Contamination Assessment

Combined Preliminary & Detailed Site Investigation Report

for

1 Progress Road, Mount Hutton, NSW 2290

Report No. 65042

Version 1.0

Issued September 14th, 2023

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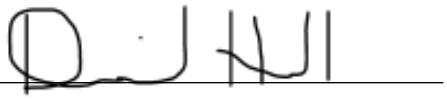
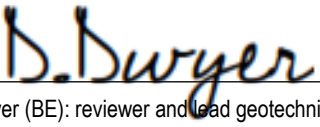
This combined stage 1 Preliminary and stage 2 Detailed Site Investigation has been commissioned by Backyard Grannys Pty. Ltd. and prepared on behalf of Ideal Geotech.

September, 2023.



Daniel Hall (BSc, MSc): author, consultant, and investigator



Dane Dwyer (BE): reviewer and lead geotechnical engineer

Executive Summary

This Executive Summary details the findings of a Combined Preliminary and Detailed Site Investigation (PSI & DSI) conducted at 1 Progress Road, Mount Hutton, NSW 2290. The investigation aimed to assess contamination potential, characterise the site (referred to hereinafter as the Site), and evaluate its suitability for proposed development, all within the framework of current state and commonwealth guidelines and regulations. The scope of the investigation involved desktop research, historical aerial photography analysis, geological and hydrogeological assessments, environmental database queries, on-site inspections, and the formulation of a Conceptual Site Model (CSM). Subsequently, the Detailed Site Investigation involved the collection of 18 samples from varying depths to assess soil contamination and bridge data gaps identified during the Preliminary Site Investigation. The Site is approximately 1,704 m2 and is presently zoned as R2 Low Density Residential. The trigger for this investigation was due to the proposed structural demolition and the construction of two new buildings. During Ideal Geotech's investigation, the site displayed an overall flat topography, well-maintained fencing, and a blend of cultivated and uncultivated vegetation, with the northern section appearing less tended. The environment surrounding the Site featured a blend of land uses, including low-density residential housing, a local center with an Aldi supermarket and other commercial establishments, a neighbouring public school to the north, and a recreational playground area to the south. The adjacent areas were generally deemed environmentally sound. A historical analysis using imagery dating back to 1944 unveiled the site's transformative progression from an unoccupied plot to its present-day state. Historical investigations revealed that neighbouring remediation efforts within the Local Centre (the adjoining eastern property) addressed contamination stemming from underground storage tanks and asbestos stockpiles. However, no records indicated contamination investigations on the subject Site. A Conceptual Site Model was devised to identify potential contamination sources, affected media, transport mechanisms, exposure routes, and potential receptors. Five data gaps were identified in the PSI, involving the contents of ash near the garden, historic contamination along the eastern site boundary, potential driveway contamination, surface runoff assessment, and the potential presence of contaminants in the northern site portion. The Detailed Site Investigation yielded results indicating that only one sample (E2), collected from the driveway area, surpassed established contamination criteria for lead and zinc. The origin and extent of contamination in this particular area remained unresolved. As a result, Ideal Geotech makes recommendations for a Remedial Action Plan (RAP) targeted at addressing the lead and zinc-contaminated soil in the driveway area. Proposed remediation may involve soil excavation and appropriate disposal. Subsequent soil sampling after remediation is advised to validate contamination removal.

Contents

Aim and Objectives

The aim of this combined Preliminary and Detailed Site Investigation is to research the Site's condition in accordance with current state and commonwealth guidelines to meet these objectives:

1. Determine if there is any potential for contamination at the Site.
2. Characterise and determine the nature and extent of Site Contamination (if any).
3. Make conclusions about the Site's suitability for the proposed development.

** "Contaminated Site" is defined as: "land or water where any chemical substance or waste has been added as a direct or indirect result of human activity at above background level and represents, or potentially represents, an adverse health or environmental impact" (from the 2013 ASC NEPM amendment).*

Scope of Investigation

Preliminary Site Investigation:

- A Desktop study of topographic and geological maps.
- A review of selected historical aerial photography.
- Site soil, acid sulphate soils, geological, and hydrogeological descriptions.
- Environmental Protection Authority (EPA) regulatory database searches.
- Site inspection.
- Background research and site inspection.
- Identify if any potential areas of environmental concern (AEC).
- Develop a Conceptual Site Model (CSM).

Detailed Site Investigation:

- Develop Data Quality Objectives (DQO) and a Sampling Analysis Quality Plan (SAQP) based on the CSM.

- Obtain 16 (and 2 QA) samples, guided by the CSM.
- Identify Contaminates of Potential Concern (CoPC)
- Interpret and summarise laboratory results and Site investigations to ascertain contamination status.
- Make conclusions and recommendations regarding the aim and objectives of this combined report.

Regulatory Framework

- *National Environment Protection (Assessment of Site Contamination) Measure of 1999* [10]
- *Australian Standard 4482.1 2005* [12]
- *Contaminated Land Management Act of 1997* [14]
- *NSW EPA, Consultants Reporting on Contaminated Land: Contaminated Land Guidelines, 2020* [15]
- *NSW EPA, Contaminated Land Guidelines, Sampling Design, 2022* [13]
- *Protection of the Environment and Operation Act of 1997* [16]
- *NSW EPA, Planning Guidelines SEPP 55 Remediation of Land, 1998* [23]
- *NSW EPA, State Environmental Planning Policy (Resilience and Hazards), Chapter 4 Remediation of land, 2021* [24]

Details of Site

Table 1. Key Site details.

Location	**Address:** 1 Progress Road, Mount Hutton, NSW 2290
	DMS: 32°58'41.38" S, 151°40'05.88" E
	GDA94:16883640.8, -3892402.6
Lot/DP	8/29077
Client	**Name**: Backyard Grannys Pty. Ltd.
	Phone: 0455 050 157
	Email: joshua@backyardgrannys.com.au
Property Title	See Appendix A
Development Application	Not available at the time of reporting.
Planning Certificate 10.7	See Appendix A
Council	**Local government council:** Lake Macquarie City Council (lakemac.com.au)
	Aboriginal land council: Awabakal (alc.org.au)
Approximate Site area	1 704 m^2
Current Zoning	R2: Low Density Residential
Trigger for assessment	Demolition of structure and construction of two new buildings (Appendix B, Figures 1b)
Statutory controls	Lake Macquarie Local Environmental Plan 2014, Lake Macquarie Development Control Plan, see Planning Certificate 10.7 Appendix A for a comprehensive list of government statutory controls.

Current Site Description

***Figure 1**. Site boundary highlighted green. Google Earth dated 12/2022.*

An Ideal Geotech environmental investigator visited the Site at 1 Progress Road around noon on August 17th, 2023, during a clear sunny day and made the following observations:

i. The Site is located in Mount Hutton, a suburb approximately 12 geodesic kilometers south-east of Newcastle (Appendix C, Figure 1c).
ii. The Site perimeter is rectangularly shaped and about 92 m long. The south end is ~ 13 m wide and starts to widen near the middle and ends at its widest (~ 32 m) at the north (Figure 1; Appendix C, Figures 1.1c).
iii. The Site is relatively flat, with a 2 to 3 degree slope generally falling from the north-east to the south-west.
iv. The entire Site is enclosed predominately with solid metal (Colorbond style) fencing that is in good condition.
v. The Site's frontage (south) is adjacent to Progress Road and partially delineated with a small section of old chain-link fencing (Appendix C, Figure 6c).
vi. Scrubby Creek lies approximately just 3 to 5 m west of the Site's western boundary fence (Appendix C, Figure 2c).
vii. The eastern boundary is enclosed by a concrete wall (~2.5 m) that has an exposed plumbing/drainage system, presumably for routing run-off from the next-door Local Centre carpark (Appendix C, Figure 3c).
viii. The southern portion of the Site is well maintained and in good aesthetic condition.
ix. A metal fencing bisects the middle of the Site (Appendix C, Figure 4c).
x. At the north end, beyond the bisecting fence, the vegetation is unmaintained and over grown.

xi. The north end is mostly empty, except for a few empty bins and some free-standing fence sections that appeared to be configured as a makeshift storage area (but storing nothing at the time of the visit (Appendix C, Figure 5c).
xii. A rusted metal burn barrel was observed containing 300 – 400 mm of charcoal/charred material (Appendix C, Figure 4c).
xiii. A single residential 1-storey brick and wood house with an above-ground brick foundation is the only fixed structure on the Site. The house is approximately 8 meters back from Progress Road. It is estimated to be have been built in the early 1960s.
xiv. The house appeared to use electricity for its HVAC system.
xv. There was no paved-drive way on the Site, however, a narrow concrete walkway exists on either side of the house (Appendix C, Figure 6c).
xvi. At the north-western corner there was a young banksia tree growing out of a makeshift plant pot constructed from a half barrel drum wedged into an old tyre (Appendix C, Figure 7c)
xvii. A covered carport was actively being used for parking on the western side of the house (Appendix C, Figure 8c).
xviii. No significant bare patches of soil are present and around 90% of the ground is covered in grass and/or other vegetation.
xix. Vegetation across the Site appeared to be healthy and no unusual dieback or discoloration was observed. Only about 4 medium trees are present, all likely < 10 years old.
xx. Soil from the south, on the eastern side of the house, appeared to contain a layer of charcoal in the 100 mm soil, possibly from ashes spread onto the garden from the burn barrel (Appendix C, Figure 9c).
xxi. No standing or running water on the Site was found.
xxii. No odours or sights relevant to contamination were observed.

Surrounding areas (Figure 2)

- North of the Site is Mount Hutton Public School.
- East is the Local Centre, featuring a large Aldi and a few other mixed businesses.
- South is Progress Road and then Mount Hutton Playground, which is a part of Mullington Reserve.
- West is Scrubby Creek and a continuation of Mullington Reserve.
  - *The Site is surrounded by a mixture of land uses, with the majority being low density residential. The Site's surroundings appeared to be in good environmental condition.*

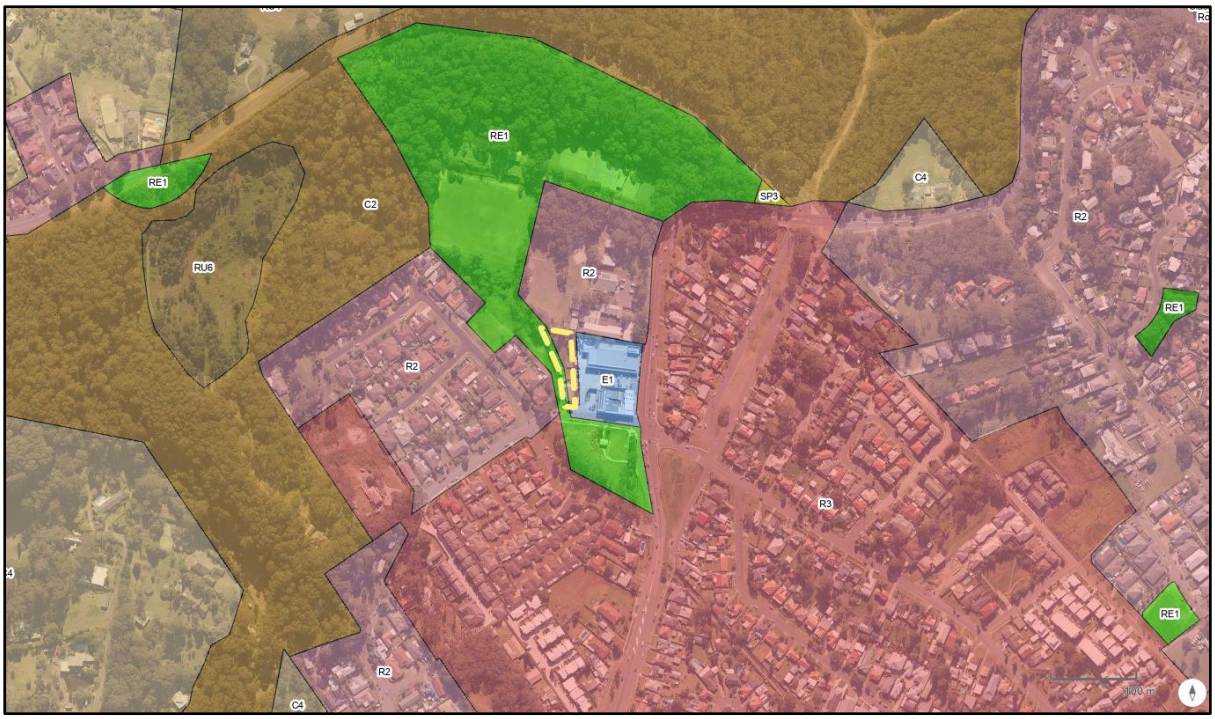


***Figure 2**. Site (in yellow) surround land use. Legend: C2 – Environmental Conservation/Management, C4 – Environmental Living, E1 – Local Centre, R2 – Low Density Residential, R3 – Medium Residential, RE1 – Public Recreation, RU6 – Transition, SP3 – Tourist. NSW Planning Viewer.* [6]

Chronological Site Imagery

Historic aerial and satellite imagery: [28]

1944 (Appendix D, Figure 1d)**:** The Site is cleared of trees but empty and surrounded by a very rural landscape. Less than a dozen small square structures can be seen, which were predominately on the lot where the present-day Local Centre is located.

1954 (Appendix D, Figure 2d): No noticeable changes to the Site.

1964-1966 (Appendix D, Figure 3d)**:** Earliest available image found that shows a structure which resembles the shape and position of the current house and small storage shed in 1964. In 1966 significantly more structures can be seen in the surrounding area, especially the lot adjacent to the eastern boundary.

1974 (Appendix D, Figure 4d)**:** The Site now appears to be fully fenced in, including two fences running across the Site. A small rectangular structure (possibly a shed) is visible on the eastern side, near the middle. The configuration of the structures on adjacent eastern lot has changed into a much larger building with several cars parked around it.

1984 (Appendix D, Figure 5d): A small extension is added to the south facing end of the house.

1993 (Appendix D, Figure 6d): More trees are now around the house. The Site land is divided with another fence running south to north in the northern half; presumably these are pins for animal keeping and possibly gardening. West, after Scrubby Creek, a large neighbourhood consisting of around three dozen new homes with paved streets has been developed.

2001 (Appendix D, Figure 7d): Tree cover on the eastern side of the house seems to have been removed. The school adjacent to the northern Site boundary has increased in size with some new small buildings. The park to the south, across Progress Road now has a sidewalk.

2007 (Appendix D, Figure 8d): More detail can be seen of the Site containing several metallic objects and multiple fences that look like pins in the north half. The adjacent eastern (current Local Centre) lot looks mostly abandoned and aesthetically in poor condition. The school adjacent to the north has increased in size.

2012 (Appendix D, Figure 9d): No major discernible changes to the Site. The Local Centre lot next door has significantly changed to resemble its more modern state with an Aldi and other shopping areas.

2014 (Appendix D, Figure 10d): No noticeable changes to the Site. Apparent renovation to some building at the Local Centre.

2015 (Appendix D, Figure 11d): The roof of the house on the subject Site has changed (at least in colour) from red to grey.

2016 (Appendix D, Figure 12d): No changes to Site. Some solar panels added to the Local Centre buildings.

2021 (Appendix D, Figure 13d): Site's northern half has been emptied and cleared of all objects and fencing. More solar panels added to the Local Centre buildings.

2022 (Appendix D, Figure 14d): Most current obtainable satellite imagery of the Site.

Background & Records

History

In 2009 Douglas Partners was commissioned by Suters Architects to conduct a PSI (Project 29814) in the Local Centre property (DP1158536) adjacent to the eastern side of subject Site (the present-day Local Centre (Figure 2). They found that the area (the present-day local centre) was originally a dairy farm, and later went on to host a furniture store, and eventually a hardware store before it was demolished. They proposed and then conducted a DSI due to the rediscovery of two (1000 and 3000 gallon) underground storage tanks (that had held oil for the old furniture store heaters) along the Local Centre's western property line (near the eastern boundary of the subject Site). They also discovered asbestos-contaminated stockpiles and high levels of petroleum hydrocarbons (from the underground storage tanks) near the Local Centre's western boundary. Although Ideal Geotech was unable to locate the reports, it was inferred that remedial actions and validation processes were carried out clean up the areas because the proposed buildings that originally triggered the assessments were ultimately constructed. In both DP's PSI and DSI reports, there was no mention of 1 Progress Road, and it is unknown whether DP found or looked for any contamination on the subject Site, despite its close proximity. A current a PSI and DSI is therefore required for the subject Site.

Aside from contamination and remediation activities carried out next-door to the Site, the Site also contains other potential areas of environmental concern: an old house from the early 1960s with an unknown extent of roof renovation (indicated by colour change in satellite imagery); burning, an unsealed driveway. The yard's northern half was used for unclear activities, involving what appeared to

be a significant amount of fencing—possibly for animal keeping or gardening—which raised concerns about potential pesticide and metal contamination (See Table 2 – Areas of Environmental Concern).

Site Deposited Plan, Dealings, and Title[1]
See Appendix F

Protection of the Environment Operations Act Public Register [2]
The POEO is a public register that contains environment protection licences, applications for licenses, environment protection and noise control notices, penalty notices issued by the EPA, convictions in prosecutions under the POEO Act, and the results of civil proceedings.

- *No information relevant to potential contamination was found.*

NSW EPA Authority's List of Notified Sites [3]
The NSW EPA publishes a list of notified contaminated sites every month. These are sites that have been reported to the EPA in accordance to section 60 of the *Contaminated Land Management Act 1997* (CLM Act) and are within 500 m of the Site.

- *No information relevant to potential contamination was found.*

Before You Dig [4]
An enquiry with Before You Dig Australia indicated that there are utilities running beneath the Site, but there are no known underground utilities or other infrastructure that might present potential contamination to the Site.

NSW EPA PFAS Investigation Program [5, 25]
PFAS (per-and 3 poly-fluoroalkyl substances) are persistent chemicals commonly found in various industrial and consumer products that can migrate around the environment. PFAS have been linked to adverse health effects, including developmental and reproductive disorders, immune system dysfunction, and certain types of cancer. The NSW EPA has a published list of known PFAS contaminated areas to help protect residents from exposure. The PFAS National Environmental Management Plan (PFAS NEPM) suggests that a distance of 1 km from a point source be used as the minimum for sites to be flagged as potentially impacted by PFAS contamination.

- *No PFAS point sources closer than 5 km away from the subject Site were identified.*

Environmental conservation and heritage protection [26]

- *The Site is considered by legislation to not be within an area of environmental conservation or protection. It is also considered to not contain any outstanding biodiversity or anything of environmental heritage (Appendix A).*

Environmental Properties

Geology [6,26]
Information from the Geological Survey of the NSW (Newcastle 1:250000 Sheet SI 56-2) indicate that the natural underlying Site geology could consists of: conglomerate, sandstone, tuff, shale, coal from Permian Newcastle Coal Measures

Site Soil Characteristics: Surface soil samples taken from the Site at a surface depth of ranging from 50 to 150 mm found soil that appeared as brownish sandy loam with traces of gravel, overall consistent with natural material. A soil core indicated that clay was present at depths greater than 200 mm (Appendix C, Figures 10c and 11c).

Acid sulfate soils [7,26]

Acid sulfate soils (ASS) contain iron sulfides, which when exposed to air, produce harmful sulfuric acid. This can damage aquatic life, infrastructure, and reduce agricultural productivity. The NSW government provides an online service called eSpade that provides an acid sulfate soil risk map to help in identifying and managing areas at risk.

- *The Site and its surroundings are not at risk of acid sufate soils.*

Hydrogeology and Topography[8,9]

The Site lies at approximately 40 m above sea level and is located in the Macquarie-Tuggerah Lakes Catchment of the Sydney Basin and draws from the Stockton Groundwater source.

No groundwater monitoring wells were found near the Site using the BOM's Australian Groundwater Explorer.

- *There was no evidence found to suggest that there was any significantly contaminated groundwater on or flowing through the Site.*

Sensitive Nearby Areas

Mullington Reserve directly to the south and east of the Site, which includes a playground and Scrubby Creek, respectively. There is also a school directly adjacent to the north of the Site.

Identified Areas of Environmental Concern

Table 2. Areas of Environmental Concern (AECs).

AECs	Potential Hazard	Potential Source	Potential Contaminates of Concern (PCC)	Justification
1. Northern half of the Site	▪ Metal objects (e.g., holding pin, fences, scrap) ▪ gardens	Surface soil (top 150 mm)	Metals, pesticides, herbicides	With a possible history of animal keeping in the area and possibly gardening, the northern half of the Site might have areas of possible soil contamination. Proper soil testing would be necessary to confirm the presence and levels of any contaminants.

2. Eastern boundary	▪ Runoff from neighboring carpark, ▪ Remnants of stockpile at the NE corner	Surface soil (top 150 mm)	Petroleum hydrocarbons, benzo(a)pyrene, metals, asbestos	To our knowledge, no tests have been performed to ensure that the Local Centre carpark has not leaked contaminated run-off into the Subject site since its construction. We were also unable to find information as to whether or not the extent of the asbestos containing stockpile, originally identified by Douglas Partner's 2009 PSI, had affected the subject Site.
3. House area	▪ Vehicles, ▪ burn barrel and layer of ash near garden in the southeastern side of the site ▪ Roof work in 2015	Surface soil (top 150 mm)	Lead, benzo(a)pyrene, petroleum hydrocarbons	If vehicles have been frequently using the unsealed driveway, there could be a potential for localized contamination from automotive fluids. Lead is possible if the driveway was in use and unsealed prior to the ban (as late as 2002) of leaded gasoline. The burn barrel is presumed to have been used to burn wood and paper waste and the ashes spread around the garden as a fertiliser, however, testing should be undertaken to ensure carcinogenic contaminates have not been also spread. If work was carried out on the roof without taking proper precautions, it could potentially have resulted in contamination of surface soils around the site, especially if the original materials contained lead paint or asbestos.

Conceptual Site Model

A Conceptual Site Model (CSM) is a visual representation that summarises possible sources of contamination, potential receptors, and exposure pathways in a particular environment. CSMs play a crucial role in delineating how the Site may have become contaminated, and how contaminants could potentially expose various receptors. CSMs are particularly useful in identifying both complete and potential pathways of exposure while considering any existing data gaps and uncertainties. It subsequently guides targeted investigations to fill these gaps if they arise, thereby facilitating a more comprehensive understanding of the Site's contamination status. [10, 12, 13]

Table 3. A Conceptual Site Model (CSM) of the Site and the surrounding area (approximately 500 m).

CSM	Description
Potential Primary Sources of Contamination	1. Rusted metal burn barrel with charcoal/charred material 2. Historic commercial and agricultural activities on and around the Site 3. Unsealed driveway 4. Eastern boundary wall drainage system 5. Possible remnants of asbestos-containing stockpile 6. Roof renovation
Potential Secondary Sources of Contamination	7. Adjacent Local Centre carpark 8. Ashes in soil around the garden area's top soil 9. Driveway
Potential Media Affected	10. Soil (charcoal layer, potential asbestos remnants, contaminants from driveway) 11. Groundwater (due to proximity to Scrubby Creek and drainage system)
Potential Transport Mechanisms	12. Surface runoff 13. Wind (especially for asbestos)
Potential Exposure Routes	14. Inhalation of airborne contaminants (especially asbestos) 15. Direct contact with soil 16. Ingestion from soil/plants
Potential Receptors	17. Humans (residents, visitors, workers) 18. Local fauna and flora
Potential Exposure Pathways	19. Soil to human (e.g., during construction work, gardening, etc.) 20. Soil to plants to human 21. Airborne contaminants to human (especially asbestos inhalation).

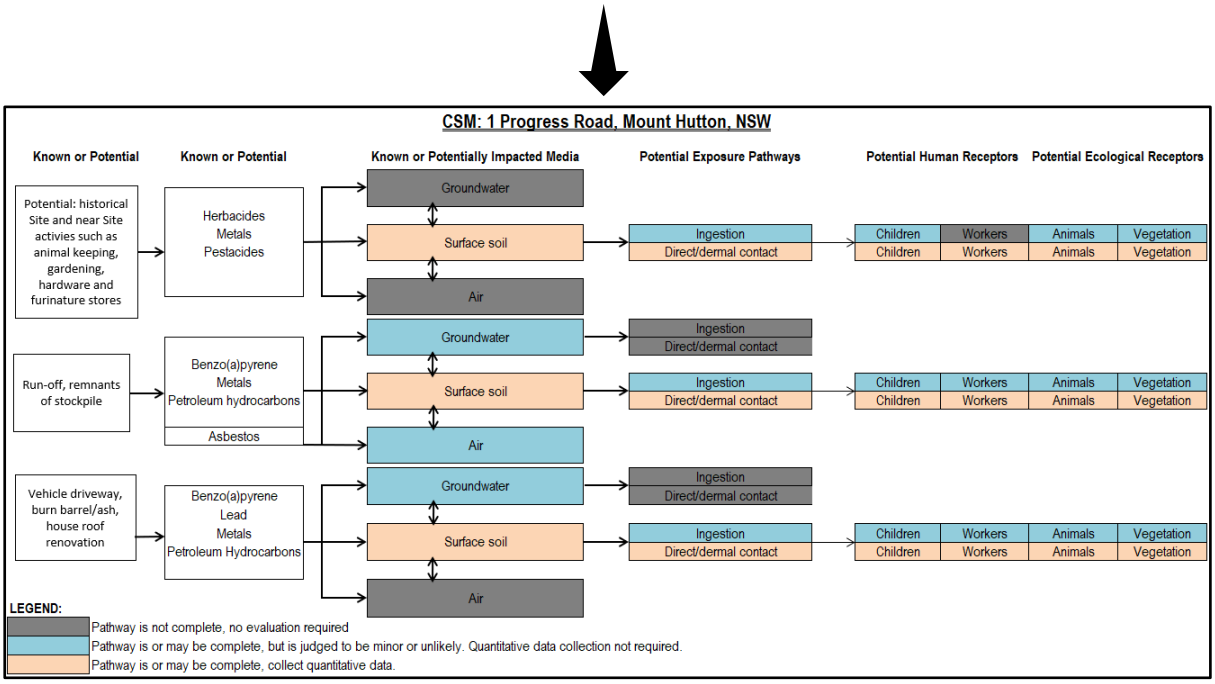


***Figure 3**. A visual representation of the Site Conceptual Site Model (CSM).*

Identified Data Gaps

1. Contents of ash around the eastern side of the house near the garden.
2. Contamination along the eastern side of the Site (asbestos, petroleum hydrocarbons).
3. Possible contamination of the driveway area.
4. Run-off across the Site, flowing from north east to south west, mobilizing contamination, if any, potentially accumulating in the southwestern corner, or running into Scrubby Creek.

5. If contamination is present in the north half of the Site, leftover from previous and historic activities such as farming/animal keeping.

PSI Conclusion

In the above report, Ideal Geotech identified three areas of environmental concern and five data gaps that require a detailed site investigation.

Stage 2: Detailed Site Investigation (DSI)

This DSI targets the Site's topsoil and subsurface soil, especially around identified AEC (Table 2). Surface were considered to be the most appropriate depth to check for contamination based on the proposed development. We used Health Investigation Levels (HILs) criteria D for future commercial use to evaluate lab samples against. This DSI aims to fill the data gaps identified in the above PSI and describe the presence of any contamination that was found to be exceeding ASC NEPM thresholds.

Sampling Methods

In this investigation 18 samples (E1 to E16, plus 2 QA samples) were obtained from the Site at depths ranging from 10 to 200 mm. A single 2,000 mm sample was also taken using a vehicle mounted auger and all other samples were obtained using a hand auger. The 2,000 mm sample (E1) was taken as a snapshot of the soil substratum's chemical levels.

The reused hand auger was sterilised between each sampling event using DECON90 to prevent cross-contamination. The mounted auger was used for only one sample (E1).

The sampling design is based on a quasi-systematic and judgemental approach. Samples were obtained as a grid with approximately 25 m between each sampling location. Two relatively even spaced samples from the mid northern section (to detect possible contaminates that might have mobilised down slope from east to west) were obtained based on the technician's judgement. Along the eastern wall, where a greater likely hood of contamination was expected, sampling occurred at closer intervals of 10-15 m.

Throughout sampling, topsoil and surface samples were obtained at a regular interval:

7 topsoil samples, 8 surface soil samples, and 1 substratum sample.

These samples are representative of the Site's top 'O' (organic ~ 0-50 mm), 'A' (surface ~ 50-250 mm), and 'C' (substratum > 750 mm) soil horizons. The substratum sample was taken from a low lying area with a depression to check for possible soil leaching and run-off pooling in the south-west corner of the Site.

Approximately 150 g of soil from each sampling location was placed into sealed glass jars that were provided by the ALS laboratory. Approximately 20 g of soil was also taken from each sampling location and placed into sealed plastic bags for asbestos analysis. All samples were stored in a sealed cooler for transport and delivered to ALS with an accompanying chain of custody within in the same day (Appendix E, Figure 1e).

Data Quality Objectives [10, 12, 13]

Data Quality Objectives (DQO) are a seven-step planning method to identify data needed to make decisions about a site's environmental state. DQOs use quantitative and qualitative criteria set by the investigators that help with clarification to the study objectives and processes. The DQO Seven Steps used in this investigation were:

Step 1: State the problem
Step 2: Identify the decision/goal of the study
Step 3: Identify the information inputs
Step 4: Define the boundaries of the study
Step 5: Develop the analytical approach
Step 6: Specify performance or acceptance criteria
Step 7: Develop the plan for obtaining data

Quality Assurance and Control

Ideal Geotech and its NATA accredited laboratory partners adhere Data Quality Indicators (DQI) outlined by the NSW EPA.[13] DQIs are the quantitative and qualitative indicators of the principal data quality attributes: **Precision, Accuracy, Representativeness, Comparability, Completeness, Sensitivity.**

All samples were collected with adherence to AS 4482.1 and NSW EPA Sampling Design.[12, 13] Samples were analysed by ALS, a NATA-accredited laboratory that specialises in environmental chemical analyses.[19] The results were compared to levels provided in the National Environment Protection (Assessment of Site Contamination) Measure 1999, which is overseen by the National Environment Protection Council.[10, 11] See Appendix E for original sample data certificates of analysis, laboratory QC, and chain of custody.

***Figure 4**. All 16 sampling locations. Each location is indicated by a yellow target under a yellow alphanumeric label. QA samples were from E9 and E10.*

Table. Sample ID and depth. See Figure 4 for sampling locations.

Sample ID	E1	E2	E3	E4	E5	E6	E7	E8	E9*	E10*	E11	E12	E13	E14	E15	E16
Depth (mm)	2,000	30	150	50	150	10	200	20	150	50	150	25	200	10	75	50
Soil type	Clay	Sandy clay loam	Sandy clay loam	Charcoal mixed into a sandy clay loam	Sandy clay loam	Sandy clay loam	Sandy clay loam	Sandy clay loam	Sandy clay loam	Sandy clay loam	Sandy clay loam	Sandy clay loam	Sandy clay loam	Sandy clay loam	Sandy clay loam	Sandy clay loam

**Samples E9 and E10 included a quality assurance sample, which were taken at the same depths.*

Assessment Criteria

Investigation and screening levels serve the purpose of defining criteria for soil, soil vapor, and groundwater to assess potential risks to human health and ecosystems resulting from site contamination. The ASC NEPM outlines investigation and screening methods and levels of commonly found contaminants that are relevant to generic land use scenarios, soil type, and depth of contamination. They consider childhood to adult incremental lifetime exposure to cancer risks. The four classes are:

1. **Health Investigation Level 'A' (HIL A)**: This level applies to residential areas (and day care centres), including areas with gardens and opportunities for soil access
2. **Health Investigation Level 'B' (HIL B)**: This level applies to residential areas with fewer opportunities for accessible soil, such as permanently paved yard spaces and high-rise residences.
3. **Health Investigation Level 'C' (HIL C)**: This level applies to public open spaces (excluding undeveloped open spaces), such as sports field, parks, and playgrounds.
4. **Health Investigation Level 'D' (HIL D)**: This level applies to commercial and industrial areas, such as offices, factories, or industrial work sites.

- *The land zoning of the Site, at the time of this report, was R2; low density residential. However, Ideal Geotech is of the understanding that the land zoning will change with the proposed development of an office and showroom. Therefore,* ***the land use scenario selected for this investigation are HIL D values*** *–* ***commercial/industrial****, which assumes typical commercial or light industrial properties, consisting of single or multistorey buildings where work areas are on the ground floor (constructed on a ground level slab) or above subsurface structures, such as basement car parks or storage areas (*ASC NEPM*,* vol. 19, sched. B7, sec. 3). [10]

Health Screening Levels (HSLs)

Health screening levels (HSLs) have been established for chosen petroleum compounds and their associated fractions. HSLs are used to evaluate the risk to human health through exposure pathway of inhalation and direct contact. The HSLs rely on certain soil physicochemical attributes, land use patterns, and the features of building constructions. They are applicable to various types of soil and can extend to depths greater than 4 meters below the surface. HSLs were developed by CRC Care for risk assessment

and advised for use by the National Environmental Protection Council when assessing Soil Health Screening Levels.[10,17]

Tables 4-8 (below) were adapted from their original Laboratory Certificates of Analysis (CoA). For the original complete CoA please see Appendix E. The left column lists the chemical criteria names; the centre columns display the chemical levels (mg/kg) from each sample (labeled as E#); the right column shows the contaminate threshold advised by the ASC NEPM. Dashes – indicate that criteria were below testable levels. If the threshold level for a contaminate is exceeded by a sample it is highlighted red.

Table 4. Health Screening Levels (HSL) for fine soil.

Analyte	HSL D threshold (mg/kg)	Results of laboratory sample analysis	
		Less than threshold ✓	Greater than threshold ✗
Toluene	135	All ✓	
Ethylbenzene	185	All ✓	
Xylenes	95	All ✓	
Benzo(a)pyrene	0.7	All ✓	
Benzene	95	All ✓	
C_6-C_{10}	215	All ✓	
C_{10}-C_{16}	170	All ✓	
C_{16}-C_{34}	2500	All ✓	
C_{34}-C_{40}	6600	All ✓	

Asbestos

Asbestos is a group of naturally occurring silicate minerals characterized by their long, thin, fibrous crystal structure and resistance to heat, fire, and chemical reactions. Because of those unique properties, asbestos was widely used in various applications and construction materials until their adverse effects to human health were recognized by regulators in the 1970s. When asbestos fibres are inhaled or ingested, they can cause severe health issues (e.g., mesothelioma), making asbestos exposure a significant public health concern.

Table 5. Asbestos screening results.

Criteria	HSL D threshold (% w/w)*	Results of laboratory sample analysis	
		Less than threshold ✓	Greater than threshold ✗
Bonded Asbestos	0.05%	All ✓	
Fibrous Asbestos	0.001%	All ✓	
Asbestos Fines	0.001%	All ✓	

**Weight for weight as a percent.*

Health-based Investigation Levels (HILs)

Health investigation levels (HILs), as published in the ASC NEPM, have been formulated for a wide array of metals and organic compounds. HILs are intended to evaluate the risk to human health from all potential exposure pathways. They are applicable to all kinds of soil types and are typically applied to a depth of 3 meters below the surface in residential areas. The specific conditions of each site should dictate the depth to which HILs are relevant for different land uses.

Table 6. Health Investigation Levels for soil contaminations (HILs) in soil.

HIL Criteria	HIL D threshold (mg/kg)	Results of laboratory sample analysis	
		Less than threshold ✓	Greater than threshold ✗
Arsenic	3,000	All ✓	
Cadmium	900	All ✓	
Chromium	3,600	All ✓	
Copper	240,000	All ✓	
Lead	1,500	All ✓ except E2	✗ E2=2150
Mercury	730	All ✓	
Nickel	6,000	All ✓	
Zinc	7,400	All ✓ except E2	✗ E2=29,700
Carcinogenic PAHs as B(a)P TEQ *	40	All ✓	
Total PAHs **	4,000	All ✓	

Phenol	240,000	All ✓	
DDT+DDE+DDD	3,600	All ✓	
Aldrin	45	All ✓	
Dieldrin	45	All ✓	
Chlordane	530	All ✓	
Endosulfan	2,000	All ✓	
Endrin	100	All ✓	
Heptachlor	100	All ✓	
Hexachlorobenzene (HCB)	80	All ✓	
Methoxychlor	2,500	All ✓	
Chlorpyrifos	2,000	All ✓	
PCBs	7	All ✓	

*Carcinogenic PAHs are based on the 8 carcinogenic PAHs: Benz(a)anthracene, Chrysene, Benzo(b+j)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1.2.3.cd)pyrene, Dibenz(a.h)anthracene, Benzo(g.h.i)perylene, and their TEFs (potency relative to B(a)P). TEQ stands for Toxic Equivalent Quotient.
**Total PAHs are based on the sum of the 16 PAHs.

Ecological Screening Levels (ESL)

Environmental Screening Levels (ESLs) are scientific measures of the risks of selected petroleum hydrocarbon compounds and total petroleum hydrocarbon (TPH) fractions for intrusion on terrestrial ecosystems[10]. ESLs are useful in assessing risks in different types of soils and land use settings and are generally applied to the top 2 metres of soil. [10]

Table 7. Ecological Screening Levels (ESLs) for TPH fractions F1-F4, BTEX, and benzo(a)pyrene in soil

ESL Criteria	ESL D (mg/kg)	Results of laboratory sample analysis	
		Less than threshold ✓	Greater than threshold ✗
Benzene	95	All ✓	
Toluene	135	All ✓	
Ethylbenzene	185	All ✓	
Xylenes	95	All ✓	
Benzo(a)pyrene B(a)P	0.7	All ✓	
***F1 TRH C_6-C_{10}**	215	All ✓	
F2 TRH >C_{10}-C_{16}	170	All ✓	
F3 TRH >C_{16}-C_{34}	2,500	All ✓	
F4 TRH >C_{34}-C_{40}	6,600	All ✓	

*Total Recoverable Hydrocarbon (TRC) fractions (F).

Laboratory Results

All sample results, *except for E2*, were within the adopted NEPM criteria.

- *Sampe E2, obtained from near along the driveway, had very high levels of both **lead** and **zinc**.*

Lead: Lead (Pb) is a naturally occurring element in soils. Concentrations of lead found soils are, on average, are approximately 15 to 20 mg/kg.[10]

Lead can adversely affect people by entering into the bloodstream, this can occur via ingestion (i.e., directly or indirectly consuming soil and dirt particulates, inhalation (i.e., dust), or dermal (skin abrasions while handling contaminated soils). Ingestion of dust and soil particulate from hand to mouth account for 95% of lead exposure in people.[29]
Higher than average levels of lead can be due to various sources, including but not limited to: batteries, metal alloys, x-ray shielding materials, ammunition, chemical resistant linings, pigments, and (historically) as petrol and paint additives.

Zinc: Zinc (Zn) is commonly found in the Earth's crust with an average concentration of approximately 70 mg/kg.

While zinc is vital for metabolic functions in all living organisms, including humans, excessive intake can lead to toxicity. This overload can negatively impact the same metabolic processes, such as DNA replication and gene translation, that zinc normally supports.[10]

Ingestion of soil and dust is considered the most significant pathway of exposure for inorganics, such as zinc, in soil. Zinc contamination can results from a number of activities, including: mining and smelting operations; industrial waste from factories that used zinc in their processes; agricultural practices that used zinc-containing fertilizers and pesticides; vehicle emissions that used combustion of fossil fuels; construction activities that used galvanized steel and zinc-based paints; wood preservative treatments can contained zinc.

Conclusion and Discussion

Table 8. Data gaps addressed.

Data gaps	DSI determinations
1. Contents of ash around the eastern side of the house near the garden.	No contamination exceeding ASC NEPM thresholds was detected.
2. Contamination along the eastern side of the Site (asbestos, petroleum hydrocarbons).	No contamination exceeding ASC NEPM thresholds was detected. Either remediation was conducted, or there was no leaching or spreading of contaminates from the adjoining property in 2009.
3. Possible contamination of the driveway area.	Lead a zinc were detected in levels exceeding adopted ASC NEPM criteria.
4. Run-off across the Site, flowing from north east to south west, mobilizing contamination, if any, potentially accumulating in the southwestern corner, or running into Scrubby Creek	No contamination exceeding ASC NEPM thresholds was detected from any sampling areas that would suggest run-off could potentially be contaminating the Site.
5. If contamination is present in the north half of the Site, leftover from previous and historic activities such as farming/animal keeping.	Agricultural practices can use of zinc-containing fertilizers and pesticides which can result in elevated zinc levels in soil

Based on the available information, the actual source of lead and zinc contamination is unknown to Ideal Geotech and two data gaps have emerged:

1. The source of the contamination,
2. The extent of the contamination.

Some inferences can be made about the source of the high lead and zinc levels based on the information gathered about the Site and surround area:

- Douglas Partners also found high levels of zinc across the adjoining Site to the east (the Local Centre) in their 2009 investigations. They also found treated timber in the south-west corner of the adjoining site (south east of the subject Site). Treated timber may contain forms of zinc.
- The sample E2 is nearby the house's doorway. Lead could have been spread from the house (e.g., during remodelling/repainting).
- The sample E2 was taken from the driveway. The lead (and zinc) can result from vehicle emissions.
- Zinc can be a property of fertilisers and pesticides.

The nature of the Site and its history leads Ideal Geotech to believe that the source of the contamination is a historic one, and not an ongoing one and it will most likely not require ongoing monitoring after remediation. A remedial action plan is most likely necessary to the determine extent of the contamination.

Recommendations

We recommend that a remedial action plan (RAP) should be developed for contaminated soil found on the Site along the driveway area.

Remedial actions may require excavation and appropriate disposal of lead and zinc contaminated soil along the driveway area in the south-western yard, of at least the top 150 mm of soil at a length of approximately 30 m (sample E5 had levels below ASC NEPM thresholds for HILs D and 30 m is approximately the distance from the front yard to where E5 was taken).

More soil sampling should be made after excavation and prior to importation of new fill to ensure the vertical and horizontal extent of contamination has been ascertained and adequately removed from the area.

Post remediation work will require validation sampling to confirm that soil contamination has been remediated or at least reduced to acceptable levels below NEPM criteria HIL thresholds (ASC NEPM 1999, Schedule B2).

It is also recommended that if any bulk soils are imported to the lot in the future (e.g., landscaping purposes), verification should be made that they are free of contamination.

Limitations

The scope and the period of Ideal Geotech services are described in the report and are subject to restrictions and limitations. Investigation or levels, as found in the *National Environment Protection (Assessment of Site Contamination) Measure 1999* framework, are not necessarily desirable criteria for soil quality nor indicative of levels up to which contamination is permitted. Satellite imagery used in this report provide only approximations to when an activity has occurred on the Site and do not necessarily suggest the precise and actual time of an occurrence. Interviews from residents and locals about site history are usually considered anecdotal and verified wherever possible. Ideal Geotech did not perform a complete assessment of all possible conditions or circumstances that may exist at the Site. 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 Ideal Geotech in regards to it.

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Appendix A. Title and 10.7 Planning Certificate

Infocert

LAND REGISTRY SERVICES

NEW SOUTH WALES LAND REGISTRY SERVICES - TITLE SEARCH

FOLIO: 8/29077

SEARCH DATE TIME EDITION NO DATE
16/8/2023 10:39 AM 3 6/10/2021

LAND
LOT 8 IN DEPOSITED PLAN 29077
AT MOUNT HUTTON
LOCAL GOVERNMENT AREA LAKE MACQUARIE
PARISH OF KAHIBAH COUNTY OF NORTHUMBERLAND
TITLE DIAGRAM DP29077

FIRST SCHEDULE
PROGRESS HOLDINGS NSW PTY LTD (T AR492603)

SECOND SCHEDULE (2 NOTIFICATIONS)
1 LAND EXCLUDES MINERALS AND IS SUBJECT TO RESERVATIONS AND CONDITIONS IN FAVOUR OF THE CROWN - SEE CROWN GRANT(S)
2 EXCEPTING LAND BELOW A DEPTH FROM THE SURFACE OF 7.62 METRES

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

Search for Daniel Hall PRINTED ON 16/8/2023

17 August 2023

INFOCERT
104 Hannell St
WICKHAM NSW 2293

Our Ref:161190
Your Ref: 15401:169409
ABN 81 065 027 868

PLANNING CERTIFICATE UNDER THE

ENVIRONMENTAL PLANNING AND ASSESSMENT ACT, 1979

Fee Paid: 53.00

Receipt No: 12881947

Receipt Date: 16 August 2023

DESCRIPTION OF LAND

Address: 1 Progress Road, MOUNT HUTTON NSW 2290

Lot Details: Lot 8 DP 29077

Parish: Kahibah

County: Northumberland

For: MORVEN CAMERON
GENERAL MANAGER

126 – 138 Main Road T 02 4921 0333
Speers Point NSW 2284 E council@lakemac.nsw.gov.au
BOX 1906 HRMC NSW 2310 W lakemac.com.au

lakemac lakemaccity ourlakemac

ABN: 81 065 027 868

Certificate No. 161190

ADVICE PROVIDED IN ACCORDANCE WITH SUBSECTION (2)

1 Names of Relevant Planning Instruments and Development Control Plans

(1) The name of each environmental planning instrument and development control plan that applies to the carrying out of development on the land.

Lake Macquarie Local Environmental Plan 2014

Lake Macquarie Development Control Plan 2014

State Environmental Planning Policy (Biodiversity and Conservation) 2021 -

Chapter 4 Koala habitat protection 2021

State Environmental Planning Policy (Biodiversity and Conservation) 2021 -

Chapter 6 Bushland in urban areas

State Environmental Planning Policy (Biodiversity and Conservation) 2021 -

Chapter 7 Canal estate development

State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004

State Environmental Planning Policy (Exempt and Complying Development Codes) 2008

State Environmental Planning Policy (Housing) 2021

State Environmental Planning Policy (Industry and Employment) 2021 –

Chapter 3 Advertising and signage

State Environmental Planning Policy (Planning Systems) 2021 –

Chapter 2 State and regional development

State Environmental Planning Policy (Planning Systems) 2021 –

Chapter 4 Concurrences and consents

State Environmental Planning Policy (Precincts—Central River City) 2021 –

Chapter 2 State significant precincts

State Environmental Planning Policy (Precincts-Eastern Harbour City) 2021 –

Chapter 2 State significant precincts

State Environmental Planning Policy (Precincts-Regional) 2021

Chapter 2 State significant precincts

State Environmental Planning Policy (Precincts—Western Parkland City) 2021 –

Chapter 2 State significant precincts

State Environmental Planning Policy (Primary Production) 2021 –

Chapter 2 Primary production and rural development

State Environmental Planning Policy (Resilience and Hazards) 2021 –

Chapter 3 Hazardous and offensive development

State Environmental Planning Policy (Resilience and Hazards) 2021 –

Chapter 4 Remediation of land

State Environmental Planning Policy (Resources and Energy) 2021 –

Chapter 2 Mining, petroleum production and extractive industries

State Environmental Planning Policy (Transport and Infrastructure) 2021 –

Chapter 2 Infrastructure

State Environmental Planning Policy (Transport and Infrastructure) 2021 –

Chapter 3 Educational establishments and child care facilities

State Environmental Planning Policy No. 65 – Design Quality of Residential Apartment Development

(2) The name of each proposed environmental planning instrument and draft development control plan, which is or has been subject to community consultation or public exhibition under the Act, that will apply to the carrying out of development on the land.

Lake Macquarie Draft Development Control Plan 2014

(3) Subsection (2) does not apply in relation to a proposed environmental planning instrument or draft development control plan if —

(a) it has been more than 3 years since the end of the public exhibition period for the proposed instrument or draft plan, or

(b) for a proposed environmental planning instrument—the Planning Secretary has notified the council that the making of the proposed instrument has been deferred indefinitely or has not been approved.

(4) In this section, proposed environmental planning instrument includes a planning proposal for a Local Environmental Plan or a Draft environmental planning instrument.

2 Zoning and land use under relevant Local Environmental Plans

(1) The following answers (a) to (f) relate to the instrument (see 1(1) above).

(a)

(i) The identity of the zone applying to the land.

R2 Low Density Residential

under Lake Macquarie Local Environmental Plan 2014

(ii) The purposes for which the Instrument provides that development may be carried out within the zone without the need for development consent.

Exempt development as provided in Schedule 2; Home-based child care;

Home occupations

(iii) The purposes for which the Instrument provides that development may not be carried out within the zone except with development consent.

Bed and breakfast accommodation; Boarding houses; Boat sheds; Building identification signs; Business identification signs; Centre-based child care facilities; Community facilities; Dual occupancies; Dwelling houses; Emergency services facilities; Environmental facilities; Environmental protection works; Exhibition homes; Exhibition villages; Flood mitigation works; Group homes; Health consulting rooms; Home businesses; Home industries; Hostels; Kiosks; Neighbourhood shops; Oyster aquaculture; Places of public worship; Pond-based aquaculture; Recreation areas; Respite day care centres; Roads; Secondary dwellings; Semi-detached dwellings; Seniors housing; Sewage reticulation systems; Sewage treatment plants; Shop top housing; Tank-based aquaculture; Water recreation structures; Water recycling facilities; Water supply systems

(iv) The purposes for which the Instrument provides that development is prohibited within the zone.

Any other development not specified in item (ii) or (iii)

NOTE: The advice in sections (a) above relates only to restrictions that apply by virtue of the zones indicated. The Lake Macquarie LEP 2014 includes additional provisions that require development consent for particular types of development, or in particular circumstances, irrespective of zoning.

(b) Whether additional permitted uses apply to the land,

No

(c) Whether development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land and, if so, the minimum land dimensions so fixed.

There are no development standards applying to the land that fix minimum land dimensions for the erection of a dwelling house.

(d) Whether the land is in an area of outstanding biodiversity value under the *Biodiversity Conservation Act 2016*,

No

(e) Whether the land is in a conservation area (however described).

No

(f) Whether an item of environmental heritage (however described) is situated on the land.

Local Environmental Plan 2014 Schedule 5 Part 1 Heritage Items

There are no items listed for this land under Local Environmental Plan 2014 Schedule 5 Part 1 Heritage items.

Local Environmental Plan 2014 Schedule 5 Part 2 Heritage conservation areas

There are no items listed for this land under Local Environmental Plan 2014 Schedule 5 Part 2 Heritage conservation areas.

Local Environmental Plan 2014 Schedule 5 Part 3 Archaeological sites

There are no items listed for this land under Local Environmental Plan 2014 Schedule 5 Part 3 Archaeological sites.

Local Environmental Plan 2014 Schedule 5 Part 4 Landscape Items

There are no items listed for this land under Local Environmental Plan 2014 Schedule 5 Part 4 Landscape items.

Local Environmental Plan 2004 Schedule 4 Part 1 Heritage Items

There are no heritage items listed for this land within Local Environmental Plan 2004 Schedule 4 Part 1.

Local Environmental Plan 2004 Part 11 Clause 150 Environmental Heritage

There are no heritage items listed for this land within Local Environmental Plan 2004 Part 11 Clause 150 – South Wallarah Peninsula.

Local Environmental Plan 2014 Heritage Map

The land is not identified as a Village Precinct on the Heritage Map.

NOTE: **An item of environmental heritage, namely Aboriginal heritage, listed within the Aboriginal Heritage Information Management System (AHIMS), may affect the land. Aboriginal objects are protected under the National Parks and Wildlife Act 1974. If Aboriginal objects are found during development, works are to stop and the Office of Environment and Heritage (OEH) contacted immediately. For further information and to access the AHIMS registrar, refer to http://www.environment.nsw.gov.au**

(2) The following answers relate to the Draft Instrument (see 1(2) above).

(a) Nil

NOTE: **The advice in section (a) above relates only to restrictions that apply by virtue of the zones indicated. The Draft instrument may include additional provisions that require development consent for particular types of development, or in particular circumstances, irrespective of zoning.**

(b) Whether draft additional permitted uses apply to the land

No

(c) Whether any draft development standards applying to the land fix minimum land dimensions for the erection of a dwelling-house on the land and, if so, the minimum land dimensions so fixed.

There are no development standards applying to the land that fix minimum land dimensions for the erection of a dwelling house.

(d) Whether the land is in a draft area of outstanding biodiversity value under *the Biodiversity Conservation Act 2016*,

No

(e) Whether the land is in a draft conservation area (however described).

No

(f) Whether a draft item of environmental heritage (however described) is situated on the land.

No

3 Contributions Plans

(1) The name of each contributions plan applying to the land, including draft

contributions plan,

Lake Macquarie City Council Development Contributions Plan - Charlestown Contributions Catchment - 2015

The Lake Macquarie City Council Section 7.12 Contributions Plan – Citywide 2019

(2) The name of the area, if the land is in a special contributions area under the Act,

Nil

4 Complying development

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

Housing Code

Note: If a lot is not specifically listed in this section then, complying development under this

Code **MAY** be carried out on any part of that lot.

Low Rise Housing Diversity Code

Note: If a lot is not specifically listed in this section then, complying development under this Code **MAY** be carried out on any part of that lot.

Housing Alterations Code

Note: If a lot is not specifically listed in this section then, complying development under this Code **MAY** be carried out on any part of that lot.

Commercial and Industrial Alterations Code

Note: If a lot is not specifically listed in this section then, complying development under this Code **MAY** be carried out on any part of that lot.

Commercial and Industrial (New Buildings and Additions) Code

Note: If a lot is not specifically listed in this section then, complying development under this Code **MAY** be carried out on any part of that lot.

Subdivisions Code

Note: If a lot is not specifically listed in this section then, complying development under this Code **MAY** be carried out on any part of that lot.

Rural Housing Code

Note: If a lot is not specifically listed in this section then, complying development under this Code **MAY** be carried out on any part of that lot.

Greenfield Housing Code

Note: If a lot is not specifically listed in this section then, complying development under this Code **MAY** be carried out on any part of that lot.

General Development Code

Note: If a lot is not specifically listed in this section then, complying development under this Code **MAY** be carried out on any part of that lot.

Demolition Code

Note: If a lot is not specifically listed in this section then, complying development under this Code **MAY** be carried out on any part of that lot.

Fire Safety Code

Note: If a lot is not specifically listed in this section then, complying development under this Code **MAY** be carried out on any part of that lot.

Container Recycling Facilities Code

Note: If a lot is not specifically listed in this section then, complying development under this Code **MAY** be carried out on any part of that lot.

5 Exempt development

The extent to which the land is land on which exempt development may be carried out under each of the codes for exempt development because of the provisions of clauses 1.16(1)(b1)–(d) or 1.16A of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*.

Note: If a lot is not specifically listed in this section then, Exempt development under this Code **MAY** be carried out on the lot.

6 Affected building notices and building product rectification orders

(1) (a) Whether there is any affected building notice of which the council is aware that is in force in respect of the land.

No, Council **has not** been notified that an affected building notice is in force in respect of this land.

(b) Whether there is any building product rectification order of which the council is aware that is in force in respect of the land and has not been fully complied with.

A building rectification order **is not** in force in respect of this land.

(c) Whether any notice of intention to make a building product rectification order of which the council is aware has been given in respect of the land and is outstanding.

A notice of intention to make a building product rectification order **has not** been given in respect of this land.

(2) In this section -

Affected building notice *has the same meaning as in Part 4 of the Building Products (Safety) Act 2017*

Building product rectification order *has the same meaning as in the Building Products (Safety) Act 2017*

7 Land reserved for acquisition

Whether or not any environmental planning instrument or proposed environmental planning instrument referred to in Section 1 makes provision in relation to the acquisition of the land by a public authority, as referred to in section 3.15 of the Act.

No

8 Road widening and road realignment

Whether the land is affected by any road widening or realignment under:

(a) Division 2 of Part 3 of the *Roads Act 1993*.

No

(b) any environmental planning instrument.

No

(c) any resolution of the Council.

No, other road widening proposals may affect this land and if so, will be noted on the Section 10.7 Subsection (5) certificate.

9 Flood related development controls information

(1) If the land or part of the land is within the flood planning area and subject to flood related development controls.
Yes

(2) If the land or part of the land is between the flood planning area and the probable maximum flood and subject to flood related development controls.
Yes

NOTE: **Land in this area that is subject to flood related development controls relating to the PMF includes sensitive uses such as boarding houses, caravan parks, correctional centres, early education and care facilities, eco-tourist facilities, educational establishments, emergency services facilities, group homes, hazardous industries, hazardous storage establishments, hospitals, hostels, information and education facilities, police stations, respite day care centres, residential care facilities, seniors housing, sewerage systems, tourist and visitor accommodation and water supply systems.**

(3) In this section -
flood planning area has the same meaning as in the Floodplain Development Manual.
Floodplain Development Manual means the Floodplain Development Manual (ISBN 0 7347 5476 0) published by the NSW Government in April 2005.
probable maximum flood has the same meaning as in the Floodplain Development Manual.

ADVICE: Further information on the development restriction mentioned, may be obtained from Council's *Property Flooding Information Summary* Flood Report Web Tool, which provides information about the flood hazard for a specified property (lot) in Lake Macquarie City. Flood Report Tool - Lake Macquarie City Council

Certificate No. 161190

10 Council and other public authority policies on hazard risk restrictions

(1) Whether or not the land is affected by a ***POLICY*** that restricts the development of the land because of the likelihood of:

(a) land slip or subsidence

Yes

Relevant sections of Lake Macquarie Development Control Plan 2014 and Lake Macquarie Development Control Plan No.1 apply when development is proposed on land covered by Council's geotechnical areas map. The map is available for viewing at the Council. If you require any further clarification on the policy and how it may affect any possible development contact the Council on 02 4921 0333.

(b) bushfire

Yes

(c) tidal inundation

No

(d) acid sulfate soils

Yes

Relevant sections of Lake Macquarie Development Control Plan 2014 and Lake Macquarie Development Control Plan No.1 apply when development is proposed on land covered by the Acid Sulfate Soils Map. If you require any further clarification on the policy and how it may affect any possible development contact the Council on 02 4921 0333.

(e) contaminated or potentially contaminated land

Yes

Council has adopted a policy that may restrict development of Contaminated or Potentially Contaminated land. This policy is implemented when zoning, development, or land use changes are proposed. Consideration of Council's adopted Policy and applicable DCP, and the application of provisions under relevant State legislation is recommended. Further investigation may be required for this site.

(f) aircraft noise

No

(g) salinity

No

(h) any other risk (other than flooding).

No

(2) In this section —

adopted policy means a policy adopted —

(a) by the council, or

(b) by another public authority, if the public authority has notified the council that the policy will be included in a planning certificate issued by the council.

NOTE: **The absence of a council policy restricting development of the land by reason of a particular natural hazard does not mean that the risk from that hazard is non-existent.**

11 Bush Fire Prone Land

Note: If a lot is not specifically listed in this section then, **NONE** of that lot is bush fire prone land.

Lot 8 DP 29077 - SOME of the land is bush fire prone land.

12 Loose-fill asbestos insulation

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

No. Council **has not** been notified that a residential premises erected on this land has been identified in the NSW Fair Trading Loose-Fill Asbestos Insulation Register as containing loose-fill asbestos ceiling insulation.

13 Mine subsidence

Whether the land is declared to be a mine subsidence district, within the meaning of the *Coal Mine Subsidence Compensation Act 2017*.

The land IS WITHIN a declared Mine Subsidence District under section 20 of the Coal Mine Subsidence Compensation Act 2017. Development in a Mine Subsidence District requires approval from Subsidence Advisory NSW. Subsidence Advisory NSW provides compensation to property owners for mine subsidence damage. To be eligible for compensation, development must be constructed in accordance with Subsidence Advisory NSW approval. Subsidence Advisory NSW has set surface development guidelines for properties in Mine Subsidence Districts that specify building requirements to help prevent potential damage from coal mine subsidence.

NOTE: **The advice in section 13 above relates only to a Mine Subsidence District. Further information relating to underground mining which may occur outside Mine Subsidence Districts should be sought. Underground mining information can be found on the Subsidence Advisory NSW website.**

14 Paper subdivision information

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

Nil

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

Not Applicable

(3) Words and expressions used in this section have the same meaning as in this Regulation, Part 10 and the Act, Schedule 7.

15 Property Vegetation Plans

The land IS NOT subject to a property vegetation plan approved under Part 4 of the Native Vegetation Act 2003 (and that continues in force).

16 Biodiversity stewardship sites

The land is not a biodiversity stewardship site under a biodiversity stewardship agreement under Part 5 of the Biodiversity Conservation Act 2016.

17 Biodiversity Certified Land

This land is not biodiversity certified land under Part 8 of the Biodiversity Conservation Act 2016.

18 Orders under *Trees (Disputes Between Neighbours) Act 2006*

Has an order been made under the *Trees (Disputes Between Neighbours) Act 2006* to carry out work in relation to a tree on the land (but only if the council has been notified of the order).

The land IS NOT subject to an order made under the Trees (Disputes Between Neighbours) Act 2006 to carry out work in relation to a tree on the land.

19 Annual charges under *Local Government Act 1993* for coastal protection services that relate to existing coastal protection works

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

Nil

NOTE: **"Existing coastal protection works" are works to reduce the impact of coastal hazards on land (such as seawalls, revetments, groynes and beach nourishment) that existed before the commencement of section 553B of the Local Government Act 1993.**

20 Conditions for seniors housing

If *State Environmental Planning Policy (Housing) 2021*, Chapter 3, Part 5 applies to the land, a statement setting out terms of a kind referred to in the Policy, clause 88(2) that have been imposed as a condition of development consent granted after 11 October 2007 in relation to the land.

Nil

21 Site compatibility certificates and conditions for affordable rental housing

(1) Whether there is a current site compatibility certificate, or a former site compatibility certificate, of which the council is aware, in relation to proposed development on the land.

Council is not aware of any site capability certificate for any proposed development on the land.

(2) If *State Environmental Planning Policy (Housing) 2021*, Chapter 2, Part 2, Division 1 or 5 applies to the land, any conditions of a development consent in relation to the land that are of a kind referred to in that Policy, section 21(1) or 40(1).

Nil

(3) Any conditions of a development consent in relation to land that are of a kind referred to in *State Environmental Planning Policy (Affordable Rental Housing) 2009*, clause 17(1) or 38(1).

Council is not aware of any conditions of a development consent referred to in *State Environmental Planning Policy (Affordable Rental Housing) 2009*, clause 17(1) or 38(1).

(4) In this section—

former site compatibility certificate means a site compatibility certificate issued under *State Environmental Planning Policy (Affordable Rental Housing) 2009*.

NOTE: **The following matters are prescribed by section 59 (2) of the *Contaminated Land Management Act 1997* as additional matters to be**

specified in a planning certificate:

Matters arising under the Contaminated Land Management Act 1997 (s59 (2))

(a) The land to which the certificate relates is significantly contaminated land within the meaning of that Act - if the land (or part of the land) is significantly contaminated land at the date when the certificate is issued,

No

(b) The land to which the certificate relates is subject to a management order within the meaning of that Act - if it is subject to such an order at the date when the certificate is issued,

No

(c) The land to which the certificate relates is the subject of an approved voluntary management proposal within the meaning of that Act - if it is the subject of such an approved proposal at the date when the certificate is issued,

No

(d) The land to which the certificate relates is subject to an ongoing maintenance order within the meaning of that Act - if it is subject to such an order at the date when the certificate is issued,

No

(e) The land to which the certificate relates is the subject of a site audit statement within the meaning of that Act - if a copy of such a statement has been provided at any time to the local authority issuing the certificate.

No

Appendix B. Building Plans

Appendix C. Current Imagery

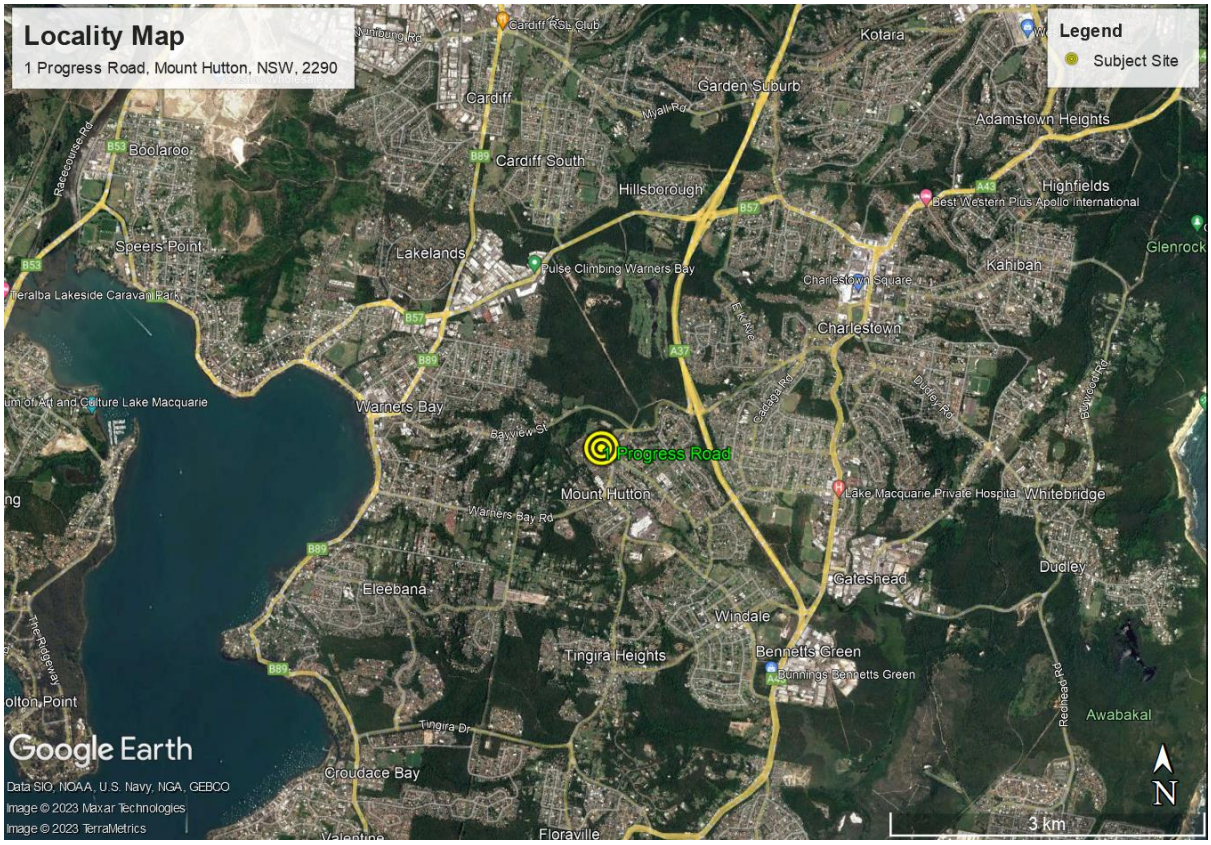
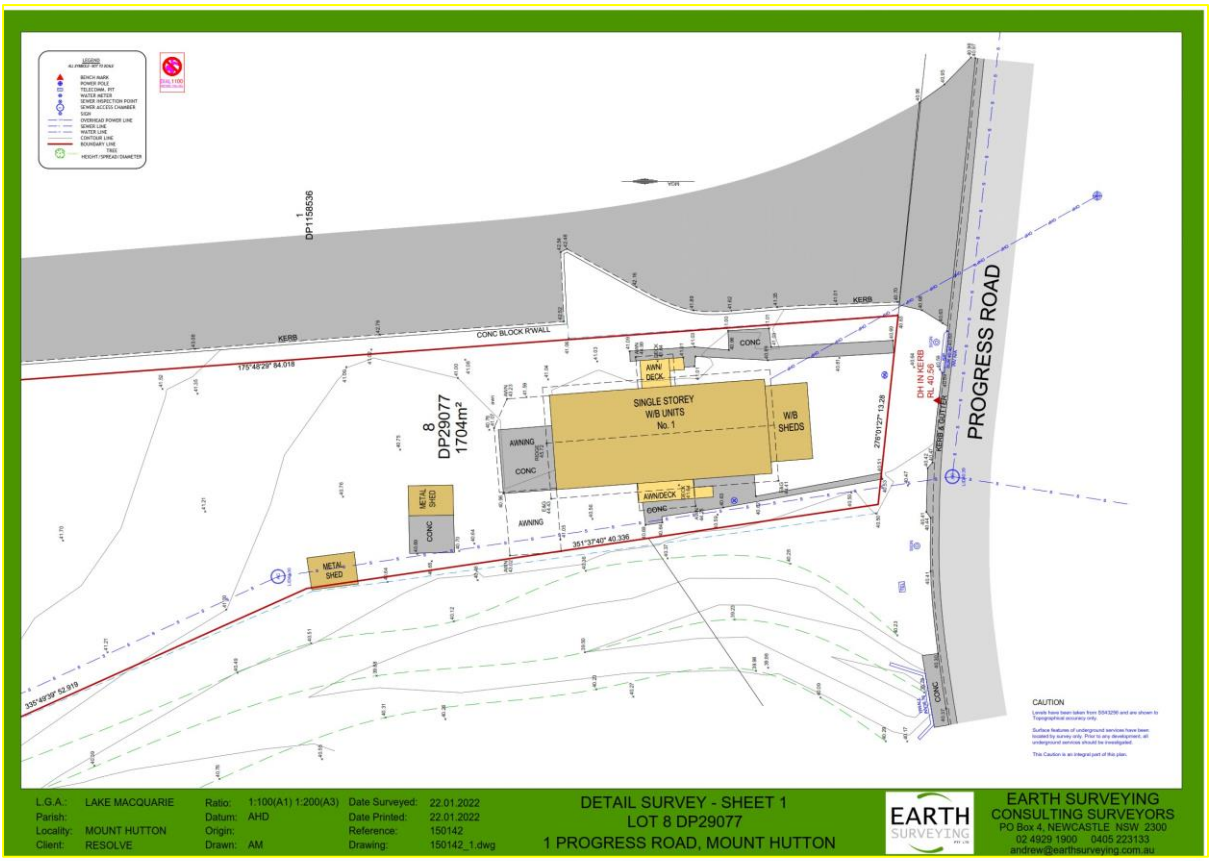
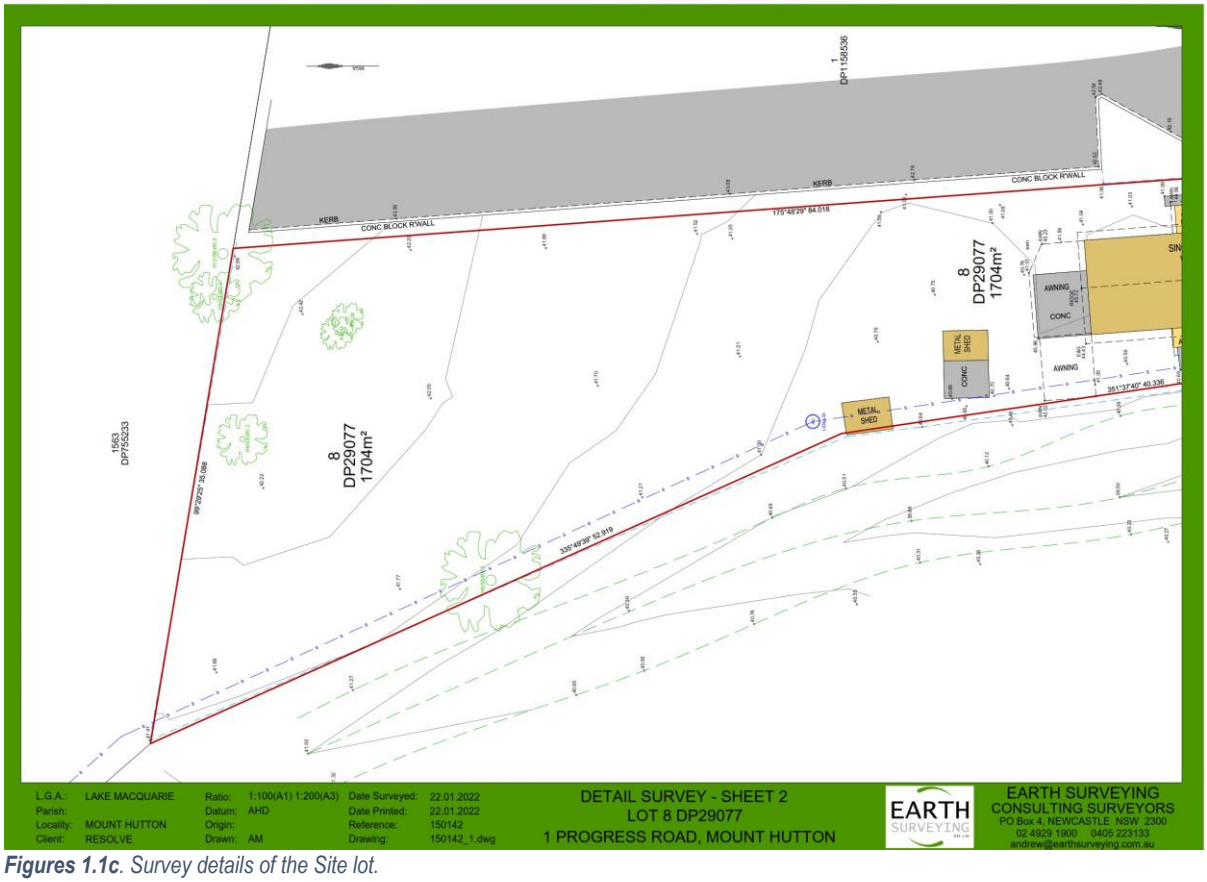


Figure 1c. *Locality Map with the Site in the centre indicated with a yellow target. Google Earth.*





***Figures 1.1c**. Survey details of the Site lot.*

Figure 2c. *Scrubby Creek. Photo edited to emphasise location of creek bed and average distance from the subject Site's boundary.*

Figure 3c. *Eastern boundary wall with a pipe, as seen from the southern portion of the Site. Photo taken 17 Aug 2023.*

Figure 4c. *A metal fence bisecting the Site and a burn barrel in south end of the Site. Photo taken 17 Aug 2023.*

Figure 5c. A possible makeshift storage area near the bisecting fence on the north side. Photo taken 17 Aug 2023.

Figure 6c. *Street side view, facing north, of the main structure currently on the Site. Two concrete paths on either side of the house and an old chain link fence can also be seen. Photo taken 17 Aug 2023.*

***Figure 7c**. NW corner featuring a tyre-drum-pot. Photo taken 17 Aug 2023.*

Figure 8c. A covered carport next to main structure. Photo taken 17 Aug 2023.

***Figure 10c**. Surface sample taken from eastern side of the house on the south end of the lot appeared to contain a layer of charcoal. A lighter coloured clayey sandstone material can be seen in the centre. Photo taken 17 Aug 2023.*

Figure 10c. A ~4 m bore sample, showing ~200 mm of top soil and natural silty clay below that. Sample obtained from the south west corner of the Site. Photo taken 17 Aug 2023.

Figure 11c. *An example of surface soil found across the Site. From sampling location E5. Photo taken 17 Aug 2023.*

Appendix D. Historic Imagery

Appendix E. CoC, Laboratory results, QA

Appendix F. Records