

Preliminary Site Investigation Richard Gill Music Academy, Muswellbrook



Prepared for
Richard Gill National Music Academy Ltd

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Executive Summary

Cardno (NSW/ACT) Pty Ltd ('Cardno') was engaged by Stanton Dahl Architects on behalf of Richard Gill National Music Academy Ltd ('the Client') to prepare a Preliminary Site Investigation (PSI) for the proposed location of the Richard Gill Music Academy, in Muswellbrook NSW, Lot 2 DP 1118310. The purpose of the PSI is to provide preliminary advice on the potential for contamination to be present at the Site and the consequent implications on the site's potential usage under *State Environmental Planning Policy No 55 – Remediation of Land* to fulfil the requirements of the Planning Secretary's Environmental Assessment Requirements. The Site is currently used as the administration building for Muswellbrook Shire Council.

During preparation of the PSI, Cardno reviewed available background information to determine potential sources of contamination and undertook a site inspection to confirm and map salient site features.

Summary of Contamination potential based on the investigation and Preliminary Conceptual Site Model

This assessment has been informed by the review of background data and a walk over of the site, conducted on 2nd April. The site walk over did not identify any areas that are likely to be contaminated. Review of the background data indicated that previous land uses/activities are not likely to be a substantial source of pollution, the historical data informed the following conclusions:

- > Aerial images and background data indicate that the Site is at low risk of contamination from historical land use and activity.
- > There is the potential that the historical application of pesticides such as OCP/OPP has occurred due to nearby agricultural use.

Summary of Findings

Due to no COPC's being identified during the site visit and investigations Cardno considers the site represents a low risk to human and or environmental health and that additional assessment of soils and or groundwater is not required.

Recommendations

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

- > Due diligence should be employed during construction work and ensure materials exhibiting signs of contaminations (stains, odours etc.) are separated and assessed.
- > Results from this investigation indicated that no gross contamination was observed on Site therefore no further testing is necessary. Further, it is not anticipated that the groundwater beneath the Site is impacted by Site activities.
- > If signs of contamination not previously identified during the fieldwork is discovered a further Waste Class Assessment may be undertaken to identify any contaminants of potential concern and determine the appropriate approach to further construction activities and the appropriate removal of contaminants.

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1 Introduction

1.1 Background

Cardno (NSW/ACT) Pty Ltd ('Cardno') was engaged by Stanton Dahl Architects on behalf of Richard Gill National Music Academy Ltd ('the Client') to prepare a Preliminary Site Investigation (PSI) for the proposed location of the Richard Gill Music Academy, in Muswellbrook NSW, Lot 2 DP 1118310. The purpose of the PSI is to provide preliminary advice on the potential for contamination to be present at the Site and the consequent implications on the site's potential usage under *State Environmental Planning Policy No 55 – Remediation of Land* to fulfil the requirements of the Planning Secretary's Environmental Assessment Requirements. The Site is currently used as the administration building for Muswellbrook Shire Council.

1.2 Purpose and Objectives

The purpose of this PSI is to provide the Client with preliminary advice on the potential for contamination to be present at the Site and the consequent implications on the site's suitability for its intended use under S. During preparation of the PSI, Cardno reviewed current and historical activities undertaken at the Site to provide a preliminary assessment of the potential for soil and/or groundwater contamination to be present on the Site.

The objectives of the PSI are to:

- > Identify the potential for past or present activities on the Site and the immediate surroundings to cause impact of land 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 beneficial uses of the land and groundwater to be impacted; and
- > Assess the requirement, if any, for further environmental investigations or works that are necessary to make the Site suitable for the proposed use.

1.3 Scope

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

- > Defined the Site, features and surrounds:
 - Listed the property title description and zoning;
 - Defined site boundaries based on land title information;
 - Defined site features including services, main buildings and other infrastructure;
 - Defined topography, surface water flows and drainage;
 - Identified nearby sensitive receptors; and
 - Reviewed regional and local geology and hydrogeology, including details on registered bores.
- > Assessed the site conditions and the surrounding environment from the following sources:
- > Completed a site inspection to confirm site features and identify potential sources of contamination or areas of environmental concern;
- > Undertook a hazardous material assessment of the Council Building;
- > Inspected the surrounding area (within approximately 200 m of the Site) for potential sources of soil or groundwater contamination; and
- > Undertook a review of site history using the information from the following sources:
 - Aerial photographs;
 - NSW EPA maintained registers; and
 - Preparation of this PSI report.

1.4 Guidelines and Legislation

The scope of work outlined above was completed in accordance with the requirements included in the following guidelines and legislation:

- > NEPC (2013) *National Environment Protection (Assessment of Site Contamination) Measure (NEPM)*. National Environment Protection Council (NEPC) 1999;
- > NSW Department of Urban Affairs and Planning (1998) *Managing Land Contamination: Planning Guidelines: SEPP 55 Remediation of Land*, 1998; and
- > NSW EPA (2020) *Consultants reporting on contaminated Land: Contaminated land guidelines*, NSW Environment Protection Authority (EPA)

2 Site Condition and Surrounding Environment

2.1 Site Definition

The Site is located at 157 Maitland Street, Muswellbrook, NSW 2333. The concept plan is displayed in **Figure 1, Appendix A** with Site details provided in **Table 2-1**.

Table 2-1 Site Identification

Item	Details
Site Address	157 Maitland Street, Muswellbrook, NSW 2333
Approximate Site Area	1.5 ha
Title Details	Lot 2 DP 1118310
Local Government Area	Muswellbrook Shire Council
Site Owners at the time of this engagement	Muswellbrook Shire Council

2.2 Site Description

The Site is currently utilised as the administration building for the Muswellbrook Shire Council and is bordered to the east, west and south by residential properties, and is bordered to the north by the New England Highway onto Muswellbrook Golf Club.

There is a drainage depreciation on the western portion of the site, with an elevation loss of approximately 20m from south to north. There is a detention basin to the west of the current administration building (Figure 2-1), stormwater overflow from the basin drains into muscle creek north of the site, entering the Hunter River catchment. The site features evidence of localised regrading to level the foundation for the administration building, based on the topography of the site, it is unlikely that imported fill was required for the regrading. The site has healthy vegetation cover, consisting of sparse trees and good grass coverage featuring occasional dry patches typical of drought affected land but otherwise without signs of stress.

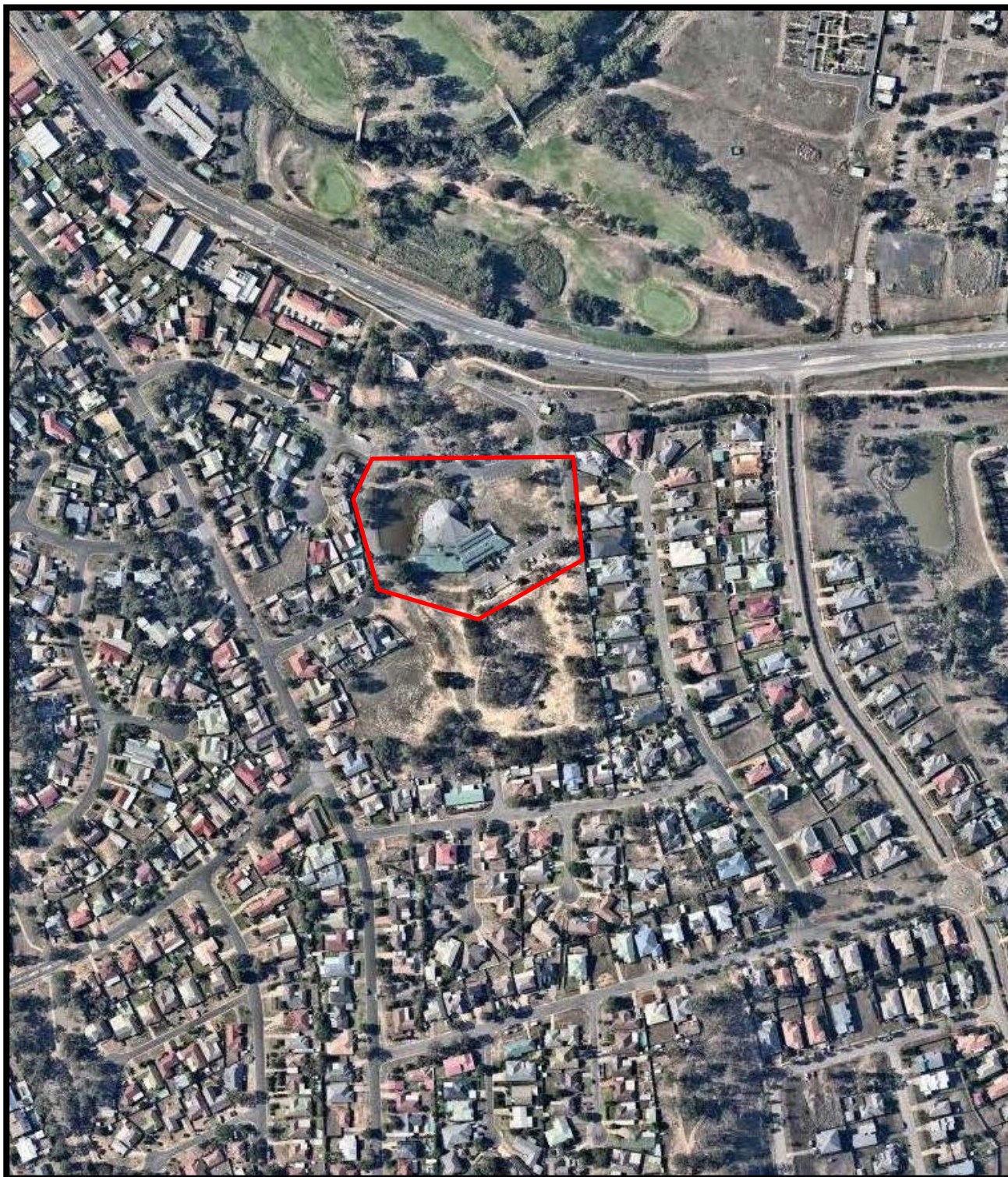


Figure 2-1 Site Area, source: Nearmap, 21 Jan 2020

An inspection of the Site was undertaken on 2nd April 2020 with photographs from the site inspection presented in **Appendix B**. Details of observations made during the site inspection are provided in **Table 2-2**.

Table 2-2 Site Inspection Observations

Item	Observations
Site use	Commercial – Council Administration building
Weather condition	Fine and Sunny

Item	Observations
Site Slope and Drainage Features	The site slopes to the north with a drainage channel on the western portion of the site with overflow exiting the site to the north and entering Muscle creek, within the Hunter River catchment.
Nearby water bodies	Muscle Creek
Site surface coverings	Existing building, stormwater detention basin, grass, scattered established trees.
Site cut and fill	Evidence of local regrading, unlikely that imported fill was required.
Surface soils	Silty and Sandy clays
Buildings	Commercial building present
Potential asbestos in building materials	Due to the age of the existing building, the potential for asbestos was identified, a Hazardous Material survey has been undertaken and the results are in Appendix D
Manufacturing, industrial or chemical processes and infrastructure	Potential use of Organochloride Pesticides/Organophosphorus Pesticides (OCP/OPP) due to agricultural land use.
Fuel storage tanks (USTs/ASTs)	None observed.
Dangerous goods	There were no dangerous goods identified on Site.
Solid waste deposition	There was no major stockpiling of waste on site, there were a few items that had been illegally dumped on site, Figure 8-3 and Figure 8-4 of Appendix B .
Liquid waste disposal features	No onsite septic was observed. The site featured underground piping to remove sewage from the site.
Evidence of previous site contamination investigations	Cardno has no information of previous contamination assessments undertaken at the Site.
Evidence of land contamination (staining or odours)	No evidence of staining or odours were observed during the Site visit.
Evidence of groundwater contamination	No signs of gross contamination were evident.
Groundwater use	There was no evidence of groundwater extraction or use on site.
Vegetation	Grasslands and established trees were observed throughout the Site. There were no signs of stressed vegetation beyond that typical to drought affected lands.

2.3 Surrounding Land Uses

Land uses surrounding the Site are detailed in **Table 2-3** below.

Table 2-3 Surrounding Land Use

Direction	Land Use or Activity
North	Highway, adjacent to a golf course
West	Residential
East	Residential
South	Cleared undeveloped land and Residential

The site and surrounding area are illustrated in the location plan in **Figure 1** in **Appendix A**.

2.4 Flood Potential

The Muswellbrook LEP was reviewed and is not inclusive of Flood Planning mapping or data. It is understood that a flood and drainage assessment of the site is concurrently being undertaken to inform the EIS for the development, refer to the outcome of that assessment for information pertaining the flooding potential of the

Site. However due to the non-hazardous current and proposed use of the Site and surrounding up slope areas, the extent of flooding is not likely to impact the outcome of this assessment.

2.5 Regional Geology and Site Soil Landscapes

The 1:250,000 NSW Stateside Geology Sheet indicates that the Site is characterised by coal seams, siltstone, sandstone overlaying the Rowan Formation of the greta coal measures from the Permian period of the Palaeozoic Era. The soil landscape is a level plain of extensive floodplains on Quaternary alluvium derived from the Hunter and Paterson Rivers in the central east of the Hunter Region. The soils between 50 – 100 cm are well drained Stratic Rudosols, between 100- 150 cm are well to imperfectly drained Brown Dermosols and between 150-500 cm is poorly drained Hydrosols. This results in a hazards such as:

- > widespread foundation hazard;
- > widespread productive arable land;
- > localised seasonal waterlogging; and
- > widespread flood hazard.

A map of the Site and surrounding geology is presented in map 4 and the soil landscape are represented in map 3a of Attachment A of the Enviro Screen report in **Appendix C**.

2.6 Groundwater Database

Ten groundwater wells were identified within a 500 m radius of the Site, all bores are north west of the site, with the nearest approximately 214 m from the Site. The bores are predominantly water supply, manufacturing and industry bores with the exception of a singular household bore. The details from the groundwater bores is reported on pages 7 and 8 of the Enviro Screen in **Appendix C**.

2.6.1 Acid Sulfate Soils

Data from the Australian Atlas of Acid Sulfate Soils indicated that there is a low probability of acid sulfate soils occurring on and (Class B). Search results are contained in pages 5 of the Enviro Screen report in **Appendix C**.

2.6.2 Salinity

There was no salinity hazard identified. As shown on page 5 of the Enviro report attached in **Appendix C**.

2.7 Previous Environmental Reports

Based on conversations with the Client, no previous environmental reports have been produced for the Site.

2.8 EPA Records Search

2.8.1 Contaminated Land Record of Notices

The Contaminated Land Record of Notices is maintained by the Department of Planning, Industry and Environment 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 the Record of Notices did not identify and properties within 1,000m of the investigation Site.

2.8.2 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 Public Register was searched within a 1,000m radius from the Site to identify any issues of relevance to the Site. The search did not identify any sites within the buffer areas with an active PoEO Licence.

2.8.3 List of Contaminated Site Notified to the EPA

Sites appearing on this list indicate that the notifiers consider that the sites are contaminated and warrant reporting to EPA; however, the contamination may or may not be significant enough to warrant regulation by the EPA. The EPA needs to review and, if necessary, obtain more information before it can decide as to whether site warrants regulation.

A search of the List of NSW Contaminated Sites Notified to the EPA identified one (1) notified site within a 1,000m buffer of the Site. Results are presented in **Table 2-4** below. This site is hydraulically down gradient of the investigation area and any contamination migrating from this site unlikely to affect the investigation area.

Table 2-4 List of Contaminated sites notified to EPA

Address/Location	Site Name	Activity that caused contamination	Management Class	Distance from Site (m)
84-86 Maitland Street, Muswellbrook	Caltex Muswellbrook Service Station	Service Station	Regulation under CLM Act not required	641m north-west

2.9 SafeWork NSW Dangerous Goods Search

The site history and thorough walkover did not reveal any evidence of dangerous goods and as such it was considered unnecessary to undertake a dangerous goods search.

2.10 Planning Information

The Site is zoned R1 General Residential under the Muswellbrook Shire Council *Local Environment Plan 2009*. The R1 General Residential has the following objectives:

- > To provide for the housing needs of the community.
- > To provide for a variety of housing types and densities.
- > To enable other land uses that provide facilities or services to meet the day to day needs of residents.
- > To enable sensitive infill development of other housing types.
- > To allow people to carry out a reasonable range of activities from their homes, where such activities do not adversely affect the living environment of neighbours.
- > To promote the principles of ecological sustainable development including energy and water efficient subdivision and housing design.
- > To minimise the impact of non-residential uses and ensure these are in character and compatible with surrounding development.
- > To ensure that development is carried out in a way that is compatible with the flood risk of the area.

3 Site History

3.1 Historical Information Sources

The historical information sources listed in **Table 3-1** were obtained and reviewed.

Table 3-1 Historical and Background Information Sources

Information	Source
Aerial Photographs	NSW Land and Property Information
Heritage Council of NSW	NSW Department of Planning, Industry and Environment
Historical Business Directory Records	Enviro Screen (Appendix C)

3.2 Historical Business Directory Records

A review of the business directory records for the buffer area of 200 m of the Site was undertaken for various years to assess the historical ownerships and the proximity of the Site. The business directory records for 1932, 1940, 1950, 1965, 1970, 1971, 1974, 1980, 1981 and 1990, 1991 and 2005 were reviewed. The findings are on pages 15 and 16 of the Enviro Screen in **Appendix C**. The review uncovered that Machinery supplier Moybern Motors was operational from 1981 at 139 Maitland Street, approximately 103 m north - west of the Site. Due to the topography of the locality facilitating stormwater to drain to the north, it is unlikely that this business would have resulted in contamination on the proposed site.

3.3 Heritage Items

Searches of the following sources were conducted:

- > Muswellbrook Local Environmental Plan
- > National Heritage List
- > Register of National Estate
- > State Heritage Register
- > Commonwealth Heritage list

No heritage items were identified within a 200m radius of the site.

3.4 Summary of Relevant Historical Activities

Historical land uses and potential activities occurring at the Site are summarised in **Table 3-2** below. Activities with the potential to cause contamination are noted.

Table 3-2 Land Use History and Activities

Year	Information Source	Interpretation
1958	Historical Aerial Photographs.	Greenfield land, assumed to have low to medium agricultural activities on the site and surrounding properties with a 500m buffer, with a highway and golf course to the north.
1967	Historical Aerial Photographs.	Greenfield land, assumed to have low to medium agricultural activities on the site and surrounding properties with a 500m buffer with a highway and golf course to the north.
1974	Historical Aerial Photographs.	Greenfield land, assumed to have low to medium agricultural activities on the site and surrounding properties with a 500m buffer, with a highway and golf course to the north.
1989	Historical Aerial Photographs.	Commercial use as the administration building for Muswellbrook Shire Council. Residential development to the west of the site. Greenfield with assumed low to medium agricultural activities to the east and south. A highway and golf course to the north.

1993	Historical Aerial Photographs.	Commercial use as the administration building for Muswellbrook Shire Council. Residential development to the west and south of the site. Minor residential use and assumed low to medium agricultural activities to the east. A highway and golf course to the north.
1998	Historical Aerial Photographs.	Commercial use as the administration building for Muswellbrook Shire Council. Residential development to the west and south of the site. Minor residential use and assumed low to medium agricultural activities to the east. A highway and golf course to the north.
2003	Historical Aerial Photographs.	Commercial use as the administration building for Muswellbrook Shire Council. Residential development to the west and south of the site. Minor residential use and assumed low to medium agricultural activities to the east. A highway and a golf course to the north.
2007	Historical Aerial Photographs.	Commercial use as the administration building for Muswellbrook Shire Council. Residential development adjacent to the east, south and west. A highway and golf course to the north.
2013	Historical Aerial Photographs.	Commercial use as the administration building for Muswellbrook Shire Council. Residential development adjacent to the east, south and west. A highway and golf course to the north.
2020	Historical Aerial Photographs	Commercial use as the administration building for Muswellbrook Shire Council. Residential development adjacent to the east, south and west. A highway and golf course to the north.

4 Contaminants of Potential Concern

Based on the available site history and site investigation the Contaminants of Potential Concern identified by Cardno are listed in **Table 4-1**.

Table 4-1 Contaminants of Potential Concern

Potential Contaminant	Potential Source
Heavy metals (As, Cd, total Cr, Cu, Pb, Ni, Zn and Hg)	Stormwater run off
Organochlorine Pesticides (OCP), Organophosphorus Pesticides (OPP)	Agricultural practices.
Asbestos	Building Materials
Lead Paint	Building Material

4.1.2 Areas and Contaminants of Potential Environmental Concern

Based on a review of site history and the observations made during the site inspection there were no areas of potential environmental concern identified. A diesel generator (Figure 8-1, Appendix B) is located to the rear of the existing building, according to a representative from Muswellbrook Council, the generator is serviced, maintained and filled by appropriately qualified persons via an offsite diesel supply transported onsite. Therefore, there is no onsite underground fuel tanks and the generator does not present a substantial risk for contamination.

4.1.3 Summary of Hazardous Material Potential in Building Material

The potential for building material to contain Asbestos, Synthetic Mineral Fibre (SMF), Lead Paint and Polychlorinated Biphenyls (PCB) was investigated through a Hazardous Material survey of the building the report is attached in **Appendix D**, and the results summarised in the following **Table 4-2**.

Table 4-2 Summary of Hazardous Material

Summary of Hazardous Material	
Friable Asbestos	Nil
Bonded Asbestos	Nil
SMF	Yes
Lead in Paint	Nil
PCB's	Nil
Summary of Dangerous Goods	
Dangerous Goods Identified	Nil

5 Preliminary Conceptual Site Model

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 COPCs associated with past (and present) source(s);
- > Vertical, lateral and temporal distribution of COPCs; and
- > Actual or potential receptors considering both current and future land use both for the Site and adjacent properties, and any sensitive ecological receptors.

Based on the information contained in **Sections 2 to 4**, a preliminary CSM has been developed and is outlined in **Table 5-1** below. Additional details are included in the sections that follow as necessary.

Table 5-1 Preliminary Conceptual Site Model

Conceptual Model Element	Site Description
Site History/Contaminant Sources	Aerial images and background data indicate that the Site is at low risk of contamination from historical land use and activity.
Site Current and Future Use	Currently the site is used as the administration building for Muswellbrook Shire Council and is planned to be used for the campus of the Richard Gill Music Academy.
Site Geology	the Site is characterised by coal seams, siltstone, sandstone. These soils overlay the Rowan Formation of the Greta coal measures from the Permian period of the Paleozoic Era.
Site Hydrogeology	There is a drainage depreciation on the western portion of the site, with an elevation loss of approximately 20m from south to north. There is a detention basin to the west of the current administration building, stormwater overflow from the basin drains into muscle creek north of the site, entering the Hunter River catchment.
COPCs – Soil	No Contaminants of Potential Concern were identified during the investigation

5.2 Data Gaps and Uncertainties

The scope of this PSI did not include an investigation of groundwater and as such Cardno cannot make conclusions on the groundwater conditions beneath the Site. Additionally, the Site-specific hydrogeological conditions are not known at this time.

Due to the onsite pumproom being locked Cardno was not able to investigate these areas, therefore the potential for contamination in this building remains unknown. A representative from the Richard Gill Music Academy informed the site team that this building was not impacted by the proposed works.

Due to the exclusion of intrusive sampling, Cardno cannot rule out the potential of contaminated soils present spatially and vertically on the Site. Although no gross contamination was observed on Site and it is not anticipated that the groundwater beneath the Site is impacted by Site activities. Should impacted soil be discovered in the future at the Site, further investigation may be necessary.

6 Conclusions

Cardno has completed a Preliminary Site Investigation for the proposed location of the Richard Gill Music Academy, 157 Maitland Street, Muswellbrook, NSW, legally identified as Lot 2 DP1118310. The purpose of this assessment was to provide the Client with preliminary advice on the contamination status of the Site and the consequent implications on the suitability of using the Site for the Academy under State Environmental Planning Policy No 55 – Remediation of Land (SEPP 55). The assessment has not identified existing contamination on the site nor areas of environmental concern that would warrant further investigation.

6.1 Recommendations

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

- > Due diligence should be employed during construction work and ensure materials exhibiting signs of contaminations (stains, odours etc.) are separated and assessed.
- > Results from this investigation indicated that no gross contamination was observed on Site therefore no further testing is necessary.
- > If signs of contamination not previously identified during the fieldwork are encountered during redevelopment works, activities in that area should cease and an appropriately qualified environmental professional consulted .
- > Bonded asbestos (Non-friable) asbestos containing material (ACM) where broken or damaged should be a high priority for remediation.
- > ACM, if sealed and undamaged, low risk, good condition, may be left in-situ under control management until affected by proposed demolition or refurbishment works.
- > The NSW Work Health and Safety Regulation 2017 requires a person conducting a business or undertaking at a premises that contains asbestos or ACM to ensure that risk assessment and control measures are carried out in accordance with SafeWork NSW Code of Practice: How to Manage and Control Asbestos in The Workplace, 2019;
- > ACM should be inspected annually to ensure that it is not deteriorating or contributing to an unacceptable health risk.
- > ACM should be clearly labelled in accordance with the above Code of Practice to ensure it is not unknowingly disturbed without the correct precautions being taken.
- > A Management Plan should be developed to control any maintenance or building work that may impact on ACM.
- > The Management Plan should be subject to regular reviews to reassess the management processes and their effectiveness in preventing exposure, controlling maintenance workers/contractors, highlighting the need for action to repair/remove ACM and raising awareness among all employees.
- > Prior to any proposed demolition or refurbishment works a Destructive Hazardous Materials Audit should be conducted as per AS 2601-2001: Demolition of Structures.

-
- > ACM needs to be removed before any demolition, renovation or refurbishment works.
 - > All asbestos removal works should be conducted in accordance with regulations.
 - > Removal of ACM from the site should only be carried out by a contractor holding appropriate licenses, consents and approvals from the person conducting a business or undertaking, WorkCover and/or other Authorities (as required) to transport and dispose of the asbestos waste materials.
 - > Air monitoring for asbestos fibres should be conducted during ACM removal works.
 - > An inspection and clearance report should be provided following removal of ACM prior to demolition works and the Asbestos Register should be updated accordingly.
 - > During demolition or refurbishment, any works involving SMF should comply with the SWA/NOHSC (1990) Synthetic Mineral Fibres; National Standard for SMF; and the National Code of Practice for the Safe Use of SMFs. All contractors working in areas where SMF is identified and may be impacted should wear appropriate Personal Protective Equipment (PPE) as outlined in the above NOHSC Code.

7 References

ANZECC, 1999. *Guidelines for the Assessment of On-Site Containment of Contaminated Soil*, s.l.: Australian and New Zealand Environment and Conservation Council.

Land Insight and Resources, 2020. *Enviro-Screen 157 Maitland Street, Muswellbrook, NSW*

Muswellbrook Shire Council, 2009. Muswellbrook Local Environment Plan

NEPC, 2013. *National Environment Protection (Assessment of Site Contamination) Measure (NEPM)*, s.l.: National Environment Protection Council (NEPC) 1999, Amendment 2013.

NSW Department of Urban Affairs and Planning, 1998. *Managing Land Contamination: Planning Guidelines: SEPP 55 Remediation of Land*, s.l.: NSW OEH.

NSW DPIE (formally OEH), 2011. *Guidelines for Consultants Reporting on Contaminated Sites*, s.l.: NSW Office of Environment & Heritage (NSW OEH).

WA DOH, 2009. *Guidelines for Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia*, s.l.: Western Australia Department of Health (WA DOH).

8 Limitations

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

- > National Environment Protection [Assessment of Site Contamination] Measure (NEPM), December 1999, National Environment Protection Council (NEPC).
- > National Environment Protection (Assessment of Site Contamination) Measure (NEPM) 1999 (NEPC, 1999) as varied May 2013 (the ‘NEPM 2013’).
- > AS4482.1- 2005: Guide to the sampling and investigation of potentially contaminated soil Part 1: Non-volatile and semi-volatile compounds. Standards Australia (2005).

The agreed scope of this assessment has been limited for the current purposes of the Client. Subsurface conditions may vary considerably away from the sample locations where information has been obtained.

This Document has been provided by Cardno subject to the following limitations:

- > This Document has been prepared for the particular purpose outlined in Cardno’s proposal and no responsibility is accepted for the use of this Document, in whole or in part, in other contexts or for any other purpose.
- > The scope and the period of Cardno’s services are as described in Cardno’s proposal, and are subject to restrictions and limitations. Cardno did not perform a complete assessment of all possible conditions or circumstances that may exist at the site referenced in the Document. If a service is not expressly indicated, do not assume it has been provided. If a matter is not addressed, do not assume that any determination has been made by Cardno in regards to it.
- > Conditions may exist which were undetectable given the limited nature of the enquiry Cardno was retained to undertake with respect to the site. Variations in conditions may occur between investigatory locations, and there may be special conditions pertaining to the site which have not been revealed by the investigation and which have not therefore been considered in the Document. Accordingly, additional studies and actions may be required.
- > In addition, it is recognised that the passage of time affects the information and assessment provided in this Document. Cardno’s opinions are based upon information that existed at the time of the production of the Document. It is understood that the services provided allowed Cardno to form no more than an opinion of the actual conditions of the site at the time this Document was prepared and cannot be used to assess the effect of any subsequent changes in the quality of the site, or its surroundings, or any laws or regulations.
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This assessment report is not any of the following:

- > A Site Audit Report or Site Audit Statement as defined under the *Contaminated Land Management Act, 1997*.
- > A Detailed ESA or Environmental Site Investigation sufficient for an Environmental Auditor to be able to conclude a Site Audit Report and Site Audit Statement.

-
- > A detailed hydrogeological assessment in conformance with NSW DEC (2007) Contaminated Sites: Guidelines for the Assessment and Management of Groundwater Contamination.
 - > An assessment of groundwater contaminants potentially arising from other sites or sources nearby.
 - > A total assessment of the site to determine suitability of the entire parcel of land at the site for one or more beneficial uses of land.

Preliminary Site Investigation Richard
Gill Music Academy, Muswellbrook

APPENDIX

A

SITE PLAN

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All dimensions to be verified on site and any discrepancies referred to architect for determination. figured dimensions to take precedence over scaled dimensions.

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Rev	Issue	Date
P1	Preliminary Issue	25/03/20
P2	Preliminary Issue	23/04/20

Stanton
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Architects



Richard Gill School

Richard Gill School - Stage 1

157 Maitland St,
Muswellbrook, NSW

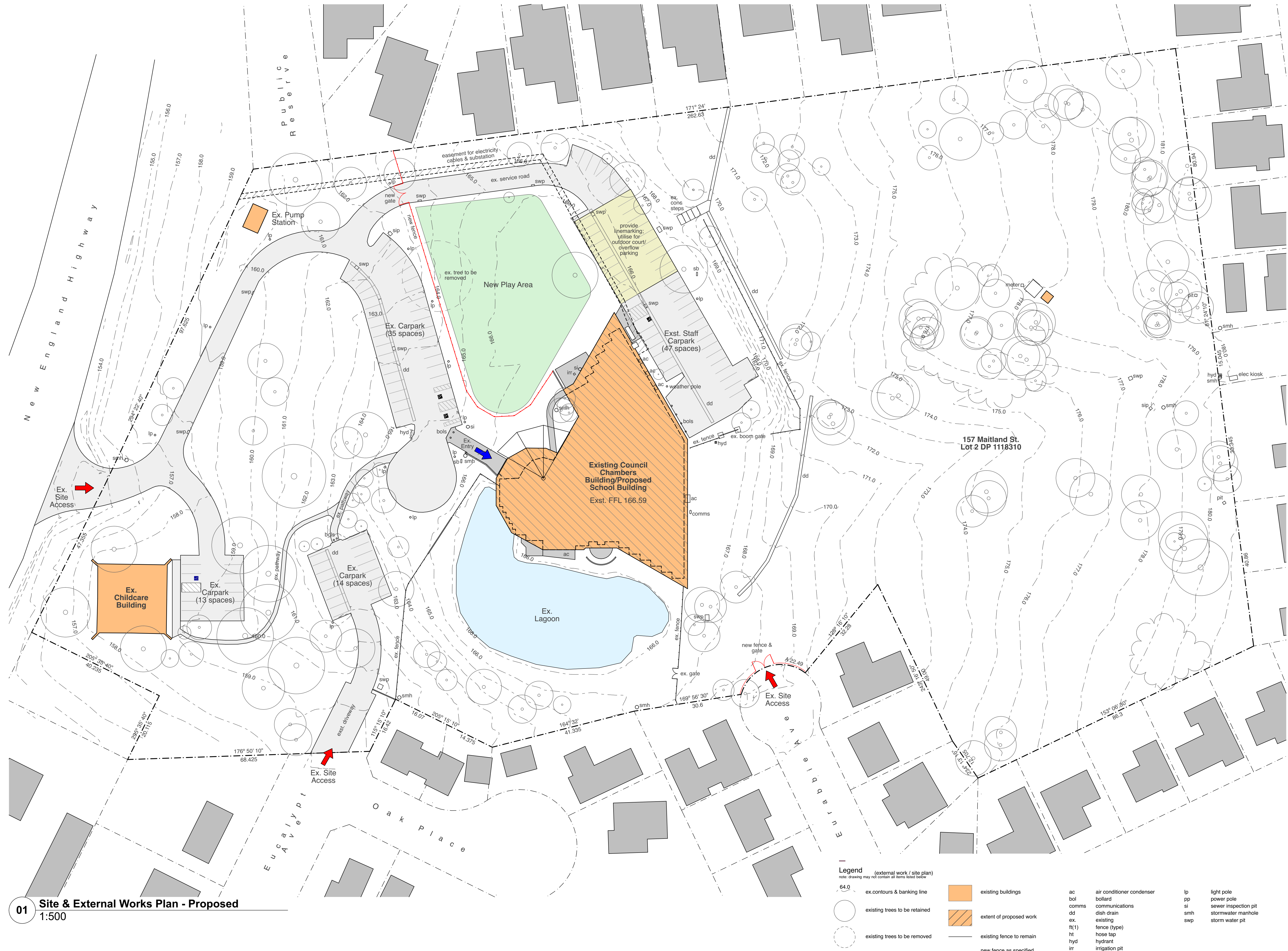
Drawn; PR
Checked; TA
Plot date; 23/4/20

Scale; 1:500 as noted @ A1

Project No;
2412.19

Drawing No; DA01
Revision#; P2

Site & External Works
Plan



01 Site & External Works Plan - Proposed
1:500



- Legend** (floor plans for DA)
note: drawing may not contain all items listed below
- | | |
|----------------|-----------------------------------|
| existing walls | existing walls |
| proposed walls | proposed walls |
| ac | air conditioner condenser |
| acc | accessible |
| amb | ambulant |
| ap | access panel |
| a/v | a/v cabinet |
| bal(1) | balustrade (type) |
| bol | bollard |
| bsn | basin |
| cht(1) | ceramic floor tile (type) |
| col | column |
| comms | communication cabinet |
| cpt(1) | carpet (type) |
| dp | downpipe |
| edb | electrical distribution box |
| ex. | existing |
| exst | existing |
| fb(1) | face brickwork (type) |
| fe | fire extinguisher |
| fhr | fire hose reel |
| fw | floor waste |
| gld | grated drain |
| hr(1) | handrail (type) |
| ht | hose tap |
| hwu | hot water unit |
| hyd | hydrant |
| kr | kerb ramp |
| ofc | off form concrete |
| pnb(f) | pinboard (f = full height) |
| pnb(m) | pinboard (m= mobile) |
| rw(1) | retaining wall (type) |
| rwt | rainwater tank |
| snk | sink |
| shr | shower |
| sl | sliding door |
| sshr | safety shower |
| st | store |
| sv(1) | sheet vinyl (type) |
| swp | storm water pit |
| tpsi | tactile ground surface indicators |
| tsp | timber sprung floor |
| wb | whiteboard |
| ws | wheel stop |

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Nominated Architects - D/P Stanton 3642, S.M Evans 7686
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Richard Gill School

Richard Gill School - Stage 1

157 Maitland St,
Muswellbrook, NSW

Drawn; PR
Checked; TA
Plot date; 25/3/20

Scale; 1:200 as noted @ A1

Project No;
2412.19

Drawing No; DA02
Revision#; P1

Existing Plan

Legend (floor plans for DA)	
note: drawing may not contain all items listed below	
existing walls	existing walls
proposed walls	proposed walls
ac	air conditioner condenser
acc	accessible
amb	ambulant
ap	access panel
a/v	a/v cabinet
bal(1)	balustrade (type)
bol	bollard
bsn	basin
cht(1)	ceramic floor tile (type)
col	column
comms	communication cabinet
cpt(1)	carpet (type)
dp	downpipe
edb	electrical distribution box
ex.	existing
exst	existing
fb(1)	face brickwork (type)
fe	fire extinguisher
fhr	fire hose reel
fw	floor waste
gld	grated drain
hr(1)	handrail (type)
ht	hose tap
hwu	hot water unit
hyd	hydrant
kr	kerb ramp
ofc	off form concrete
prib(f)	pinboard (f = full height)
prib(m)	pinboard (m= mobile)
rw(1)	retaining wall (type)
rwt	rainwater tank
snk	sink
shr	shower
sl	sliding door
sshr	safety shower
st	store
sv(1)	sheet vinyl (type)
swp	storm water pit
tpsi	tactile ground surface indicators
tsp	timber sprung floor
wb	whiteboard
ws	wheel stop

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Rev	Issue	Date
P1	Preliminary Issue	25/03/20

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Richard Gill School

Richard Gill School - Stage 1

157 Maitland St,
Muswellbrook, NSW

Drawn; PR
Checked; TA
Plot date; 25/3/20

Scale; 1:200 as noted @ AI

Project No;
2412.19

Drawing No; DA04
Revision#; P1

Proposed Plan

Preliminary Site Investigation Richard
Gill Music Academy, Muswellbrook

APPENDIX

B

SITE INSPECTION PHOTOGRAPHS



Figure 8-1 Diesel Generator



Figure 8-2 Site topography indicative of local regarding



Figure 8-3 Illegally disposed material



Figure 8-4 Illegally disposed material



Figure 8-5 Building switch board



Figure 8-6 Evidence of iron oxidation

Preliminary Site Investigation Richard
Gill Music Academy, Muswellbrook

APPENDIX

C

ENVIRO SCREEN REPORT



ENVIRO-SCREEN

Property Details

Lot 2 DP1118310

157 Maitland Street, Muswellbrook NSW

Search Date: 26 March 2020

Executive Summary

Dataset	Identified	Not identified
Sensitive Receptors		
Planning Controls		
Soil Landscape		
Salinity		
Acid Sulfate Soil		
Geology		
Topography		
Hydrogeology		
Groundwater Bores		
Groundwater Dependent Ecosystems		
Other Bores		
Environmental Registers, Licences and Incidents		
Contaminated Land Record of Notices		
Sites Notified as Contaminated to the NSW EPA		
Potentially Contaminated Areas		
Defence Sites (current, former and RCIP)		
Former Gasworks Sites		
PFAS Sites		
Licensing under the POEO Act		
Licences		
Surrendered Licences still Regulated by EPA		
Clean Up and Penalty Notices		
NPI Industrial Facilities		
Public Register of Properties Affected by Loose-Fill Asbestos Insulation		
Other Potentially Contaminating Activities		
Contamination Legacy Areas		
Derelict Mines and Quarries		
Historical Landfills		
Unexploded Ordnance (UXO) Sites - Department of Defence (DoD)		
Aviation Fuel Depots/Terminals		
Cattle Dip Sites		
Dry Cleaners		
Liquid Fuel Depots/Terminals		
Fire and Rescue Sites		
Power Stations		
Service Stations		
Substation/Switching Station		
Telephone Exchanges		
Waste Management Facilities		
Wastewater Treatment Facilities		
Current Commercial & Trade Directory Data		
Historic Commercial & Trade Directory Data		
Federal, State and Local Heritage		
Natural Hazards		
State Environmental Planning Policy (Coastal Management)		

Understanding your Report

Your Report has been produced by Land Insight and Resources (LI Resources).

Your Report is based on information available from public databases and sources at the date of reporting. The information gathered relates to land that is within a **200 to 2000 m radius** (buffer zone) from the boundaries of the Property. A smaller or larger radius may be applied for certain records (as listed under records and as shown in report maps).

While every effort is made to ensure the details in your Report are correct, LI Resources cannot guarantee the accuracy or completeness of the information or data provided.

The report provided by LI Resources includes data listed on page 3 (table of contents). All sources of data and definitions are provided on the report maps and as listed in the Product Guide (Attached). For a full list of references, metadata, publications or additional information not provided in this report, please contact LI Resources at info@liresources.com.au.

The report does not include title searches; dangerous good searches or; property certificates (unless requested); or information derived from a physical inspection, such as hazardous building materials, areas of infilling or dumping/spilling of potentially contaminated materials. It is important to note that these documents and an inspection can contain information relevant to contamination that may not be identified by this Report.

This Report, and your use of it, is regulated by LI Resources Terms and Conditions (See LIR Product Guide).

Land Insight and Resources

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Section 1 - Property Setting

1.1 SITE LOCATION MAP AND SENSITIVE RECEPTORS

Map 1 (200m Buffer)

Sensitive receptor	Category	Distance (m)*	Direction
Little Kindy Muswellbrook	Child Care Centre	0	Onsite
Muswellbrook Shire Council	Local Government Chambers	0	Onsite

*Distance from the sensitive receptor point feature to the site boundary centroid.

1.2 PLANNING CONTROLS

Map 2 (onsite)

Zoning

Zoning	R1	General Residential
--------	----	---------------------

Environmental Planning Instruments

Type	Local Environmental Plan	Classification
Not identified	-	-

1.3 SOIL AND LAND USE INFORMATION

Map 3a/3b (onsite)

Soil Landscape

Soil Landscape	Ahu	HUNTER	Soil Group	ALLUVIAL SOILS
Description	Landscape— Level plain of extensive floodplains on Quaternary alluvium derived from the Hunter and Paterson Rivers in the central east of the Hunter Region. Slopes <1%, local relief <2 m, elevation 2 - 11 m. Completely cleared tall open-forest and closed forest. Soils— Deep (100 - <150 cm), well to imperfectly drained Brown Dermosols (Prairie Soils, Brown Clays, Chernozems, Alluvial Soils and Brown Earths); very deep (150 - 500 cm) poorly drained Hydrosols (Prairie Soils); and moderately deep (50 - <100 cm), well-drained Stratic Rudosols (Siliceous Sands and Alluvial Soils). Qualities and limitations— widespread foundation hazard, widespread productive arable land, localised permanently high watertables, localised seasonal waterlogging, widespread flood hazard.			
Soil Landscape	YPrx	ROXBURGH	Soil Group	YELLOW PODZOLIC SOILS
Description	GENERAL - This soil landscape covers undulating low hills and undulating hills. yellow podzolic soils (Dy3.11, Dy2.41) occur on upper to midslopes with red solodic soils (Dr2.43) on more rounded hills. Lithosols (Um5.21) occur on crests. Brown podzolic soils (Db2.21) occur on slopes on conglomerate with associated flat pavements. Yellow soloths (Dy3.41) have been recorded in some gullies. LANDFORM - Undulating low hills and undulating hills with elevations of 80 – 370 m. Slopes are 0 – 10%, with slope lengths of 800 – 1200 m. Local relief is 60 – 120 m. Drainage lines occur at intervals of 300 – 1500 m. SOIL EROSION - Minor to moderate sheet erosion is common. Some gullies up to 3m deep are associated with the dispersible soloths and solodic soils.			

Salinity

Salinity Hazard	-	Not identified
-----------------	---	----------------

Acid Sulfate Soil

ASS Risk Maps (Table 1.3.1)	On the Property?		Within Record Search Buffer?	
Class	Not identified		Not identified	
Atlas of Australian Acid Sulfate Soil (Table 1.3.2)	Bn(p4)	ASS in inland lakes, waterways, wetlands and riparian zones	Probability of Occurrence	Low Probability of occurrence

Table 1.3.1. Classification scheme in the ASS Planning Maps

Class of Land as shown on ASS Planning Maps	
1	Acid sulfate soils in a class 1 area are likely to be found on and below the natural ground surface.
2	Acid sulfate soils in a class 2 area are likely to be found below the natural ground surface.
3	Acid sulfate soils in a class 3 area are likely to be found beyond 1 metre below the natural ground surface.
4	Acid sulfate soils in a class 4 area are likely to be found beyond 2 metres below the natural ground surface.
5	Acid sulfate soils are not typically found in Class 5 areas. Areas classified as Class 5 are located within 500 metres on adjacent class 1,2,3 or 4 land.

For each class of land, the maps identify the type of works likely to present an environmental risk if undertaken in the particular class of land. If these types of works are proposed, further investigation is required to determine if ASS are actually present and whether they are present in such concentrations as to pose a risk to the environment.

Table 1.3.2. Atlas of Australian Acid Sulfate Soils¹ (ASRIS) (CSIRO/NatCASS)

Code	Distinguishing soil/sediment properties, vegetation, landforms, or other characteristics
Probability of Occurrence of ASS¹	
A	High Probability of occurrence - (>70% chance of occurrence in mapping unit)
B	Low Probability of occurrence - (6-70% chance of occurrence in mapping unit)
C	Extremely low probability of occurrence - (1-5% chance of occurrence in mapping unit)
D	No probability of occurrence - (<1% chance of occurrence in mapping unit)
x	Disturbed ASS ¹ terrain - (ASS ¹ material present below urban development).
u	Unclassified - (Insufficient information to classify map unit)
Zones	
a	Potential acid sulfate soil material and/or Monosulfidic Black Ooze (MBO).
b, c	Potential acid sulfate soil generally within upper 1 m.
c, d, e	ASS ¹ generally within upper 1 m.
f	ASS ¹ generally below 1 m from the surface
g	ASS ¹ , generally below 3 m from the surface.
h	ASS ¹ generally within 1 m of the surface.
i, j	ASS ¹ generally below 1 m of the surface.
k	ASS ¹ material and/or Monosulfidic Black Ooze (MBO).
l, m, n, o, p, q	ASS ¹ generally within upper 1 m in wet / riparian areas.
Subscripts to codes	
(a)	Actual acid sulfate soil (AASS) = sulfuric material.
(p)	Potential acid sulfate soil (PASS) = sulfidic material.
(q)	Monosulfidic Black Ooze (MBO) is organic ooze enriched by iron monosulfides.
Confidence levels	

Code	Distinguishing soil/sediment properties, vegetation, landforms, or other characteristics
Probability of Occurrence of ASS¹	
(1)	All necessary analytical and morphological data are available
(2)	Analytical data are incomplete but are sufficient to classify the soil with a reasonable degree of confidence
(3)	No necessary analytical data are available, but confidence is fair, based on a knowledge of similar soils in similar environments
(4)	No necessary analytical data are available, and classifier has little knowledge or experience with ASS, hence classification is provisional

¹Acid Sulfate Soils (ASS) are all those soils in which sulfuric acid may be produced, is being produced, or has been produced in amounts that have a lasting effect on main soil characteristics (Pons 1973). Acid sulfate soil (ASS) may include PASS or AASS + PASS. Potential acid sulfate soil (PASS) = sulfidic material. Actual acid sulfate soil (AASS) = sulfuric material.

1.4 GEOLOGY AND TOPOGRAPHY

Map 4 (onsite)

Geology

Map Sheet	Symbol	Formation	Group	Era	Period	Description
NSW 1:250 000 Statewide Geology	Pgr	Rowan Formation	Greta Coal Measures	Palaeozoic	Permian	Coal seams, siltstone, sandstone

Topography

Topography	158-182mAHD
------------	-------------

Section 2 - Hydrogeology

2.1 HYDROGEOLOGY AND GROUNDWATER BORES

Map 5a (500m - 2000m Buffer)

	On the Property?	Within Record Search Buffer? ¹
Aquifer Type	Fractured or fissured, extensive aquifers of low to moderate productivity	Fractured or fissured, extensive aquifers of low to moderate productivity Porous, extensive highly productive aquifers
Drinking Water Catchments	Not identified	Not identified
Protected Riparian Corridor	Not identified	Muscle Creek
UPSS Environmentally sensitive zone	Northern NSW area 2 UPSS	Northern NSW area 2 UPSS
Wetlands	Not identified	Not identified
Groundwater Bores	Not identified	Yes, see 2.1.1 and 2.1.2

¹ - Groundwater bore buffer size will change depending on the number of GW bores found within buffer; if there are less than 7 bores within buffer, buffer will increase to max 2km until bores are found.

Table 2.1.1. Groundwater Bore Details

Groundwater Bore ID	Authorised Purpose	Completion Date	Drilled Depth (m)	Final Depth (m)	SWL (m)	Salinity	Yield (L/s)	Distance (m)	Direction
GW023484	Water supply, Manufacturing and industry	01-01-65	0	7.6	-	-	-	214.35	north-west
GW022043	Water supply, Manufacturing and industry	01-08-64	6.1	0	-	-	-	224.39	north-west
GW043852	Water supply, Manufacturing and industry	01-05-67	0	6	-	-	-	291.21	north-west
GW029528	Water supply, Manufacturing and industry	01-05-67	6.4	6.4	-	-	-	320.14	north-west
GW034580	Water supply, Manufacturing and industry	01-Jan-1800	0	9.1	-	-	-	321.14	north-west
21010151	Unknown	<Null>	0	0	-	-	-	349.66	north-west
GW022229	Water supply, Manufacturing and industry	01-08-63	10.1	10.1	-	-	-	407.94	north-west
GW032825	Water supply, Manufacturing and industry	01-Jan-1800	0	6	-	-	-	425.96	north-west
GW044696	Household	01-07-75	0	7.3	-	-	-	453.08	north-west
GW022230	Water supply, Manufacturing and industry	01-01-65	6.7	6.7	-	-	-	490.87	north-west

Table 2.1.2. Groundwater Bore Driller Lithology Details

Groundwater Bore ID	From Depth (m)	To Depth (m)	Lithology	Description	Distance (m)	Direction
GW022043	0	0.3	SOIL	LOAMY CLAY,BROWN,FRIABLE	224.39	north-west
GW022043	0.3	0.91	CLAY	CLAY RED/BROWN,STIFF,M/PLASTICITY	224.39	north-west
GW022043	0.91	1.22	GRVL	CLAY LOAMY,BROWN,FRIABLE	224.39	north-west
GW022043	1.22	1.83	CLAY	CLAY WET	224.39	north-west
GW022043	1.83	5.49	LOAM	CLAY LOAMY BROWN,FRIABLE	224.39	north-west
GW022043	5.49	6.1	CLAY	CLAY RED/BROWN,STIFF,M/PLASTICITY	224.39	north-west
GW029528	0	0.3	SOIL	FILL,GRAVELLY CLAY WET	320.14	north-west
GW029528	0.3	1.52	CLAY	CLAY DRY,FRIABLE	320.14	north-west
GW029528	1.52	6.4	SAND	CLAY,DRY,HARD,FRIABLE	320.14	north-west
GW022229	0	0.91	SOIL	FILL,GRAVELLY CLAY	407.94	north-west
GW022229	0.91	3.05	CLAY	CLAY, BROWN SOFT	407.94	north-west
GW022229	3.05	10.06	SAND	FILL,GRAVELLY CLAY,GREY/BROWN,SOFT	407.94	north-west

2.2 HYDROGEOLOGY AND OTHER BOREHOLES

Map 5b (500m Buffer)

	On the Property?	Within Record Search Buffer?
Groundwater Vulnerability	Not identified	Not identified
Groundwater Exclusion Zones ^{1,2}	Not identified	Not identified
Hydrogeologic Unit	Palaeozoic and Pre-Cambrian Fractured Rock Aquifers (low permeability)	Palaeozoic and Pre-Cambrian Fractured Rock Aquifers (low permeability) Surficial Sediment Aquifer (porous media - unconsolidated)
Other known borehole investigations	Not identified	Yes, see 2.2.1

¹ - Botany Groundwater Management Zones (BGMZ): Zone 1 – the use of groundwater remains banned; Zones 2 to 4 – domestic groundwater use is banned, especially for drinking water, watering gardens, washing windows and cars, bathing, or to fill swimming pools.

² - Williamstown Groundwater Management Zones (WGMZ): Primary Management Zone – this area has significantly higher levels of PFAS detected and therefore, the strongest advice applies. Secondary Management Zone – this area has some detected levels of PFAS; Broader Management Zone – the topography and hydrology of the area means PFAS detections could occur now and into the future.

Groundwater Dependent Ecosystems

Site	On the Property?	Within Record Search Buffer?
Ecosystems that rely on the Surface expression of Groundwater	Not identified	Not identified
Ecosystems that rely on Subsurface presence of Groundwater	Not identified	Low potential GDE - from regional studies High / Moderate potential for GW interaction

Table 2.2.1. Other known borehole investigations (Coal Seam Gas (CSG), Petroleum Wells and Other Boreholes) (500m buffer)

Borehole ID	Purpose	Project	Client/License	Date Drilled	Depth (m)	Distance (m)	Direction
DDH2	Coal	Skellatar Syndicate Drilling at Brougham	Mines Department, Skellatar Syndicate	1920	153.31	171	west
DDH1	Coal			1920	101.19	469	North-west

Section 3 – Environmental Registers, Licences and Incidents

3.1 CONTAMINATED LAND PUBLIC REGISTER

Map 6 (1000m Buffer)

Contaminated Land Record of Notices

Site Name ²	Site ID	Address ¹	Notices	Distance (m)	Direction
Not identified	-	-	-	-	-

1. Some addresses do not contain specific street numbers. Records identified as being in the surrounding area have been added for information.

2. Former NSW EPA sites. These sites have been removed from the Record of Notices and/or the Sites Notified lists and are kept here for information purposes only.

Sites Notified as Contaminated to the EPA

Site Name ²	Address ¹	Activity that caused Contamination	EPA Site Management Class ³	Distance (m)	Direction
Caltex Muswellbrook Service Station	84-86 Maitland STREET MUSWELLBROOK	Service Station	Regulation under CLM Act not required	641	North-west

1. Some addresses do not contain specific street numbers. Records identified as being in the surrounding area have been added for information.

2. Former NSW EPA sites. These sites have been removed from the Record of Notices and/or the Sites Notified lists and are kept here for information purposes only.

3. The EPA maintains a record of sites that have been notified to the EPA by owners or occupiers as contaminated land. The sites notified to the EPA and recorded on the register are at various stages of the assessment and/or remediation process. Table 5 outlines the possible management status that can be attributed to a registered contaminated site.

Table 3.1.1. EPA Site Management Class Explanation

EPA Site Management Class	
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.
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.
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.
Contamination currently regulated under the 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.
Contamination currently regulated under the 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 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 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 by the appropriate consent authority via the planning process under the Environmental Planning and Assessment Act 1979 (EP&A Act).

EPA Site Management Class	
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.

3.2 POTENTIALLY CONTAMINATED AREAS

Map 6 (1000m Buffer)

Defence Sites

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

*RCIP (Regional Contamination Investigation Program)

Former Gasworks Sites

Site	Location	Distance (m)	Direction
Not identified	-	-	-

PFAS Sites

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

*2km search

3.3 LICENSING UNDER THE POEO ACT

Map 7 (500m Buffer)

Licences

EPL Number	Licence holder	Location Name	Premise Address ¹	Fee Based Activity	Distance (m)	Direction
Not identified	-		-	-	-	

¹. Some sites do not contain specific addresses. Records identified as being in the surrounding area have been added for information.

Surrendered Licences still Regulated by EPA

Licence N ^o	Licence holder	Location Name	Premise Address ¹	Fee Based Activity	Status	Distance (m)	Direction
Not identified	-		-	-	-	-	-

¹. Some sites do not contain specific addresses. Records identified as being in the surrounding area have been added for information.

Clean Up and Penalty Notices

Location ID	Penalty N°	Notice Type	Licence holder	Location Name	Premise Address ¹	Distance (m)	Direction
-	Not identified	-	-	-	-	-	-

¹. Some sites do not contain specific addresses. Records identified as being in the surrounding area have been added for information.

3.4 NATIONAL POLLUTANT INVENTORY (NPI)

Map 7 (500m Buffer)

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

3.5 PUBLIC REGISTER OF PROPERTIES AFFECTED BY LOOSE-FILL ASBESTOS INSULATION

Map 7 (onsite)

Address	Match Found
Not identified	-

Section 4 – Other Potentially Contaminating Activities

4.1 FORMER POTENTIALLY CONTAMINATED LAND

Map 8a (500m Buffer)

Contaminated Legacy Areas

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

Note: This section includes known contaminated areas such as James Hardies Asbestos waste legacy areas, Pasminco Smelter and Uranium processing site.

Derelict Mines and Quarries

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

Historical Landfills

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

Unexploded Ordnance (UXO) Areas

Site name	Category	Description	Source	Distance (m)	Direction
Muswellbrook	UXO Area: Other	This site was used as an advanced Ordnance Depot during WWII.	Department of Defence	0	onsite

4.2 POTENTIALLY CONTAMINATING ACTIVITIES

Map 8b (500m Buffer)

Aviation Fuel Depots/Terminals

Site name	Location	Status*	Distance (m)	Direction
Not identified	-	-	-	-

Cattle Dip Sites

Site name	Location	Status*	Distance (m)	Direction
Not identified	-	-	-	-

Dry Cleaners

Site name	Location	Status*	Distance (m)	Direction
Not identified	-	-	-	-

Fire Rescue Sites

Site name	Location	Status*	Distance (m)	Direction
Muswellbrook Fire Control Centre	157 Maitland St, Muswellbrook NSW 2333	Current	0	onsite

Liquid Fuel Depots/Terminals

Site name	Owner	Location	Status*	Distance (m)	Direction
Not identified	-	-	-	-	-

Mines and Quarries

Deposit Name	Method	Description	Status*	Distance (m)	Direction
Not identified	-	-	-	-	-

Power Stations

Site name	Owner	Location	Status*	Distance (m)	Direction
Not identified	-	-	-	-	-

Service Stations

Site name	Owner	Location	Status*	Distance (m)	Direction
BP Muswellbrook East	BP	139 - 145 Maitland Street, Muswellbrook	Current	151	North-west

Substation / Switching Stations

Site name	Owner	Location	Status*	Distance (m)	Direction
Not identified	-	-	-	-	-

Telephone Exchanges

Site name	Location	Status*	Distance (m)	Direction
Not identified	-	-	-	-

Waste Management Facilities

Site name	Owner	Class	Status*	Distance (m)	Direction
Not identified	-	-	-	-	-

Wastewater Treatment Facilities

Site name	Operator	Class	Status*	Distance (m)	Direction
Not identified	-	-	-	-	-

*Status:

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

Current: business that are operational on the day this report was issued.

Former: business that have been closed or discontinued 1 to 2 years from the day this report was issued. All former sites older than 2 years will be reported in the historical business section in this report.

4.3 CURRENT COMMERCIAL AND TRADE DATA

Map 8c (200m Buffer)

Current Commercial and Trade Data

Site name ¹	Category	Location	Status ²	Distance (m)	Direction
Not identified	-		-	-	-

¹ Data includes categories associated with potentially contaminating activities. All negligible risk data is not reported.

² Status: Data is current as when this report was created. However due to the turnover of business locations, some addresses may be former.

Current: business that are operational on the day this report was issued.

Former: business that have been closed or discontinued 1 to 2 years from the day this report was issued. All former sites older than 2 years will be reported in the historical business section in this report.

Tanks (AST/UST)

ID	Tank type	Description	Status	Distance (m)	Direction
Not identified	-		-	-	-

Note: This is not an exhaustive list of all existing tanks.

4.4 HISTORICAL COMMERCIAL AND TRADE DATA

(not mapped)

1932 Historical Commercial & Trade Directory Data

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

1940 Historical Commercial & Trade Directory Data

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

1950 Historical Commercial & Trade Directory Data

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

1965 Historical Commercial & Trade Directory Data

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

1970 Historical Commercial & Trade Directory Data

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

1971 Historical Commercial & Trade Directory Data

Activity	Name	Address	Positional accuracy	Distance (m)	Direction
Television Receivers -- Repairs & Service	Edmunds Moir & Co Pty. Ltd.	Muswellbrook NSW Australia	suburb	-	-
Washing Machines, Dryers & Ironers	Hoover (Aust) Pty. Ltd. (Bruce Hassell)	Muswellbrook NSW Australia	suburb	-	-
Welding Equipment & Electrode Suppliers	Australian Liquid Air (NSW) Pty. Ltd. (C. W. Caines Pty. Ltd.)	Muswellbrook NSW Australia	suburb	-	-

1974 Historical Commercial & Trade Directory Data

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

1980 Historical Commercial & Trade Directory Data

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

1981 Historical Commercial & Trade Directory Data

Activity	Name	Address	Positional accuracy	Distance (m)	Direction
Agricultural Machinery	Moybern Motors Muswellbrook Pty Ltd	139 Maitland Street Muswellbrook	address	103	north-west
Air Conditioning - Automotive	Moybern Motors Muswellbrook Pty Ltd	139 Maitland Street Muswellbrook	address	103	north-west
Mining & Quarrying Equipment &/or Supplies	Moybern Motors Muswellbrook Pty Ltd	139 Maitland Street Muswellbrook	address	103	north-west
Motor Cars & Trucks - New	Moybern Motors Muswellbrook Pty Ltd	139 Maitland Street Muswellbrook	address	103	north-west
Motor Cars & Trucks - Used	Moybern Motors Muswellbrook Pty Ltd	139 Maitland Street Muswellbrook	address	103	north-west
Motor Cycles &/or Accessories	Moybern Motors Muswellbrook Pty Ltd	139 Maitland Street Muswellbrook	address	103	north-west
Tractors &/or Parts	Moybern Motors Muswellbrook Pty Ltd	139 Maitland Street Muswellbrook	address	103	north-west
Agistment	Tibbey N	Overdene Street Muswellbrook	suburb	-	-
Carriers - Heavy	Brambles Country Services Pty Ltd	Railway Goods Yard Muswellbrook	suburb	-	-
Carriers - Heavy	Sydney-Muswellbrook Bulk Freights	Railway Goods Yard Muswellbrook	suburb	-	-
Carriers - Light	Brambles Country Services Pty Ltd	Railway Goods Yard Muswellbrook	suburb	-	-
Dairies	Alexander R N	Thornbro Street Muswellbrook	suburb	-	-
Dairies	Cooke J N	Geenleaves Muswellbrook	suburb	-	-
Dairies	Rowen P	Lannor Street Muswellbrook	suburb	-	-
Farmers	Lonergan A	Athlone Street Muswellbrook	suburb	-	-
Fencing Contractors	Eagle Ridge Farm	Muswellbrook Road Gungal	suburb	-	-
Fencing Contractors	McIntyre C	Muswellbrook Road Gungal	suburb	-	-
Graziers	Bowman S A	Girrahween Street Muswellbrook	suburb	-	-
Graziers	Hopkins R & F	Muswellbrook Road Merriwa	suburb	-	-
Graziers	Kayuga (1827) Pty Ltd	Muswellbrook	suburb	-	-
Hospitals - Public	Brentwood Hospital	Muswellbrook	suburb	-	-
Photo Copying Supplies	Inst-X-Print	Muswellbrook	suburb	-	-
Viticulturists	Langford R	Gelston Street Muswellbrook	suburb	-	-

1990 Historical Commercial & Trade Directory Data

Activity	Name	Address	Positional accuracy	Distance (m)	Direction
Excavating &/or Earth Moving Equipment	Blackwood Hodge (Australia) (Pty) Ltd	(Branch) Ayredale Road Muswellbrook NSW Australia	suburb	-	-

1991 Historical Commercial & Trade Directory Data

Activity	Name	Address	Positional accuracy	Distance (m)	Direction
Concrete Contractors	Dixon Robert	7 Oak Place Muswellbrook	address	59.7	west
Concrete Contractors	Robert Dixon	7 Oak Place Muswellbrook	address	59.7	west
Agricultural Machinery	Moybern Motors Muswellbrook Pty Ltd	139 Maitland Street Muswellbrook	address	103	north-west
Air Conditioning - Automotive	Moybern Motors Muswellbrook Pty Ltd	139 Maitland Street Muswellbrook	address	103	north-west
Mining & Quarrying Equipment &/or Supplies	Moybern Motors Muswellbrook Pty Ltd	139 Maitland Street Muswellbrook	address	103	north-west
Motor Cars & Trucks - New	Moybern Motors Muswellbrook Pty Ltd	139 Maitland Street Muswellbrook	address	103	north-west
Motor Cars & Trucks - Used	Moybern Motors Muswellbrook Pty Ltd	139 Maitland Street Muswellbrook	address	103	north-west
Motor Cycles &/or Accessories	Moybern Motors Muswellbrook Pty Ltd	139 Maitland Street Muswellbrook	address	103	north-west
Camping Equipment - Retail	Muswellbrook Disposals & Craft	The Hub Arc Muswellbrook	suburb	-	-
Dairies	Alexander R N	Thornbro Street Muswellbrook	suburb	-	-
Farmers	Lonergan A	Athlone Street Muswellbrook	suburb	-	-
Hospitals - Public	Brentwood Hospital	Muswellbrook	suburb	-	-
Photo Restorations & Retouching	Shea Greg	Hub Arc Muswellbrook	suburb	-	-
Printers - General	C.J.'s Images	Central Arc Muswellbrook	suburb	-	-
Excavating &/or Earth Moving Equipment	Volvo Australia Pty. Ltd.	Muswellbrook	suburb	-	-
Hospitals - Public	Brentwood Hospital	Muswellbrook	suburb	-	-

2005 Historical Commercial & Trade Directory Data

Activity	Name	Address	Positional accuracy	Distance (m)	Direction
Concrete Contractors	Hayne Shayne	Lot 27 Weemala Pl, MUSWELLBROOK, NSW	street	81.1	east
Air Conditioning--Home	Clyde Refrigeration & Airconditioning	Unit 4, 139 Maitland St, MUSWELLBROOK, NSW	address	105.7	north-west

Note: Directories for the years 1932, 1940, 1950, 1965, 1970, 1980 and 1990 cover the Sydney CBD and greater Sydney area only. Directories for 1971, 1981 and 1991 cover regional NSW, but may also contain data for the Sydney area.

Historical data positional accuracy and georeferencing results explanation

Positional accuracy	Georeferenced	Description
Address	Located to the address level	<i>When street address and names fully match.</i>
Street	Located to the street centroid	<i>When street names match but no exact address was found. Location is approximate.</i>
Place	Located to the structure, building or complex	<i>When building, residential complex or structure name match but no exact address was found. Location is approximate.</i>
Suburb	Located to the suburb area	<i>When suburb name match but no exact address was found. Location is approximate.</i>
Not georeferenced	Not found	<i>When it was not georeferenced, and address could not be found.</i>

Land Insight and Resources use a number of different address georeferencing methods and characterised them according to the following criteria: completeness (match rates) and positional accuracy. When address do not contain specific street numbers or a match is not found, records identified as being in the surrounding areas are included for reference.

Section 5 - Other Environmental Constraints

5.1 FEDERAL, STATE AND LOCAL HERITAGE

Map 9 (200m Buffer)

Local Environment Plan (LEP) Heritage

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

National Heritage List (NHL)

Site ID	Site Name	Class	Status	Distance (m)	Direction
Not identified	-	-	-	-	-

Register of the National Estate (RNE)

Site ID	Site Name	Class	Status	Distance (m)	Direction
Not identified	-	-	-	-	-

Non-Aboriginal heritage item (Local)

Site ID	Site Name	Class	Status	Distance (m)	Direction
Not identified	-	-	-	-	-

Non-Aboriginal heritage item (SHR)*

Site ID	Site Name	Listing n ^o	Plan n ^o	Distance (m)	Direction
Not identified	-	-	-	-	-

*State Heritage Register

Commonwealth Heritage List (CHL)

Site ID	Site Name	Class	Status	Distance (m)	Direction
Not identified	-	-	-	-	-

World Heritage Area (WHA)

Site ID	Site Name	IUCN	Status	Distance (m)	Direction
Not identified	-	-	-	-	-

5.2 NATURAL HAZARDS

Map 10 (500m Buffer)

Bush Fire Prone Land (BLP)

Category	On the Property?	Within Record Search Buffer?
Vegetation Buffer	Not identified	Yes
Vegetation Category 1	Not identified	Yes

Fire History

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

Flood Hazard

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

5.3 COASTAL MANAGEMENT (STATE ENVIRONMENTAL PLANNING POLICY)

Map 10 (500m Buffer)

Type	On the Property?	Within Record Search Buffer?
Coastal Wetlands Proximity Area	-	-
Coastal Wetlands	-	-
Coastal Environment Area Map	-	-
Coastal Use Area Map	-	-



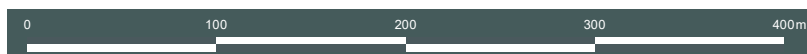
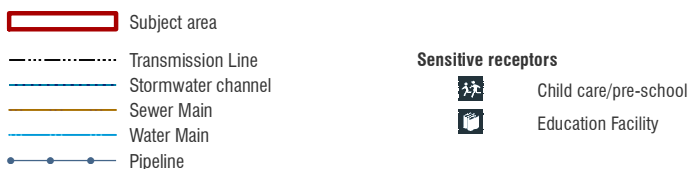
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ATTACHMENT A

Report Maps



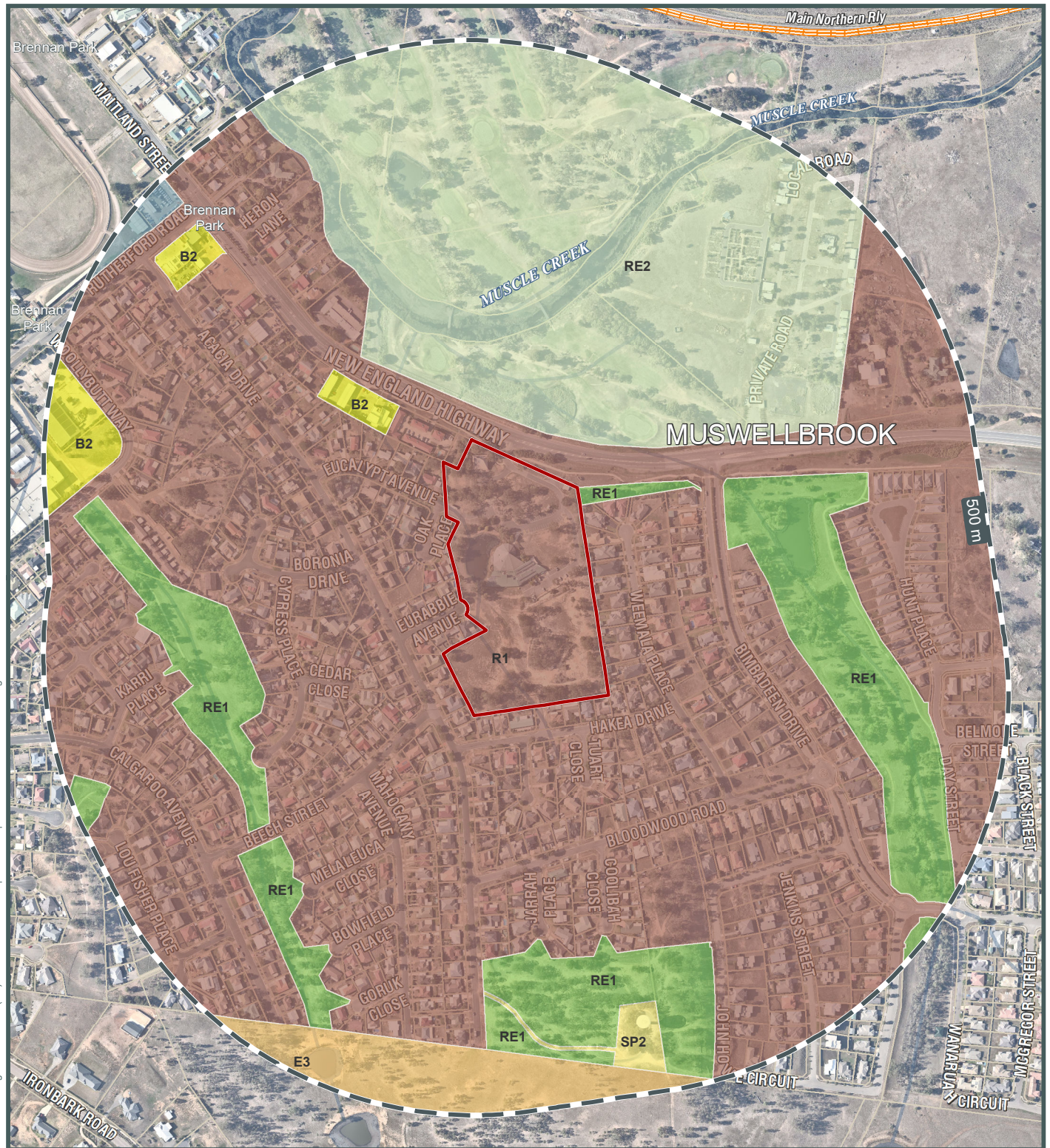
SUBJECT AREA AND SENSITIVE RECEPTORS



MAP 1

Enviro-Screen





 Subject area

Land Zoning

- B2, Local Centre
- B5, Business Development

- E3, Environmental Management
- R1, General Residential
- RE1, Public Recreation

- RE2, Private Recreation
- SP2, Infrastructure



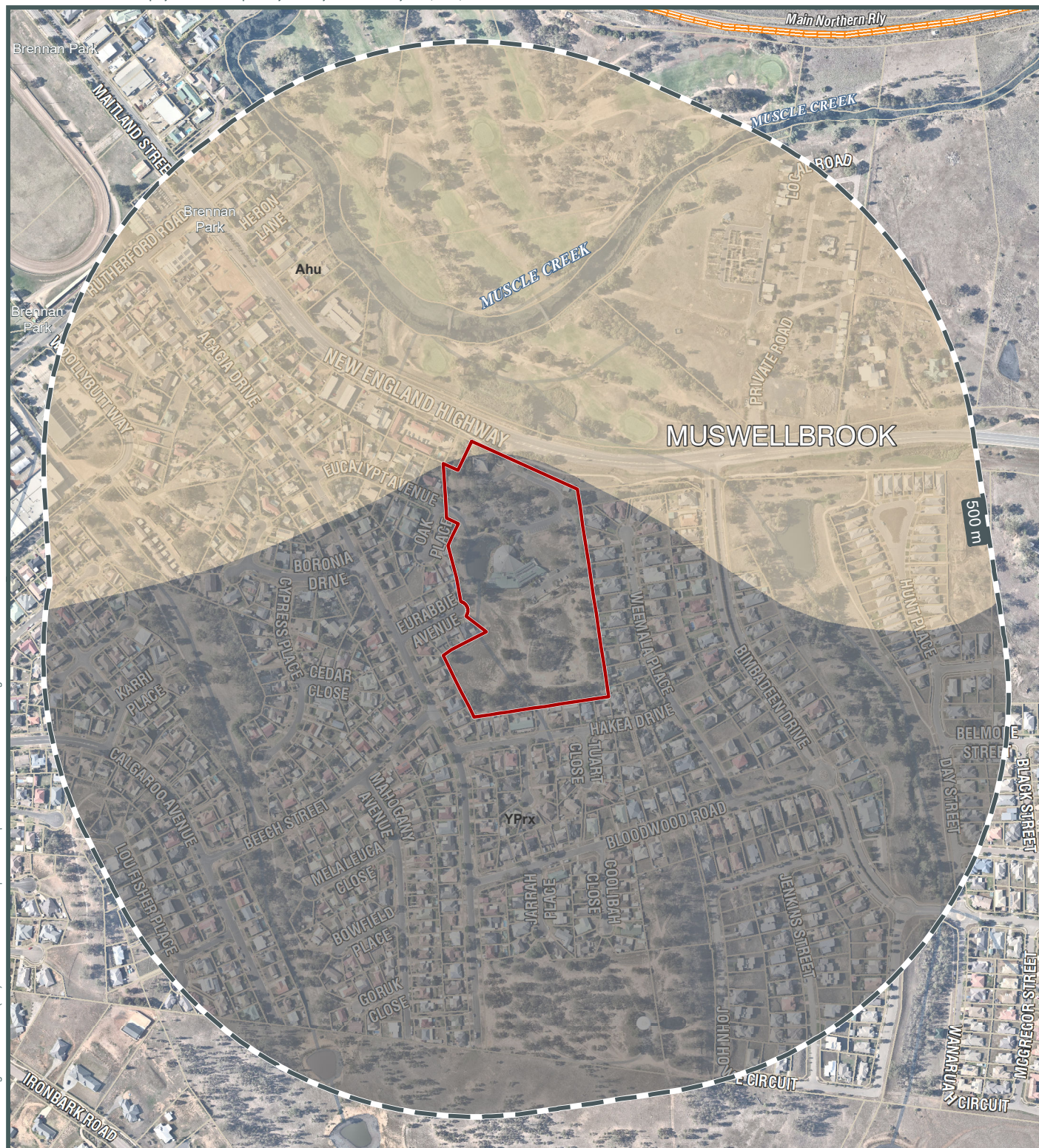
PLANNING CONTROLS



MAP 2

Enviro-Screen





 Subject area

Soils Landscape

 Ahu | ALLUVIAL SOILS

 YPrx | YELLOW PODZOLIC SOILS

0 200 400 600 800m

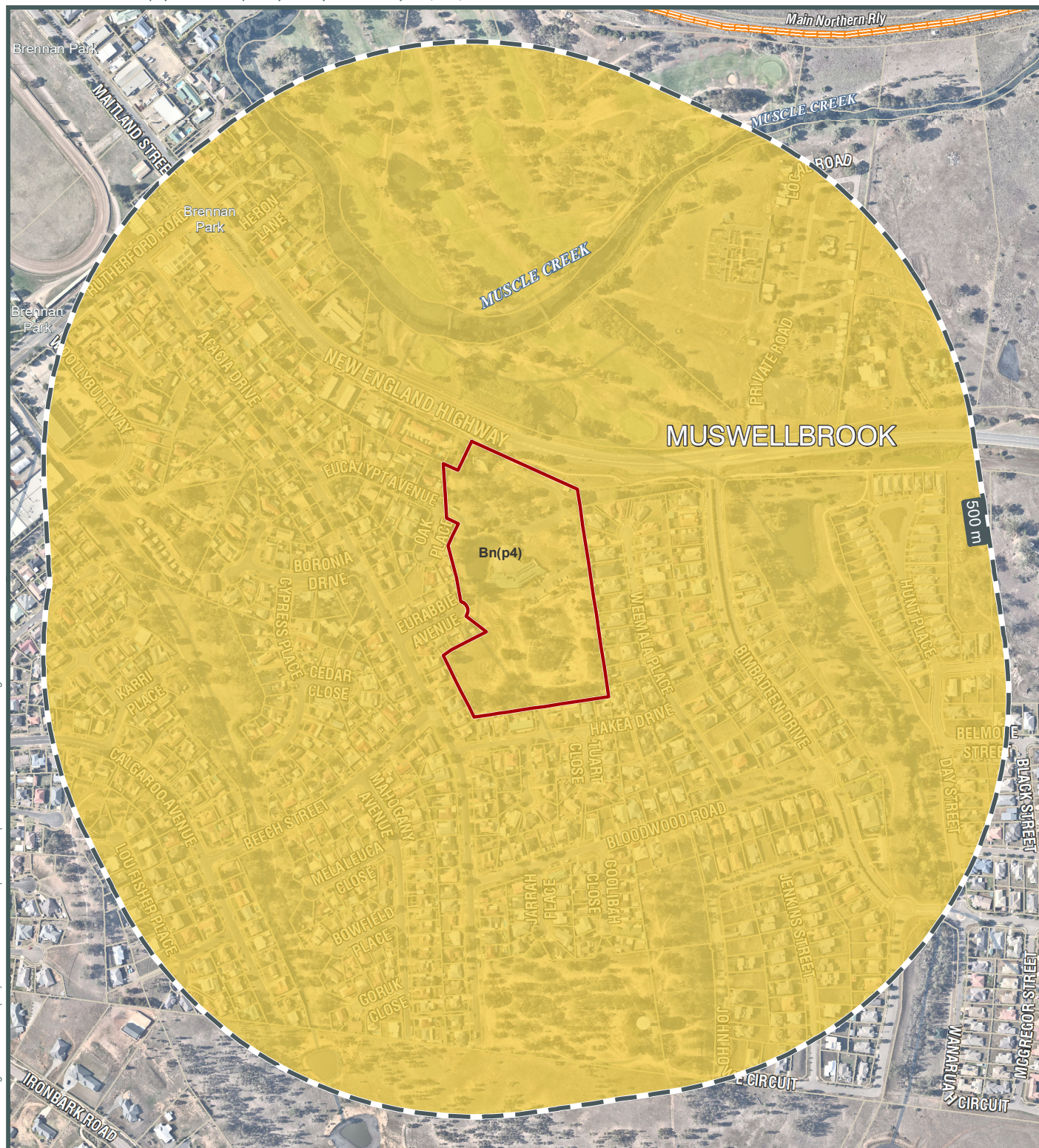
SOIL LANDSCAPES AND SALINITY



MAP 3a

Enviro-Screen





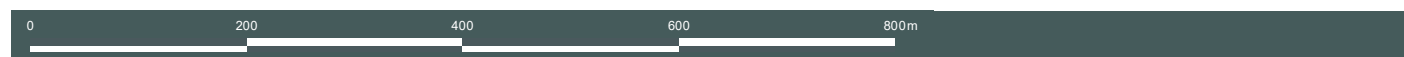
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Subject area

ASRIS Atlas of Australian Sulfate Soils

Bn(p4) | ASS in inland lakes, waterways, wetlands and riparian zones



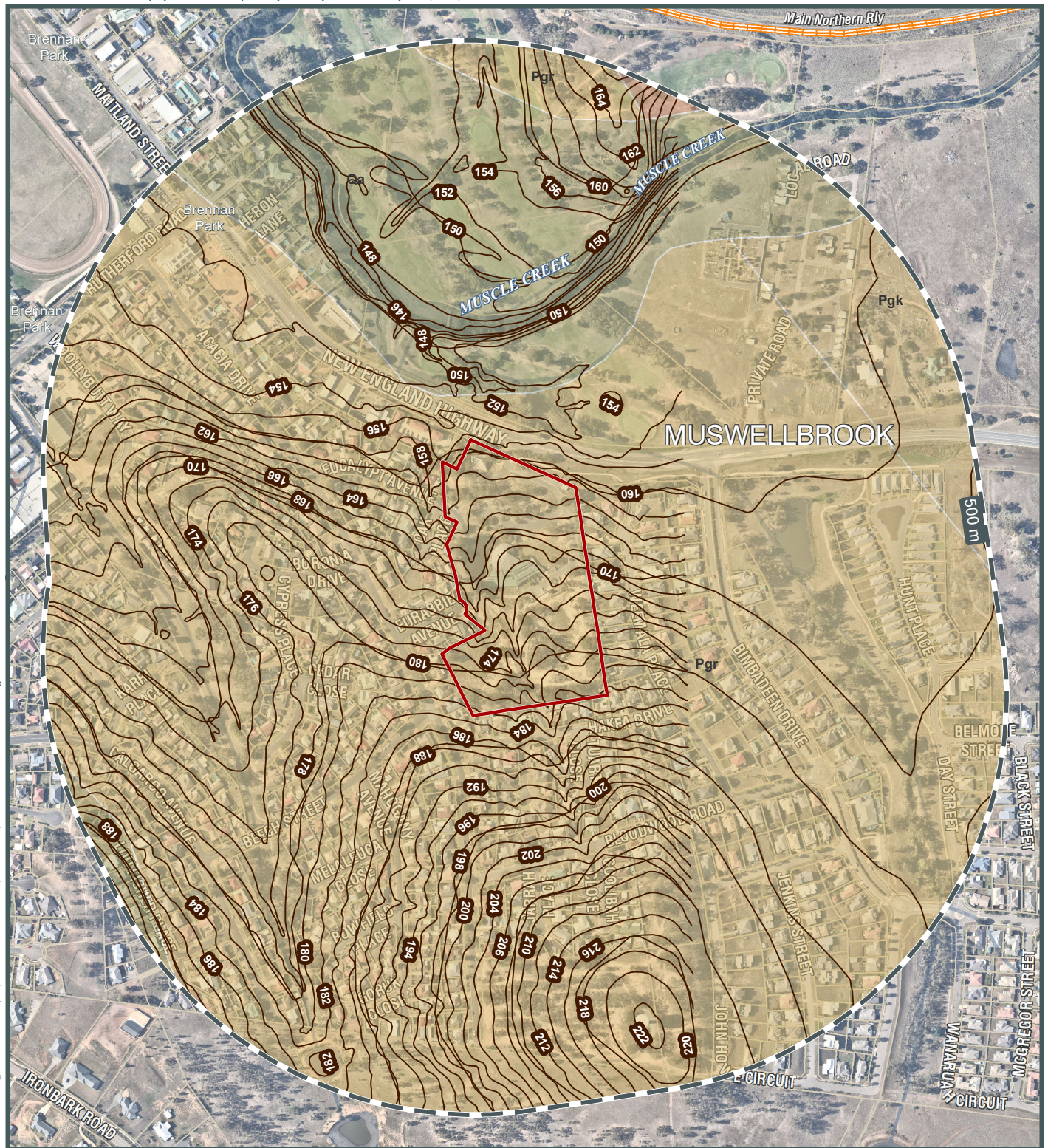
ACID SULFATE SOILS



MAP 3b

Enviro-Screen





Subject area Topographic contour (m)

NSW 1:250 000 Statewide Geology

Pgk | Pellet claystone, siltstone, chert
Pgr | Coal seams, siltstone, sandstone
Pmb | Conglomerate, sandstone, siltstone

Py | Rhyolite, acid to basic volcanics and pyroclastics
Qa | Undifferentiated alluvial deposits; sand, silt, clay and gravel; some residual and colluvial deposits. Includes some channel, levee, lacustrine, floodplain and swamp deposits. May include some higher level Tertiary terraces

0 200 400 600 800m

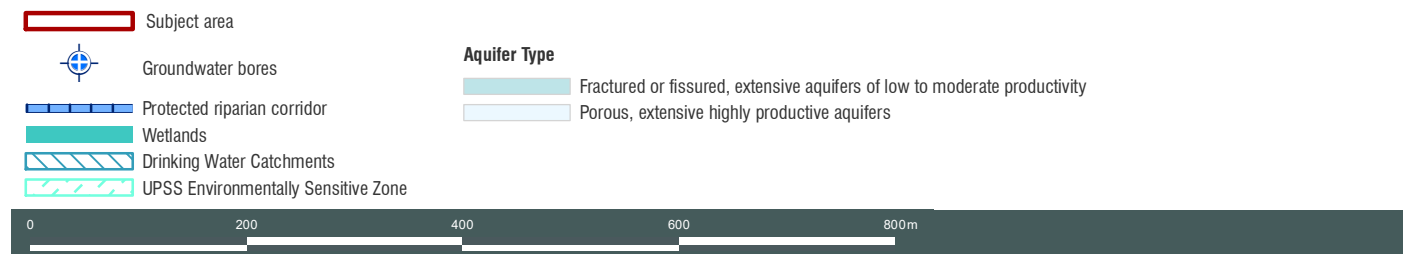
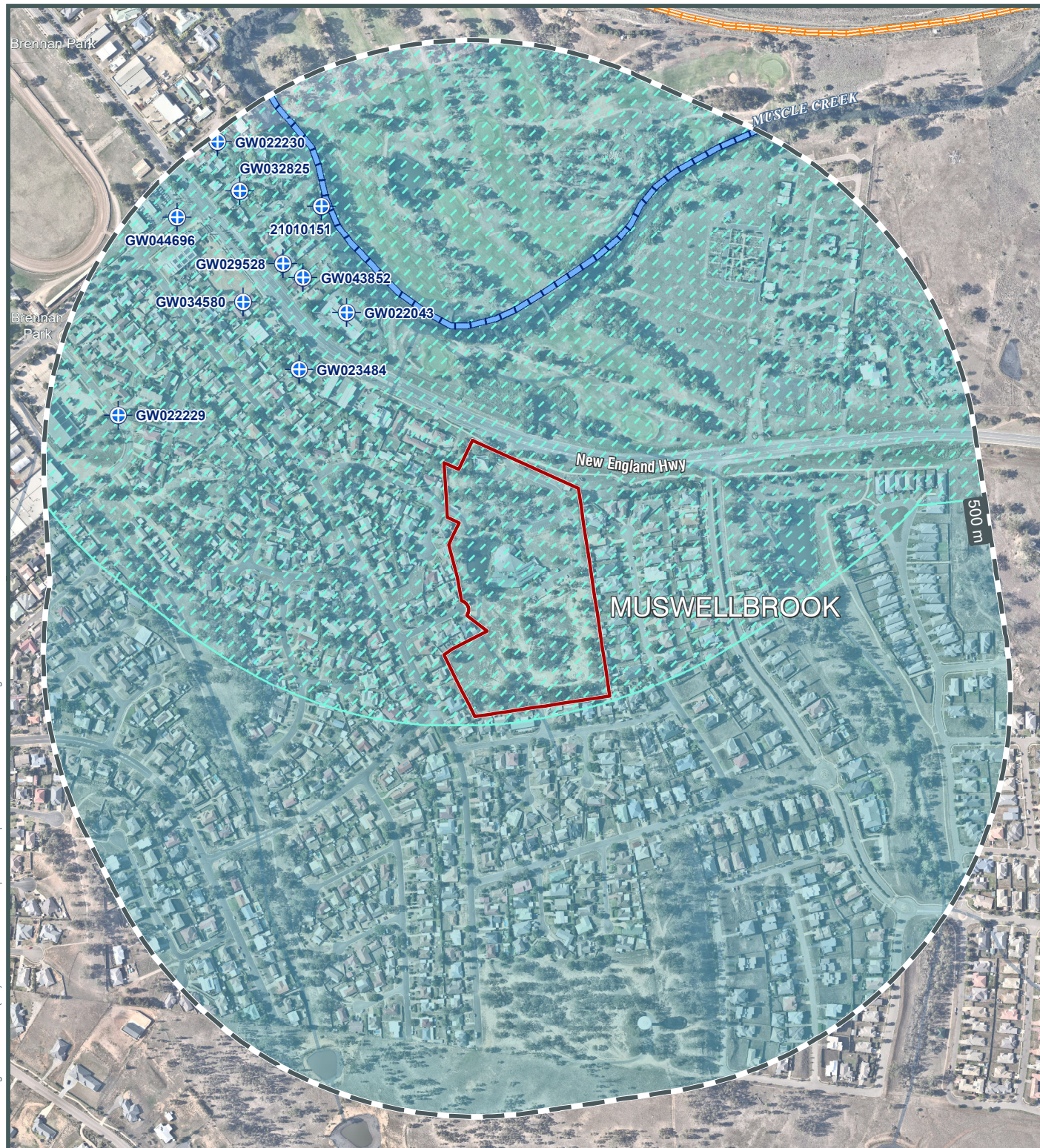
GEOLOGY AND TOPOGRAPHY



MAP 4

Enviro-Screen





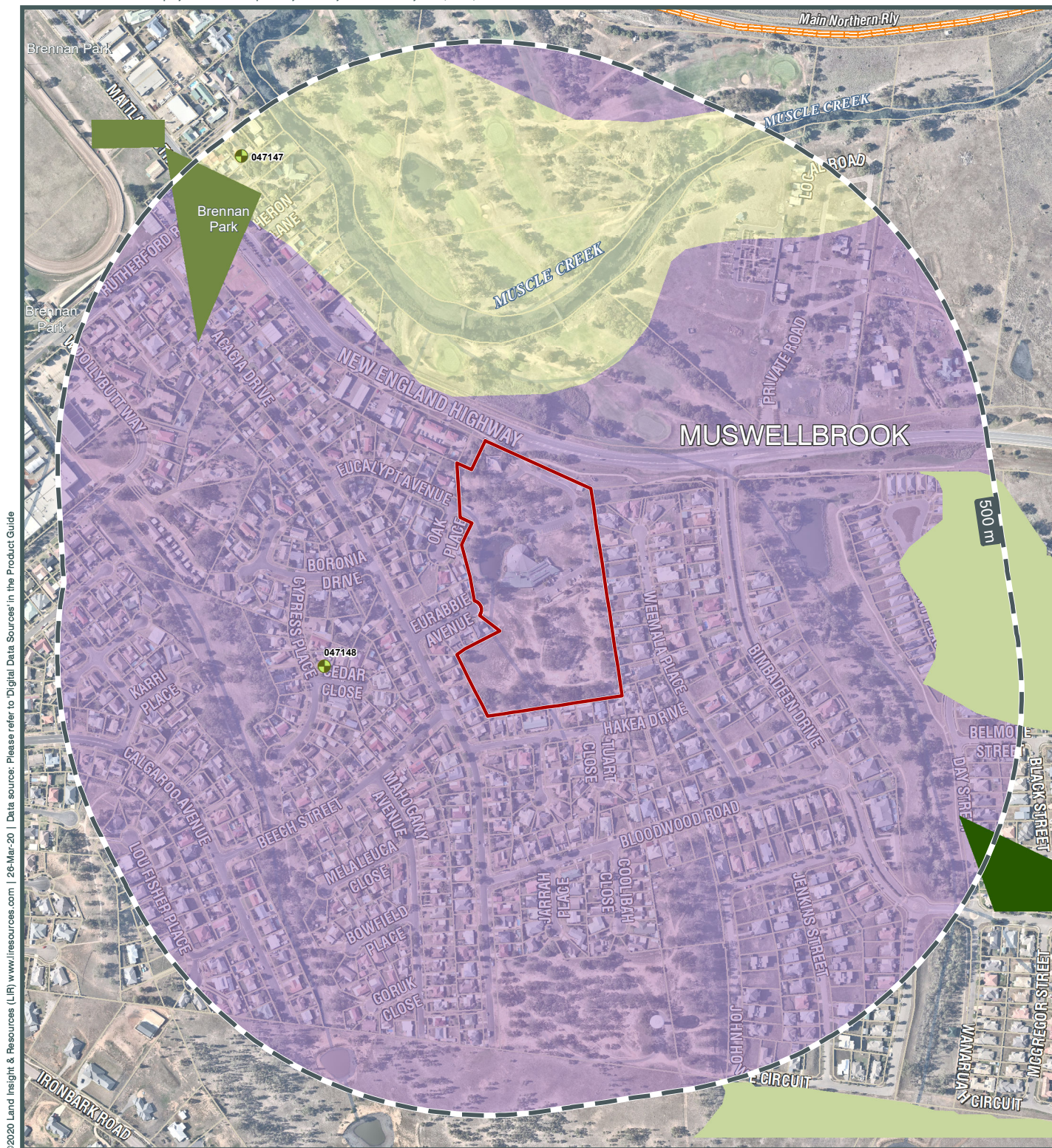
HYDROGEOLOGY AND GROUNDWATER BORES



MAP 5a

Enviro-Screen





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Subject area



Other borehole/monitoring well location

Ecosystems that rely on Subsurface presence of Groundwater

Low potential GDE - from regional studies

Ecosystems that rely on Subsurface presence of Groundwater

High potential for GW interaction

Moderate potential for GW interaction

Hydrogeologic Unit

Surficial Sediment Aquifer (porous media - unconsolidated)

Palaeozoic and Pre-Cambrian Fractured Rock Aquifers (low permeability)

0 200 400 600 800m

HYDROGEOLOGY AND OTHER BOREHOLES



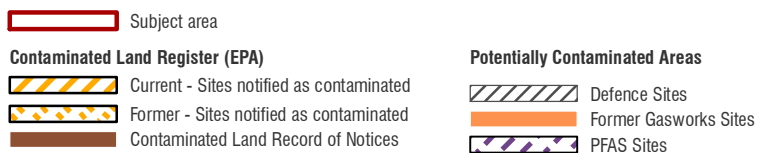
MAP 5b

Enviro-Screen





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CONTAMINATED LAND REGISTER AND POTENTIALLY CONTAMINATED AREAS



MAP 6

Enviro-Screen





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ENVIRONMENTAL REGISTER & LICENCES AND NPI FACILITIES



MAP 7

Enviro-Screen





 Subject area

Contaminated Legacy Areas

- Contaminated Legacy Areas
- Derelict Mines and Quarries
- Historical (Legacy) Landfills

Unexploded Ordnance (UXO) Areas

- Defence Controlled Area
- UXO Area: Substantial Occurrence
- UXO Area: Slight Occurrence
- UXO Area: Other



FORMER POTENTIALLY CONTAMINATED LAND



MAP 8a

Enviro-Screen



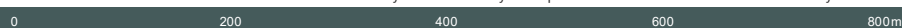


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- | | | | | | | | | | |
|--|--------------|--|--------------------------------|--|-------------------|--|----------------------|--|-------------------------------|
| | Subject area | | Aviation fuel depots | | Fire Rescue sites | | Power stations | | Telephone exchanges |
| | Cattle dip | | Liquid fuel depots / terminals | | Service stations | | Substation locations | | Waste management facilities |
| | Dry cleaners | | Mine/quarry | | | | | | Wastewater Treatment Facility |

Current: business that are operational on the day this report was issued.

Former: business that have been closed or discontinued 1 to 2 years from the day this report was issued. All former sites older than 2 years will be reported in the historical business section in this report.



POTENTIALLY CONTAMINATING ACTIVITIES



MAP 8b

Enviro-Screen





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 Subject area

Commercial & Trade Directory

-  Other potentially contaminating activities
-  Former potentially contaminating activities

Tanks

-  Aboveground Storage Tank - Current
-  Aboveground Storage Tank - Former

-  Underground Storage Tank - Current
-  Underground Storage Tank - Former
-  Unknown

*This is not an exhaustive list of all tanks.



CURRENT COMMERCIAL AND TRADE DATA



MAP 8c

Enviro-Screen





Subject area

Federal, State and Local Heritage

- Heritage conservation Area (LEP)
- Register of the National Estate (RNE)
- National Heritage List (NHL)

- Non-Aboriginal heritage item (Local)
- Non-Aboriginal heritage item (SHR)
- Commonwealth Heritage List (CHL)
- World Heritage Area (WHA)



HERITAGE



MAP 9

Enviro-Screen





- Subject area
- Bush Fire Prone Land**
- Vegetation Buffer
- Vegetation Category 1

SEPP Coastal Management

- Proximity Area for Coastal Wetlands
- Proximity Area for Littoral Rainforests
- Littoral Rainforests
- Coastal Wetlands
- Coastal Environment Area Map
- Coastal Use Area Map



NATURAL HAZARDS



MAP 10

Enviro-Screen





ATTACHMENT B

Historical Imagery





HISTORIC AERIAL PHOTOGRAPH - 1958



MAP 11





HISTORIC AERIAL PHOTOGRAPH - 1967



MAP 12



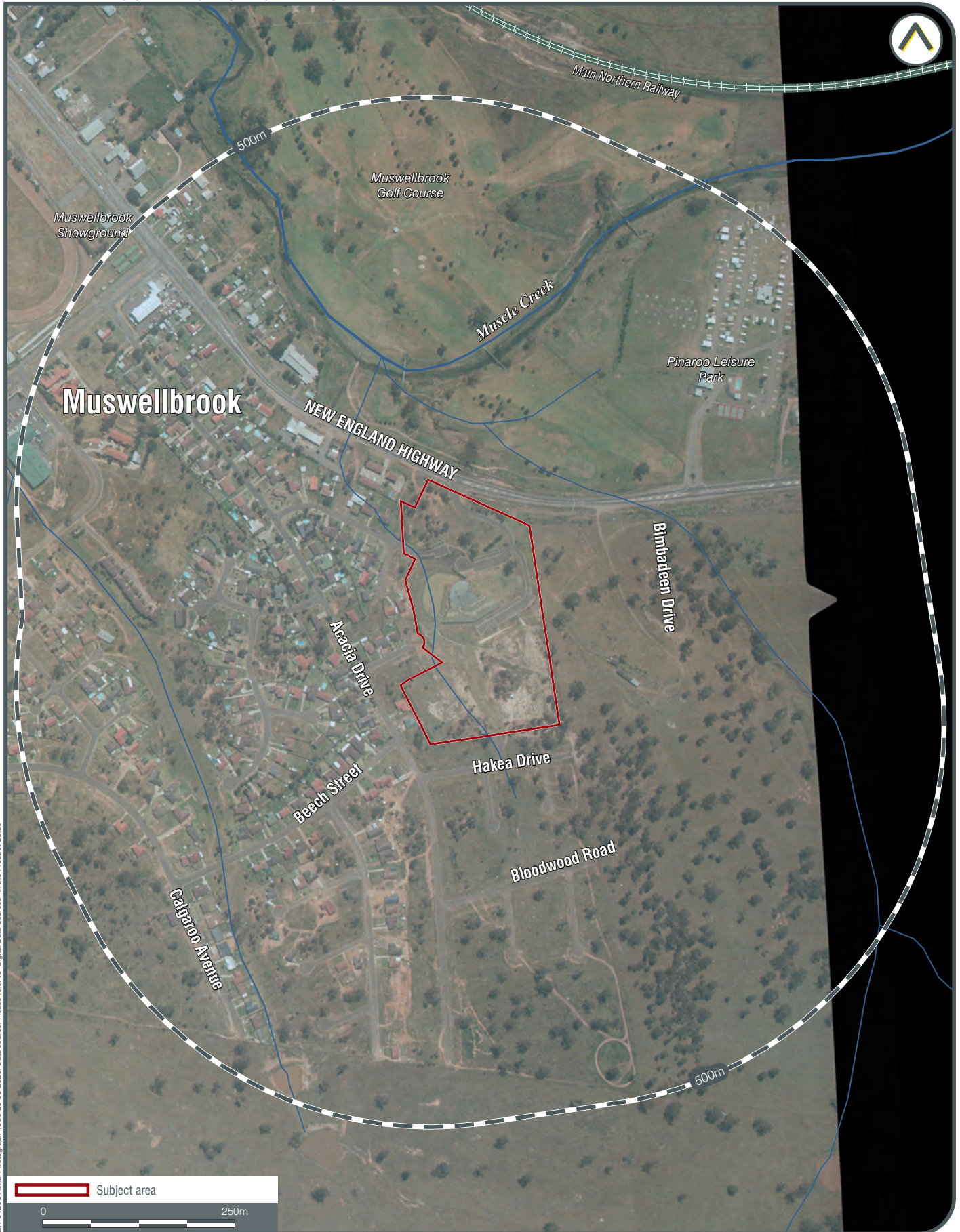


HISTORIC AERIAL PHOTOGRAPH - 1974



MAP 13





LUR-01203 Aerial Photograph 1989 26 03 2020. Data source: Please refer to 'Digital Data Sources' in the Product Guide

HISTORIC AERIAL PHOTOGRAPH - 1989



MAP 14





HISTORIC AERIAL PHOTOGRAPH - 1993



LUR-01203 Aerial Photograph 1998 26 03 2020. Data sources: Please refer to 'Digital Data Sources' in the Product Guide

HISTORIC AERIAL PHOTOGRAPH - 1998



MAP 16





LUR-01203 Aerial Photograph 2003 26.03.2020. Data source: Please refer to 'Digital Data Sources' in the Product Guide

HISTORIC AERIAL PHOTOGRAPH - 2003



MAP 17





HISTORIC AERIAL PHOTOGRAPH - 2007





HISTORIC AERIAL PHOTOGRAPH - 2009



LUR-01203 Aerial Photograph 2013 26.03.2020. Data sources: Please refer to 'Digital Data Sources' in the Product Guide

HISTORIC AERIAL PHOTOGRAPH - 2013



MAP 20





HISTORIC AERIAL PHOTOGRAPH - 2014





HISTORIC AERIAL PHOTOGRAPH - 2016





HISTORIC AERIAL PHOTOGRAPH - 2018



MAP 23



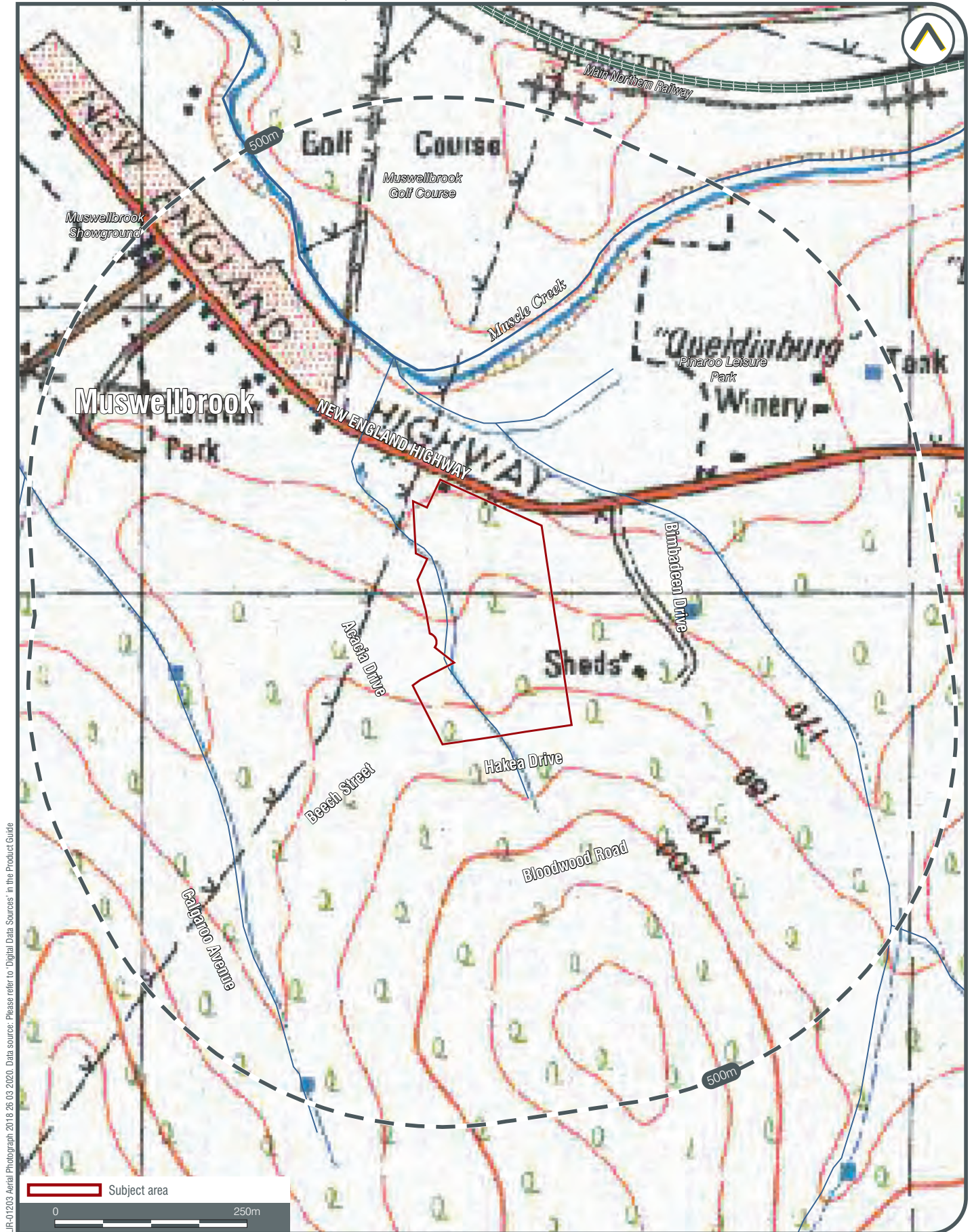


HISTORIC AERIAL PHOTOGRAPH - 2020



MAP 24





1969-1991 TOPOGRAPHIC MAP (MUSWELLBROOK 9033-2N)

APPENDIX

D

HAZARDOUS SUBSTANCES
MANAGEMENT PLAN

Report to

CARDNO

Hazardous Substances Management Plan



157 Maitland Street
Muswellbrook NSW 2333

Prepared by

ESP – ENVIRONMENTAL & SAFETY PROFESSIONALS

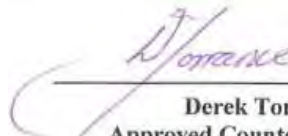
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ESP Job: J42685 – April 2020

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Cardno	08/04/2020	Bob Campbell

Deliverable	Status	Date	Recipient
PDF	Final	08/04/2020	Bob Campbell

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April 2020

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1 EXECUTIVE SUMMARY

This report presents the findings of a Hazardous Substances Management Plan (HSMP) and associated risk assessment of 157 Maitland Street Muswellbrook NSW 2333.

The survey was authorised by Cardno and was conducted by ESP – Environmental & Safety Professionals.

The site inspection was carried out on 2nd April 2020 and included a visual inspection of hazardous materials, sampling of suspected asbestos containing material (ACM) where practicable and identification of dangerous goods.

For the purposes of this report, hazardous materials are limited to Asbestos, Synthetic Mineral Fibre (SMF), Polychlorinated Biphenyls (PCB's), Lead in Paint and Dangerous Goods.

Summary of Findings

A summary of findings is provided in Table 1 below.

Table 1 Summary of Hazardous Materials

HAZARDOUS MATERIALS IDENTIFIED	Main Building
Friable Asbestos	Nil
Bonded Asbestos	Nil
SMF	Yes
Lead in Paint	Nil
PCB's	Nil

Table 2 Summary of Dangerous Goods

Dangerous Goods Identified	Main Building
Nil	Nil

Refer to Appendix 1 - Register of Hazardous Materials for detailed results.

2 INTRODUCTION

ESP – Environmental & Safety Professionals was engaged by Cardno to undertake a Hazardous Substances Management Plan (HSMP) of 157 Maitland Street Muswellbrook NSW 2333, on the 2nd April 2020. The purpose of this Hazardous Substances Management Plan was to identify the presence of hazardous materials in the above-mentioned premises and to prepare a register of hazardous materials identified during the survey.

The results of the HSMP are provided in a tabular format which is designed to provide readily available information about the presence of hazardous materials in the premises. For the purpose of this report, hazardous materials are limited to:

- Asbestos Containing Material (ACM);
- Synthetic Mineral Fibre (SMF);
- Polychlorinated Biphenyls (PCB's);
- Lead based paint; and
- Dangerous Goods.

Photographs recorded during the survey, which identify Hazardous Materials, are shown in Appendix 3.

2.1 Objectives & Scope of Survey

The objective and scope of the HSMP were to:

- identify hazardous materials within the buildings,
- provide a qualitative risk assessment of the hazardous materials identified,
- provide recommendations on control measures,
- prepare a hazardous material register to address legislative compliance.

The survey works and production of this report have been undertaken with consideration of the requirements of:

- NSW Work Health and Safety Regulation 2017,
- SafeWork NSW *Code of Practice: How to Manage and Control Asbestos in The Workplace, 2019*,
- SafeWork NSW *Code of Practice: How to Safely Remove Asbestos, 2019*.

No one section or part of a section of this report is to be taken as giving an overall idea of this report. Each section is to be read in conjunction with the whole of this report, including the appendices and attachments.

3 SAMPLING METHODOLOGY

3.1 Sampling Strategy

The identification of hazardous materials involved visual inspection of all accessible areas and collecting small samples of suspect materials. Where identical suspect materials were detected at different locations, visual confirmation only may have been made rather than additional sample collection. At the time each sample of suspect material was collected the location, condition, accessibility, friability and quantity were recorded.

3.2 Sample Analysis

Asbestos containing materials

Samples of suspected asbestos containing materials were collected and analysed by ESP – Environmental & Safety Professionals' NATA accredited laboratory (NATA Reg: 3110).

Samples collected during the asbestos survey were analysed (where appropriate) using polarised light microscopy in conjunction with dispersion staining techniques. The results of all sample analysis were interpreted by qualified personnel. Refer Appendix 2 – NATA Laboratory Results.

Synthetic Mineral Fibre (SMF)

Sampling of SMF *was not* conducted. Identification of SMF was by visual assessment. Refer to Section 6 - Recommendations

Polychlorinated Biphenyls (PCBs)

No fluorescent light fittings were observed.

Lead based paint

Lead paint sampling *was* conducted – all tests returned negative for lead in paint.

3.3 Areas not accessed

Not accessed

Areas not accessed during the survey include:

- Concealed ceiling space between ceiling lining and roofing.
- Concealed wall, ceiling or floor linings behind/under accessible surfaces.
- Wall cavities; and
- Sub-floor.
- Below concrete slabs.

4 LIMITATIONS

This HSMP is intended for the use of the client only and should not be used in isolation for tender response purposes or as a substitute for a Demolition Work Method Statement.

ESP *note* that no inspection can be regarded as absolute and that partial or total demolition of structures may reveal instances of asbestos containing materials (ACM) in-situ, which were not discovered during this initial inspection, including beneath existing floor coverings and behind ceiling/wall linings. Refer to 6.0 Recommendations regarding a destructive audit prior to demolition works.

This HSMP does not report on the presence or otherwise of deleterious dust and detritus within the building, i.e. ceiling spaces, exposed roof structure, duct and wall cavities etc. All dust and detritus in this environment have the potential to contain asbestos and other particulates such as lead and should be considered when impacting on the building elements.

The HSMP was undertaken only in those areas where access was available and does not generally include sub floor areas where access is typically restricted or not practicably available. Where observation would necessitate demolition or damage to wall cladding, floor covering, coatings, and plant etc, only limited inspection was made.

Equipment found in use was not generally disturbed and stored equipment was not internally accessed for the purpose of inspection, including pipe work and equipment. Materials, which are also not generally accessed for reasons of safety or because of difficulty of access, include light fittings and electrical backing boards.

Limitations apply to the analytical methods used when identifying asbestos fibres in samples. NATA supports this claim by stating that in materials such as vinyl floor tiles, mastics, sealants, and epoxy resins it is extremely difficult to detect the presence of asbestos. This is due to the low grade, small length or diameter of asbestos fibres present in the material.

Measurements / quantities mentioned in this report are approximate only.

This survey does not report on potential underground or in-ground/soil hazards or potentially hazardous substances arising from or used in the workplace at the premises.

5 DISCUSSION

Refer to 8.0 - Risk Assessment Criteria for health-based impacts of identified hazardous materials.

5.1 Asbestos

Asbestos material **has not been** identified on the site during this survey.

Refer to the hazardous materials register at Appendix 1 which identifies:

- Materials sampled; and
- Materials deemed to contain asbestos. NIL.

Areas inaccessible or not available to sample at the time of survey may be “*deemed to contain asbestos.*” This assessment is based on comparative visual inspections of similar site areas, historic and other reasonable grounds and the likelihood they may contain asbestos

5.2 Synthetic Mineral Fibres

Synthetic Mineral Fibre (SMF) was identified in the ceiling spaces as roofing foil clad insulation.

5.3 Polychlorinated Biphenyls

No fluorescent light fittings were observed on the site.

5.4 Lead Paint

Lead based paint was not identified during the inspection.

Australian Standard AS4361.2 1998 Guide to Lead Paint Management Part 2: Residential & Commercial buildings defines lead paint in which the lead content (calculated as lead metal) is in excess of 1.0 % by weight of the dry film as determined by laboratory testing. Results are expressed in mg/kg (ppm) or percentage w/w.

6 RECOMMENDATIONS

6.1 Asbestos Materials

- Bonded asbestos (Non-friable) asbestos containing material (ACM) where broken or damaged should be a high priority for remediation.
- ACM, if sealed and undamaged, low risk, good condition, may be left in-situ under control management until affected by proposed demolition or refurbishment works.
- The NSW Work Health and Safety Regulation 2017 requires a person conducting a business or undertaking at a premises that contains asbestos or ACM to ensure that risk assessment and control measures are carried out in accordance with *SafeWork NSW Code of Practice: How to Manage and Control Asbestos in The Workplace, 2019*;
- ACM should be inspected annually to ensure that it is not deteriorating or contributing to an unacceptable health risk.
- ACM should be clearly labelled in accordance with the above *Code of Practice* to ensure it is not unknowingly disturbed without the correct precautions being taken.
- A Management Plan should be developed to control any maintenance or building work that may impact on ACM.
- The Management Plan should be subject to regular reviews to reassess the management processes and their effectiveness in preventing exposure, controlling maintenance workers/contractors, highlighting the need for action to repair/remove ACM and raising awareness among all employees.
- Prior to any proposed demolition or refurbishment works a Destructive Hazardous Materials Audit should be conducted as per *AS 2601-2001: Demolition of Structures*.
- ACM needs to be removed before any demolition, renovation or refurbishment works.
- All asbestos removal works should be conducted in accordance with regulations.
- Removal of ACM from the site should only be carried out by a contractor holding appropriate licenses, consents and approvals from the person conducting a business or undertaking, WorkCover and/or other Authorities (as required) to transport and dispose of the asbestos waste materials.
- Air monitoring for asbestos fibres should be conducted during ACM removal works.
- An inspection and clearance report should be provided following removal of ACM prior to demolition works and the Asbestos Register should be updated accordingly.

6.2 Synthetic Mineral Fibre (SMF)

During demolition or refurbishment, any works involving SMF should comply with the *SWA/NOHSC (1990) Synthetic Mineral Fibres; National Standard for SMF*; and the *National Code of Practice for the Safe Use of SMFs*. All contractors working in areas where SMF is identified and may be impacted should wear appropriate Personal Protective Equipment (PPE) as outlined in the above NOHSC Code.

7 ASSOCIATED CODES AND PRACTICES

The following Codes, Regulations and Standards shall be the minimum applicable to the work. Where a Code of Practice applies to the work, its recommendations shall be mandatory unless stated otherwise in this specification.

Protection of the Environment Operations Act and Regulations

Protection of the Environment Administration Act and Regulations

Environmentally Hazardous Chemicals Act 1985

NSW Work Health and Safety Act 2011 and relevant codes of practice and Standards

NSW Work Health and Safety Regulation 2017 and relevant codes of practice and Standards

Australian Standard 2601-2001: Demolition of Structures

SafeWork NSW Code of Practice: How to Safely Remove Asbestos 2019

SafeWork NSW Code of Practice: How to Manage and Control Asbestos in the Workplace, 2019

National Code of Practice for the Control of Workplace Hazardous Substances

[NOHSC: 2007(1994)]

National Code of Practice for the Labelling of Workplace Substances
[NOHSC:2012(1994)]

National Code of Practice for the Preparation of Material Safety Data Sheets [NOHSC: 2011(1994)]

National Code of Practice for the Safe Use of Synthetic Mineral Fibres
[NOHSC:2006(1990)]

Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Dust [NOHSC: 3003(1988)]

Guidance Note on the Membrane Filter Method for the Estimation of Airborne Synthetic Mineral Fibres [NOHSC: 3006(1989)]

Resource and Recovery Act 2001

Environmental Planning and Assessment Act 1979

Heritage Act 1997

Local Government Act 1993

Occupational Health and Safety Act 1983

Soil Conservation Act 1983

8 RISK ASSESSMENT CRITERIA

There are varying factors which contribute to Risk Ratings when assessing the potential risk to human health from Asbestos, Synthetic Mineral Fibre (SMF), Polychlorinated Biphenyls (PCBs) and Lead based paint.

8.1 Asbestos

Asbestos is primarily a *respirable* hazard. The health risk is related to the potential of asbestos fibres to become airborne and enter the lower regions of the lung to cause asbestos related disease. To assess the risk of asbestos containing materials (ACM) several factors must be considered including condition, friability, accessibility, physical damage, water or fire damage, exposure and environmental impacts. Three key factors in assessment of risk priority for asbestos are:

1. Condition

The condition rating of ACM identified on the site is referred to as follows:

- a) **GOOD** - undamaged, not deteriorated and suitable for intended/current use.
- b) **FAIR** - minor cracking evident and in need of remedial attention.
- c) **POOR** - damaged or deteriorated, and in urgent need of removal and/or replacement is required.

2. Friability

Friability relates to the ease in which asbestos fibres may be released into the air when ACM is broken or impacted.

- a) **FRIABLE** - means any material that contains asbestos and is in the form of a powder or can be crumbled, pulverised or reduced to powder by hand pressure when dry.
- b) **NON-FRIABLE** - means any material (other than friable asbestos material) that contains asbestos FRIABLE and is typically in a bonded matrix.

3. Accessibility

Consideration of accessibility relates to the potential of ACM to be impacted or disturbed relative to its physical location.

- a) **LOW** - cannot easily be disturbed or damaged because it is isolated from access and view e.g. in ceiling spaces, wall cavities or voids.
- b) **MEDIUM** - are visible but not easily accessed e.g. eaves soffits.
- c) **HIGH** - may easily be damaged because they are accessible and potentially subject to impacts e.g. wall linings.

8.1.1 Asbestos Risk Rating

LOW	ACM is stable and effectively sealed against fibre dispersion to the atmosphere. Health risk is negligible if left undisturbed and under the control of an asbestos management plan.
MEDIUM	ACM is identified, whilst not seen at present as a substantial risk. Materials are located in areas that are subject to potential deterioration or disturbance and possible future risk. Appropriate abatement measures should be taken as soon as possible. Until then, appropriate labelling and effective use of an asbestos management plan is seen as necessary.
HIGH	ACM is in a damaged/poor condition or friable and exposed state, such that asbestos fibres are being or are likely to be released to the atmosphere. Potential health risk. The immediate removal of this asbestos containing material is recommended with isolation by signage, barriers and management control until removal is completed.

8.2 Synthetic Mineral Fibre

SMF risk can be assessed using similar factors to asbestos. However, unlike asbestos, SMF is an *inspirable* hazard affecting the upper respiratory system and can cause coughing, irritation and itching of the skin and eyes. Where non-friable (bonded) and in good condition, the SMF insulation found on the site is considered to be low risk.

However aged and degraded SMF material can become friable (and a potential *respirable* health hazard) if fibres have a diameter smaller than 3 microns, a length longer than 5 microns and a length-to-diameter ratio larger than or equal to 3.

8.3 Polychlorinated Biphenyls

Polychlorinated biphenyls (PCBs) are organochlorine compounds which are mixtures of individual chlorinated compounds. PCBs are a toxic irritant and a known or suspected carcinogen. Exposure to PCBs may occur via ingestion, inhalation or dermal (skin) contact. The effects on human health depend on exposure time, concentration and the toxicity of the particular PCB.

Fluorescent light fittings installed pre-1980 may contain PCB filled capacitors. If such capacitors were intact, good condition and not leaking, then they would be considered as low risk.

8.4 Lead Paint

Lead in any form is toxic to humans when ingested or inhaled. The health risk of lead paint is assessed by the factors of inhalation and ingestion coupled with the condition of the paint i.e. flaking paint is more likely to breakdown and be inhaled or ingested. Where lead paint is in good condition and not flaking it is considered to be low risk.

9 ABBREVIATIONS & GLOSSARY

FC	Fibrous Cement (sheet)
ACM	Asbestos Containing Material
NAD	No Asbestos Detected
SMF	Synthetic Mineral Fibre
PCB	Polychlorinated Biphenyls
High Risk Situation	Where there is some likelihood of access to hazardous materials, wherein a person may be placed at risk.
Internal	Refers to the underside of roof sheeting, or the inside of building/wall sheeting.
External	Refers to the top or outside of roof sheeting or the outside of building/wall sheeting.
Practicable	Practicable having regard to: . the severity of the hazard or risk in question. . the state of knowledge about the hazard or risk. . the availability and suitability of ways to remove or mitigate that hazard or risk. . the cost of removing or mitigating that hazard or risk.
Asbestos	Asbestos is defined as: The fibrous form of mineral silicates belonging to the Serpentine and Amphibole groups of rock-forming minerals, including Actinolite, Amosite (Brown Asbestos), Crocidolite (Blue Asbestos), Chrysotile (White Asbestos), Tremolite, or any mixture containing one or more of these. Chrysotile - White Asbestos Amosite - Brown or Grey Asbestos Crocidolite - Blue Asbestos
Friable asbestos material	Means any material that contains asbestos and is in the form of a powder or can be crumbled, pulverised or reduced to powder by hand pressure when dry.
Bonded asbestos material	Means any material (other than friable asbestos material) that contains asbestos.



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ASBESTOS IDENTIFICATION REPORT

Date: 6 April 2020
ESP Job Number: J42685
Customer: Cardno Ltd
Address: Level 9 The Forum 203 Pacific Highway, St Leonards, NSW
Attention: Bob Campbell
Reference: –
Site Address: 157 Maitland Street, Muswellbrook, NSW
Sampled By: ESP – Environmental & Safety Professionals
Date Sampled: 2 April 2020
Date Analysed: 6 April 2020
Test Method: Qualitative identification of asbestos types in bulk samples by polarised light microscopy, including dispersion staining and trace analysis, with a calculated practical detection limit of 0.01 %, using methodology in accordance with AS 4964 and ESP in-house Method No. 2.

ESP Lab No.	Sample location (if provided) and sample description	Result	Notes
E73031	1: External Eaves – Fibro cement material (85 x 65 x 15 mm)	No asbestos detected Organic fibre detected	-

The results contained in this report relate only to the sample(s) submitted for testing.

Approved Identifier: Ross Cooper
 Approved Signatory: Vena Beera



Accreditation No. 3110

NATA Accredited Laboratory
 Accredited for compliance with ISO/IEC-17025 - Testing

R_200402_J42685_Cardno Ltd_ID_F1
 Page 1 of 1

APPENDIX 1 – REGISTER OF HAZARDOUS MATERIALS**REGISTER OF HAZARDOUS MATERIALS****Client: Cardno****Survey Address: 157 Maitland Street Muswellbrook NSW 2333****Building: Main Council offices - Building****ESP Job No: J42685****Survey Date: 02/04/2020**

Photo No	Sample No	Location / Room	Surface Description	Material Description	Material Status	Friable/ Non-Friable	Condition	Risk Rating	Recommendations/Comments	Qty (m ²)
3, 4, 5, & 6	E73031	External	Eaves	Flat fibro cement sheeting	No asbestos detected					
		No asbestos was identified during this survey								

APPENDIX 3 – PHOTOGRAPHS



Photo 1
Council offices – 157 Maitland St
Muswellbrook
No asbestos detected or observed



Photo 2
Council offices – 157 Maitland St
Muswellbrook
No asbestos detected or observed



Photo 3
Eave linings - Villaboard
No asbestos detected
Sample No: E73071



Photo 4
Eave linings - Villaboard
No asbestos detected
Sample No: E73071



Photo 5
Eave linings - Villaboard
No asbestos detected
Sample No: E73071



Photo 6
Eave linings - Villaboard
No asbestos detected
Sample No: E73071



Photo 7
Internal foyer
No asbestos observed

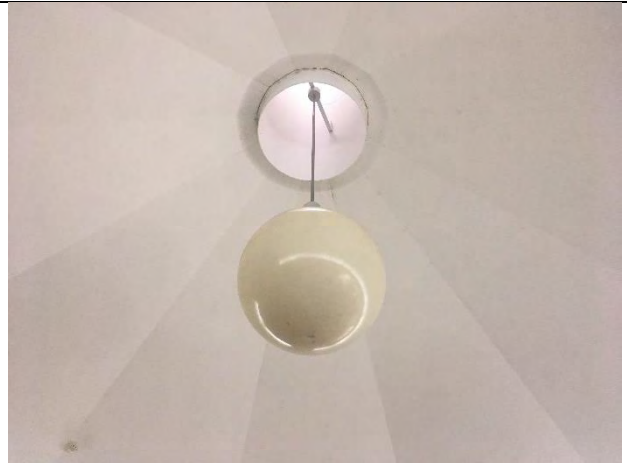


Photo 8
Internal foyer – ceiling - plaster
No asbestos observed

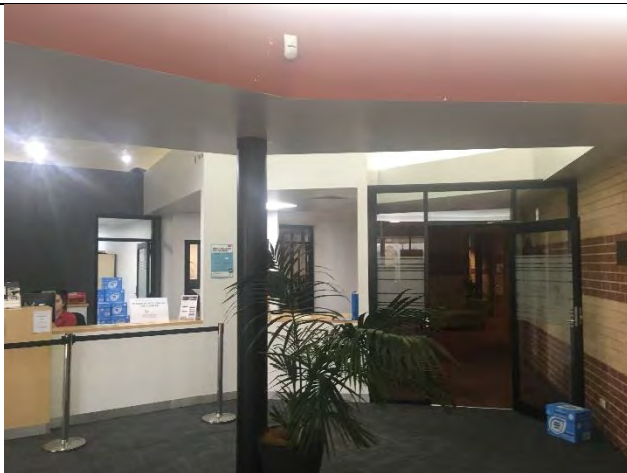


Photo 9
Internal foyer
No asbestos observed

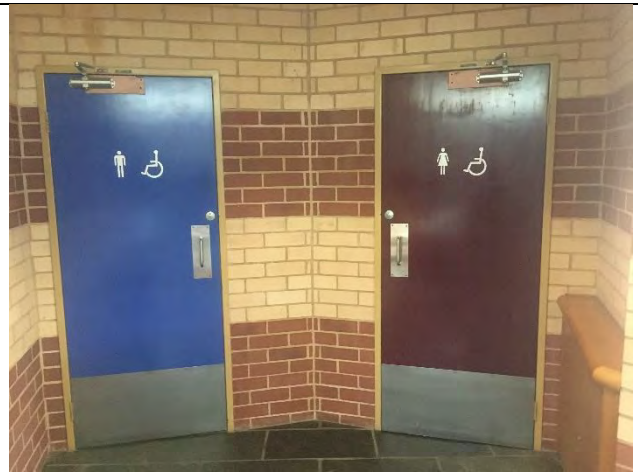


Photo 10
Internal wet areas
No asbestos observed



Photo 11
Internal wet areas
No asbestos observed

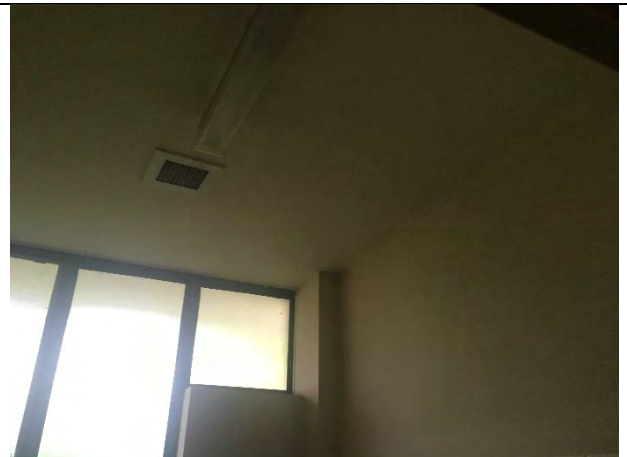


Photo 12
Internal wet areas
No asbestos observed

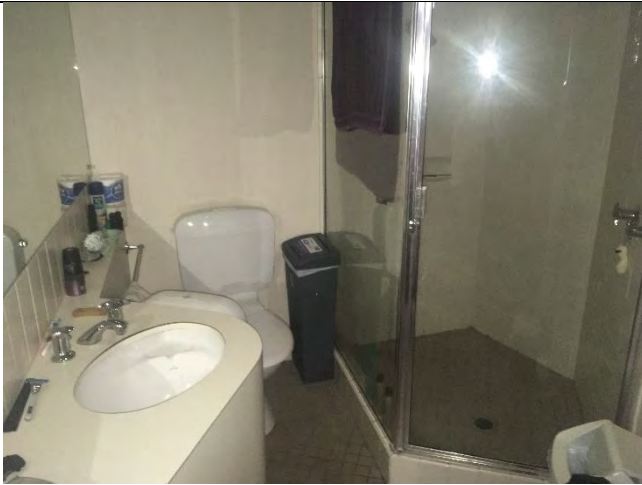


Photo 13
Internal wet areas
No asbestos observed



Photo 14
Internal wet areas
No asbestos observed



Photo 15
Internal Kitchen areas
No asbestos observed



Photo 16
Internal Kitchen areas
No asbestos observed



Photo 17
Internal Kitchen areas
No asbestos observed



Photo 18
All office spaces
No asbestos observed



Photo 19
All office spaces – Council Chambers
No asbestos observed



Photo 20
All office spaces
No asbestos observed



Photo 21
All office spaces
No asbestos observed



Photo 22
Internal Electrical Boards
No asbestos observed



Photo 23
Living room
No asbestos observed



Photo 24
Kitchen
No asbestos observed



Photo 25

**Plant room ceiling space access – SMF batts
No asbestos observed**



Photo 26

**Plant room ceiling space access – metal duct work – Masonite divides
No asbestos observed**



Photo 27

**Plant room access – metal duct work –
Masonite divides
No asbestos observed**



Photo 28

**Plant room ceiling space access – SMF batts
No asbestos observed**



Photo 29

**Plant room access – foil clad SMF insulation
No asbestos observed**



Photo 30

**Floor beneath carpets - Concrete
No asbestos observed**

APPENDIX 4– SUMMARY OF RESULTS

SUMMARY OF RESULTS										
Client: Cardno						ESP Job No: J42685				
Survey Address: 157 Maitland Street Muswellbrook NSW 2333						Survey Date: 02/04/2020				
Building: Main Council offices - Building										
Photo No	Sample No	Location / Room	Surface Description	Material Description	Material Status	Friable/ Non- Friable	Condition	Risk Rating	Recommendations/Comments	Qty (m ²)
		Internal								
		Internal	Floors	Carpet/concrete/ ceramic tiles						
		Internal	Walls	Plaster						
		Internal	Ceilings	Plaster						

APPENDIX 5 – SITE LOCALITY MAP**48 Beath Cres Kahibah NSW**



Building Analysis *Wet areas*

