N22-Fe08877	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
EPN	N22-Fe08877	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethion	N22-Fe08877	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethoprop	N22-Fe08877	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethyl parathion	N22-Fe08877	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenitrothion	N22-Fe08877	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fensulfothion	N22-Fe08877	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenthion	N22-Fe08877	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Malathion	N22-Fe08877	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Merphos	N22-Fe08877	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Methyl parathion	N22-Fe08877	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Mevinphos	N22-Fe08877	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Monocrotophos	N22-Fe08877	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Naled	N22-Fe08877	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Omethoate	N22-Fe08877	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Phorate	N22-Fe08877	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Pirimiphos-methyl	N22-Fe08877	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Pyrazophos	N22-Fe08877	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ronnel	N22-Fe08877	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Terbufos	N22-Fe08877	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	

Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Tetrachlorvinphos	N22-Fe08877	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Tokuthion	N22-Fe08877	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Trichloronate	N22-Fe08877	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Duplicate									
Polychlorinated Biphenyls				Result 1	Result 2	RPD			
Aroclor-1016	N22-Fe08877	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1221	N22-Fe08877	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1232	N22-Fe08877	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1242	N22-Fe08877	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1248	N22-Fe08877	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1254	N22-Fe08877	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1260	N22-Fe08877	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Total PCB*	N22-Fe08877	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Conductivity (1:5 aqueous extract at 25 °C as rec.)	N22-Fe08877	CP	uS/cm	22	20	8.2	30%	Pass	
pH (1:5 Aqueous extract at 25 °C as rec.)	N22-Fe08877	CP	pH Units	5.5	5.3	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	N22-Fe08879	CP	mg/kg	3.6	2.6	33	30%	Fail	Q15
Cadmium	N22-Fe08879	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	N22-Fe08879	CP	mg/kg	5.0	< 5	1.0	30%	Pass	
Copper	N22-Fe08879	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Lead	N22-Fe08879	CP	mg/kg	9.9	9.0	10	30%	Pass	
Mercury	N22-Fe08879	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	N22-Fe08879	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Zinc	N22-Fe08879	CP	mg/kg	6.5	5.8	11	30%	Pass	

Comments

V3 created to update Sampling Date and separate results as per client request.

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
Q15	The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised by:

Quinn Raw	Analytical Services Manager
Dilani Samarakoon	Senior Analyst-Inorganic
Gabriele Cordero	Senior Analyst-Inorganic
John Nguyen	Senior Analyst-Metal
Laxman Dias	Senior Analyst-Asbestos
Sayeed Abu	Senior Analyst-Asbestos

Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

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

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

eurofins | Environment Testing

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Rolleston, Christchurch 7675
Phone : 0800 856 450
IANZ # 1290

Sample Receipt Advice

Company name:	Cardno (NSW/ACT) Pty Ltd
Contact name:	Kosta Sykiotis
Project name:	BLUEYS BEACH
Project ID:	50522033
Turnaround time:	5 Day
Date/Time received	Feb 4, 2022 8:30 AM
Eurofins reference	860815

Sample Information

✓	A detailed list of analytes logged into our LIMS, is included in the attached summary table.
✓	All samples have been received as described on the above COC.
✓	COC has been completed correctly.
✓	Attempt to chill was evident.
✓	Appropriately preserved sample containers have been used.
✓	All samples were received in good condition.
✓	Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
✓	Appropriate sample containers have been used.
✓	Sample containers for volatile analysis received with zero headspace.
✗	Split sample sent to requested external lab.
✗	Some samples have been subcontracted.
N/A	Custody Seals intact (if used).

Notes

Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

Ursula Long on phone : or by email: UrsulaLong@eurofins.com

Results will be delivered electronically via email to Kosta Sykiotis - kosta.sykiotis@cardno.com.au.

Note: A copy of these results will also be delivered to the general Cardno (NSW/ACT) Pty Ltd email address.

CHAIN OF CUSTODY RECORD

LAB Name	Eurofins
Address	7/7 Friesan Cl Sandgate NSW 2304

Client	Cardno (NSW/ACT) Pty Ltd PO Box 74 Broadmeadow NSW 2292
Contact	Kosta Sykiotis
Sampled by	Kosta Sykiotis
Project Ref:	81022051

Cardno
Shaping the Future

Contact Numbers	
Phone	0249 654555
Fax	0249 654666

Samples dropped to Eurofins Laboratory 25/01/2022.
Please hold ASS samples for detailed testing.

E-mail		kosta.sykiotis@cardno.com.au

(invoice to kosta.sykiotis@cardno.com.au)

Date Results Required	Standard TAT

Laboratory LIMS ID	Client Sample ID	Date Sampled	Matrix: Soil	Matrix: Water	Containers/Preservation: Soil Jar (G) Nat. Orange	0.5-1.0 litre (G) Nat. Yellow	0.1-1.0 litre (P) Nat. Green	50mL VOA Vial (G) H_2SO_4 Maroon	0.1-1.0 litre (P) H_2SO_4 Maroon	0.2-1.0 litre (G) H_2SO_4 Maroon	0.1-0.2 (P) Filtered?? Y=Yes, N=No (HNO3) Red	0.2l (P) NaOH Blue	Other - Ziplock	Analysis Required: Suite R17 (exclude Foreign Materials)	Suite B15	Asbestos ID	Acid Sulphate Screening		
	ES1	24/01/2022	☒		☒									☒	☒	☒			
	ES2	24/01/2022	☒		☒									☒	☒	☒			
	ES3	24/01/2022	☒		☒									☒	☒	☒			
	ES4	24/01/2022	☒		☒									☒	☒	☒			
	ES5	25/01/2022	☒		☒									☒	☒	☒			
	ES6	25/01/2022	☒		☒									☒	☒	☒			
	ASS1	24/01/2022	☒		☒												☒		
	ASS2	24/01/2022	☒		☒												☒		
	ASS3	24/01/2022	☒		☒												☒		
	ASS4	25/01/2022	☒		☒												☒		
	ASS5	25/01/2022	☒		☒												☒		
	ASS6	25/01/2022	☒		☒												☒		

Released by: Kosta Sykiotis Signature K.Sykiotis Date/Time 4/02/2022
Received by: Signature Date/Time 4-2-22 8.30am

Custody Seals Intact? / Samples Received Chilled? 8.5°C

#860815

From: Kostandreas Sykiotis <Kosta.Sykiotis@cardno.com.au>
Sent: Monday, 7 February 2022 3:06 PM
To: Quinn Raw <QuinnRaw@eurofins.com>
Subject: RE: Samples from 25/1

Hi Quinn,

Apologies for the mix up. The job number for these samples is 50522033 and the project name is Blueys Beach. Please hold the additional samples.

Thank you!

Kostandreas Sykiotis
GEOTECHNICAL ENGINEER
CARDNO

Phone Fax +61 2 4940 5589 Direct +61 2 4940 5589
Address 559 Hunter Street, Newcastle West, New South Wales 2302 Australia

Email kosta.sykiotis@cardno.com.au Web www.cardno.com.au

CONNECT WITH CARDNO

From: Quinn Raw <QuinnRaw@eurofins.com>
Sent: Monday, 7 February 2022 3:02 PM
To: Kostandreas Sykiotis <Kosta.Sykiotis@cardno.com.au>
Subject: RE: Samples from 25/1

Hi Kosta,

Just following up regarding these samples.

I noticed the COC has a different Project Number (81022051) to most of the samples (50522033) and is missing the Project name that's in the name of the file.

There is also two extra samples, ES7 & ES8 which are not on the COC.

I've logged the job with the project number on the COC and the extras on hold.
Let me know if you'd like me to change anything.

Cheers!

Kind Regards,

Quinn Raw
Sample Receipt Officer
(she,her / they,them)

Eurofins Environment Testing Australia Pty Ltd
Unit 7, 7 Friesian Close
Sandgate, NSW Australia, 2304
Mobile: +61 459 786 036

APPENDIX

F

UNEXPECTED FINDS PROTOCOL

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Unexpected Finds Protocol

Blueys Beach Residential Development, Blueys Beach NSW

50522033-003.1

Prepared for

Addenbrooke Pty Ltd

12 August 2022

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Contact Information

Cardno (NSW/ACT) Pty Ltd
ABN 95 001 145 035

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Newcastle West 2302 Australia

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www.stantec.com

Document Information

Prepared for	Addenbrooke Pty Ltd
Project Name	Blueys Beach Residential Development, Blueys Beach NSW
File Reference	81022070-002
Job Reference	50522033-003.1
Date	12 August 2022
Version Number	1

Author(s):

Kosta Sykiotis
Geotechnical Engineer

Effective Date 12/08/2022

Approved By:

Dimce Stojanovski
Senior Scientist

Date Approved 12/08/2022

Document History

Version	Effective Date	Description of Revision	Prepared by	Reviewed by
1	12/08/2022	First Issue to Client	KS	DS

Table of Contents

Appendices

1 Introduction

This Unexpected Finds Protocol (UFP) has been developed for the proposed residential development located at Boomerang Drive, Blueys Beach NSW Lot 23 DP 537919 (the "Site") as shown in Figure 1, attached in Appendix A.

The purpose of the Unexpected Finds Protocol is to document the process for evaluating any unexpected environmental finds during the project, and to specify safety measures to be implemented to manage such circumstances and prevent any adverse environmental and human health impacts.

Stantec have prepared concept design plans titled "Blueys Beach Development – Overall General Arrangement Plan", referenced 50522033-C-1004, revision B, dated 9th May 2022.

Based on subdivision concept design plans, the proposed residential development comprises the following:

- Creation of 73 residential allotments (Lots A1-A6, B1-B8, C1-C8, D1-D30, E1-E6, F1-F6, G1-G6);
- Creation of a potential commercial allotment (Lots Z1 and Z2);
- Construction of internal roads (Roads 1-4) and associated infrastructure;
- Construction of a proposed roundabout at the intersection of Croll Street, View Street and the Site; and
- Construction of three proposed basins in the eastern (Y2) and southern (Y1 and Y3) portions of the Site.

The proposed concept layout is shown overlaid over Nearmap imagery on Figure 1 in Appendix A.

1.1 Scope

This Unexpected Finds Protocol (UFP) is specific to the proposed residential development in the portion of Lot 23 DP 537919 located at Boomerang Drive, Blueys Beach NSW as shown in Figure 1, attached in Appendix A. It provides guidance and procedures for dealing with any unexpected finds that may be encountered during the disturbance works carried out on Site.

1.2 References

The following documents have been reviewed in preparation of this Unexpected Finds Protocol:

- National Parks and Wildlife Act 1974 (NSW)
- Coroners Act 2009 (NSW)
- Aboriginal and Torres Strait Islander Heritage Protection Act 1984 (Cth)
- Heritage Act 1977 (NSW)
- National Environmental Protection Measure (1999)

2 Procedure

2.1 General

The following procedure should be used to assess any unexpected finds that are encountered throughout the duration of the project. Unexpected finds may include but are not limited to heritage items, unidentified filling, odorous or stained soils, and suspected asbestos materials. All Site personnel are required to report any unexpected finds to the site manager, if observed during the course of their works.

2.2 Training and Induction of Personnel

Personnel involved in the project on site are to be inducted to the unexpected finds protocol.

Site inductions would include making workers and site personnel aware of the possibility of unexpected finds. Inductions will also include the immediate course of actions to be taken by workers if they were to find anything, including stopping work, notifying their supervisor immediately and completing the Incident Report forms. The induction should be reinforced at daily toolbox meetings.

2.3 Initial Response

If any unexpected/unidentified material is uncovered during disturbance works, the following procedure should be followed;

- Cease all works in the immediate area.
- Identify the category of the find (Contaminated Soils, Heritage, uncovering of Asbestos Materials etc).
- Delineate and restrict access to the area using fencing and /or appropriate barriers and signage.
- Ensure appropriate training and PPE is available for any persons required to enter the area.
- Document the nature of the find.
- Engage a suitably qualified consultant to assess the unexpected find.
- The consultant will assess the unexpected find and provide advice regarding the preliminary assessment with reference to Sections 4.4 – 4.8 below, which will include the following:
  - The need for further immediate management controls if required;
  - Further assessment and / or remediation works required in accordance with relevant guidelines;
  - Preparation of Remediation Action Plan (RAP) if required or provide clean up advice;
  - If required, clean up strategies of the affected area will be implemented.
  - If appointed, correspondence with a Site Auditor shall be undertaken.

Works within the affected area are not to recommence until it is deemed safe and suitable for works to continue. Written confirmation shall be undertaken by the appropriate consultant following appropriate advice and clean up procedures.

2.4 Skeletal Remains

In the event that skeletal remains are uncovered and the remains are not immediately identifiable as non-human remains, a qualified archaeologist should be engaged to determine their origin. If the skeletal remains are identifiable as human remains, the Local Police should be contacted to assess the discovery. Under no circumstances should the skeletal remains be disturbed without prior consultation with the relevant authorities which may include the coroner, police, Office of Environment & Heritage, aboriginal groups or a qualified anthropologist.

2.5 Aboriginal Heritage

In the event that any relic, artefact or material that is suspected of being Aboriginal Heritage is uncovered, works must cease immediately in the area. The Office of Environment and Heritage (OEH) should be notified, as well as the National Parks and Wildlife Service, NSW Police and local Aboriginal Stakeholders.

The Office of Environment and Heritage requires notification and an AHIP permit is required prior to the removal of any Aboriginal artefacts. An AHIP permit is issued under the National Parks and Wildlife Act and applications can be made directly to the OEH.

2.6 Archaeological Heritage

Items of archaeological heritage may be uncovered during disturbance works. Items of archaeological heritage may include Aboriginal artefacts or remains, European artefacts following settlement. European heritage may include items such as roadways (telford & corduroy timber road bases etc), kerbing, culverts, building foundations and tools. A suitably qualified archaeologist should be engaged to assess the find.

2.7 Potentially Contaminated Soils

In the event that any odorous, stained or unidentified soils are uncovered during the site works, a suitable qualified environmental consultant should be engaged to assess the material and the following procedures should apply:

- Excavation works at that part of the site where suspect soil material was encountered should cease until an inspection by an environmental consultant is carried out;
- Based on a visual inspection, the consultant will provide guidance on health and safety of remedial works, soil storage and soil disposal to allow construction works to proceed if possible;

Based on sampling and analysis the consultant will provide advice as to any additional requirements (i.e. managed on site or any offsite disposal requirements).

2.8 Asbestos Containing Materials

Contingency measures must be developed to evaluate any unexpected finds of suspected asbestos containing materials. These are to specify safety measures that can be implemented to manage and prevent any adverse environmental and human health impacts. Appropriate contingency measures in relation to asbestos impacted soils and suspected asbestos containing materials (ACM) include:

- Where suspected ACM is encountered excavation works must cease until an inspection by an environmental consultant is carried out;
- Any illegal dumping containing suspected asbestos bearing material or synthetic mineral fibres should be inspected by an environmental consultant.

Following a visual inspection; and sampling if necessary, the consultant will provide interim advice on health and safety requirements to allow construction works to proceed if possible;

Based on sampling and analysis the consultant will provide advice as to any additional requirements (i.e. management or disposal requirements).

Following an inspection and sampling for laboratory testing (where required), works can continue following the consultants written advice.

2.9 Summary

Where an area is identified as containing an isolated find, works must cease, and an inspection and sampling (where required) shall be undertaken by a suitable qualified consultant in accordance with Sections 2.4 to 2.8.

Works within the area shall only recommence following the advice of the suitable qualified personal.

An Unexpected Finds Protocol procedure form is available in Appendix B.

APPENDIX

A

FIGURES

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NOTES:

Image underlay adapted from Metromaps aerial imagery.

LEGEND:

= TP001 Approximate test pit locations and numbers.

0 50m

SCALE 1:2000 @A3

NORTH

TP001 TP002 TP003 TP004 TP005 TP006 TP007 TP008 TP009 TP010 TP011 TP012 TP013 TP014 TP015 TP016 TP017

G1 G2 G3 G4 G5 G6 Z1 F1 F2 F3 F4 F5 F6 E1 E2 E3 E4 E5 E6 D1 D2 D3 D4 D5 D6 D7 D8 D10 D11 D12 D13 D14 D16 D17 D18 D20 D21 D22 D23 D24 D25 D26 D27 D28 D29 D30 C2 C3 C4 C6 C7 C8 Y2 Y4 B1 B2 B3 B5 B6 B7 B8 Y3 Y1 A1 A2 A3 A4 A5 A6 A7 A8 A9

SITE

NOT TO SCALE

DATE PLOTTED: 12 August 2022 8:55 AM BY : KOSTANDREAS SYKIOTIS

XREFs: X-Lot Areas_Option C; X-Final Lot Areas_Option E

CAD File: A:\Projects\505\FY22\033_BLUEYS BEACH DA\Drawings\Build\Geotechnical\50522033-GI- Draft Site Plan- Blueys Beach.dwg

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Cardno (NSW/ACT) Pty Ltd | ABN 95 001 145 035
Unit 1, 10 Denney Street
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Tel: 02 4965 4555 Fax: 02 4965 4666
Web: www.cardno.com.au

Drawn	KS	Date 7/6/2022
Checked	IGP	Date 7/6/2022
Designed		Date
Verified		Date
Approved		

Client: Addenbrooke Pty Ltd

Project: Blueys Beach Residential Development Blueys Beach, NSW

Title: Geotechnical Investigation Figure 1 Lot Layout Plan

Status: PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION PURPOSES

Project Number	Scale	Size
50522033	1:2000	A3

Drawing Number: Figure 1

Revision: 001

APPENDIX

B

UNEXPETCED FINDS PROTOCOL FORM

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UNEXPECTED FINDS PROTOCOL

INCIDENT REPORT FORM

Location of discovery (photographs, location map etc):

Nature of find (contaminated soils, heritage, asbestos etc.):

Action Taken:

Date: Recorded By: