REPORT TO

SYESUN PTY LTD

ON

PRELIMINARY (STAGE 1) SITE INVESTIGATION

FOR

PROPOSED GARDEN CENTRE REDEVELOPMENT

AT

277 MONA VALE ROAD, TERREY HILLS, NSW

Date: 28 October 2021

Ref: E34278PHrpt

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Executive Summary

Statewide Project Management, on behalf of Syesun Pty Ltd ('the client'), commissioned JK Environments (JKE) to undertake a Preliminary (Stage 1) Site Investigation (PSI) for the proposed garden centre redevelopment at 277 Mona Vale Road, Terrey Hills, NSW ('the site'). The purpose of the investigation is to make a preliminary assessment of site contamination. The site location is shown on Figure 1 and the investigation was confined to the site boundaries as shown on Figure 2.

We understand that the site is occupied by a garden centre and is to be redeveloped as a new garden centre. Works will include:

- Excavation and filling of the site;
- Construction of a new garden centre (main shop); open nursery; café; children's play area; bulk landscape and trade materials zone, pickup area and shop; loading facilities; staff and visitor amenities; and associated driveways; storage space; landscaping and plant areas;
- Construction of separate fruit and pet shop tenancies; and
- Construction of car parking for approximately 400 cars in both on grade and underground carparking.

The primary aims of the investigation were to identify any past or present potentially contaminating activities at the site, identify the potential for site contamination, and make a preliminary assessment of the soil contamination conditions. The objectives were to:

- Provide an appraisal of the past site use(s) based on a review of historical records;
- Assess the current site conditions and use(s) via a site walkover inspection;
- Identify potential contamination sources/areas of environmental concern (AEC) and contaminants of potential concern (CoPC);
- Assess the soil contamination conditions via implementation of a preliminary sampling and analysis program;
- Prepare a conceptual site model (CSM);
- Assess the potential risks posed by contamination to the receptors identified in the CSM (Tier 1 assessment);
- Provide a preliminary waste classification for off-site disposal of soil;
- Assess whether the site is suitable or can be made suitable for the proposed development (from a contamination viewpoint); and
- Assess whether further intrusive investigation and/or remediation is required.

The scope of work included the following:

- Review of site information, including background and site history information from various sources outlined in the report;
- Preparation of a CSM;
- Design and implementation of a sampling, analysis and quality plan (SAQP);
- Interpretation of the analytical results against the adopted Site Assessment Criteria (SAC);
- Data Quality Assessment; and
- Preparation of a report including a Tier 1 risk assessment.

The PSI identified that the site has historically been used for agricultural and horticultural activities from around the mid-1900s onwards. An above-ground storage tank (AST) was also observed during the site inspection. It is noted that agricultural/horticultural activities are listed in Table 1 of the State Environmental Planning Policy No. 55 – Remediation of Land (1998) (SEPP55) Planning Guidelines as activities that may cause contamination. This triggers a need for a detailed (Stage 2) site investigation (DSI) under the purview of SEPP55.

The intrusive component of the PSI included soil sampling from 10 boreholes and soil analysis for a common suite of CoPC. All of the results were below the SAC.

The following is recommended to better assess the risks associated with potential contamination at the site:

- A DSI should be undertaken to better characterise the site contamination conditions and establish whether remediation and/or management is required to render the site suitable for the proposed development; and

- A hazardous building materials survey should be undertaken prior to redevelopment of the buildings. Following removal of any hazardous material in the buildings (and preferably prior to removal any hardstand), an asbestos clearance certificate should be obtained.

Considering the depth of fill encountered in some locations (up to 2.7m deep) and the inclusion of carbonaceous organic matter, roots and timber in the fill, the potential exists for hazardous ground gases such as methane and carbon dioxide etc to be present. It is also noted that organic odours were observed during drilling of BH2. This must be considered in the next iteration of the CSM and factored into the design of the DSI.

JKE also recommend that a waste classification be undertaken to classify waste soil/bedrock material to be excavated for the proposed development. Fill and contaminated soil disposal costs are significant and should be assessed at an early stage of the project.

The conclusions and recommendations should be read in conjunction with the limitations presented in the body of this report.

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Abbreviations

Asbestos Fines/Fibrous Asbestos	**AF/FA**
Ambient Background Concentrations	**ABC**
Added Contaminant Limits	**ACL**
Asbestos Containing Material	**ACM**
Australian Drinking Water Guidelines	**ADWG**
Area of Environmental Concern	**AEC**
Australian Height Datum	**AHD**
Acid Sulfate Soil	**ASS**
Above-Ground Storage Tank	**AST**
Below Ground Level	**BGL**
Benzo(a)pyrene Toxicity Equivalent Factor	**BaP TEQ**
Bureau of Meteorology	**BOM**
Benzene, Toluene, Ethylbenzene, Xylene	**BTEX**
Cation Exchange Capacity	**CEC**
Contaminated Land Management	**CLM**
Contaminant(s) of Potential Concern	**CoPC**
Chain of Custody	**COC**
Conceptual Site Model	**CSM**
Development Application	**DA**
Dial Before You Dig	**DBYD**
Data Quality Indicator	**DQI**
Data Quality Objective	**DQO**
Detailed Site Investigation	**DSI**
Ecological Investigation Level	**EIL**
Ecological Screening Level	**ESL**
Environmental Management Plan	**EMP**
Excavated Natural Material	**ENM**
Environment Protection Authority	**EPA**
Environmental Site Assessment	**ESA**
Fibre Cement Fragment(s)	**FCF**
General Approval of Immobilisation	**GAI**
Health Investigation Level	**HILs**
Health Screening Level	**HSL**
Health Screening Level-Site Specific Assessment	**HSL-SSA**
International Organisation of Standardisation	**ISO**
JK Environments	**JKE**
Lab Control Spike	**LCS**
Light Non-Aqueous Phase Liquid	**LNAPL**
Map Grid of Australia	**MGA**
National Association of Testing Authorities	**NATA**
National Environmental Protection Measure	**NEPM**
Organochlorine Pesticides	**OCP**
Organophosphate Pesticides	**OPP**
Polycyclic Aromatic Hydrocarbons	**PAH**
Potential ASS	**PASS**
Polychlorinated Biphenyls	**PCBs**
Per-and Polyfluoroalkyl Substances	**PFAS**
Photo-ionisation Detector	**PID**
Protection of the Environment Operations	**POEO**
Practical Quantitation Limit	**PQL**
Quality Assurance	**QA**
Quality Control	**QC**
Remediation Action Plan	**RAP**

Relative Percentage Difference	**RPD**
Site Assessment Criteria	**SAC**
Sampling, Analysis and Quality Plan	**SAQP**
Site Audit Statement	**SAS**
Site Audit Report	**SAR**
Site Specific Assessment	**SSA**
Source, Pathway, Receptor	**SPR**
Specific Contamination Concentration	**SCC**
Standard Penetration Test	**SPT**
Standing Water Level	**SWL**
Trip Blank	**TB**
Toxicity Characteristic Leaching Procedure	**TCLP**
Total Recoverable Hydrocarbons	**TRH**
Trip Spike	**TS**
Upper Confidence Limit	**UCL**
United States Environmental Protection Agency	**USEPA**
Underground Storage Tank	**UST**
Virgin Excavated Natural Material	**VENM**
Volatile Organic Compounds	**VOC**
World Health Organisation	**WHO**
Work Health and Safety	**WHS**

Units

Litres	**L**
Metres BGL	**mBGL**
Metres	**m**
Millivolts	**mV**
Millilitres	**ml or mL**
Milliequivalents	**meq**
micro Siemens per Centimetre	**µS/cm**
Micrograms per Litre	**µg/L**
Milligrams per Kilogram	**mg/kg**
Milligrams per Litre	**mg/L**
Parts Per Million	**ppm**
Percentage	**%**
Percentage weight for weight	**%w/w**

1 INTRODUCTION

Statewide Project Management, on behalf of Syesun Pty Ltd ('the client'), commissioned JK Environments (JKE) to undertake a Preliminary (Stage 1) Site Investigation (PSI) for the proposed garden centre redevelopment at 277 Mona Vale Road, Terrey Hills, NSW ('the site'). The purpose of the investigation is to make a preliminary assessment of site contamination. The site location is shown on Figure 1 and the investigation was confined to the site boundaries as shown on Figure 2.

A geotechnical investigation was undertaken in conjunction with this PSI by JK Geotechnics (JKG). The results of the geotechnical investigation are presented in a separate report (Ref: 34278Brpt, dated 3 September 2021)[1]. This report should be read in conjunction with the JKG report.

1.1 Proposed Development Details

We understand that the site is occupied by a garden centre and is to be redeveloped as a new garden centre. Works will include:

- Excavation and filling of the site;
- Construction of a new garden centre (main shop); open nursery; café; children's play area; bulk landscape and trade materials zone, pickup area and shop; loading facilities; staff and visitor amenities; and associated driveways; storage space; landscaping and plant areas;
- Construction of separate fruit and pet shop tenancies; and
- Construction of car parking for approximately 400 cars in both on grade and underground carparking.

1.2 Aims and Objectives

The primary aims of the investigation were to identify any past or present potentially contaminating activities at the site, identify the potential for site contamination, and make a preliminary assessment of the soil contamination conditions. The objectives were to:

- Provide an appraisal of the past site use(s) based on a review of historical records;
- Assess the current site conditions and use(s) via a site walkover inspection;
- Identify potential contamination sources/areas of environmental concern (AEC) and contaminants of potential concern (CoPC);
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- Provide a preliminary waste classification for off-site disposal of soil;
- Assess whether the site is suitable or can be made suitable for the proposed development (from a contamination viewpoint); and
- Assess whether further intrusive investigation and/or remediation is required.

[1] JKG, (2021). *Report to Syesun Pty Ltd on Geotechnical Investigation for Proposed Redevelopment of Garden Centre at 277 Mona Vale Road, Terrey Hills, NSW* (referred to as JKG report)

1.3 Scope of Work

The investigation was undertaken generally in accordance with a JKE proposal (Ref: EP54404PH) of 21 June 2021 and written acceptance from the Statewide Project Management, on behalf of the client, of 16 July 2021. The scope of work included the following:

- Review of site information, including background and site history information from various sources outlined in the report;
- Preparation of a CSM;
- Design and implementation of a sampling, analysis and quality plan (SAQP);
- Interpretation of the analytical results against the adopted Site Assessment Criteria (SAC);
- Data Quality Assessment; and
- Preparation of a report including a Tier 1 risk assessment.

The scope of work was undertaken with reference to the National Environmental Protection (Assessment of Site Contamination) Measure 1999 as amended (2013)[2], other guidelines made under or with regards to the Contaminated Land Management Act (1997)[3] and SEPP55 [4]. A list of reference documents/guidelines is included in the appendices.

[2] National Environment Protection Council (NEPC), (2013). *National Environmental Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013).* (referred to as NEPM 2013)

[3] Contaminated Land Management Act 1997 (NSW) (referred to as CLM Act 1997)

[4] *State Environmental Planning Policy No. 55 – Remediation of Land 1998* (NSW) (referred to as SEPP55)

2 SITE INFORMATION

2.1 Site Identification

Table 2-1: Site Identification

Current Site Owner (certificate of title):	Syesun Pty Limited
Site Address:	277 Mona Vale Road (also known as 62 Myoora Road), Terrey Hills, NSW
Lot & Deposited Plan:	Lot 4 in DP 737411
Current Land Use:	Garden Centre
Proposed Land Use:	Garden Centre
Local Government Authority:	Northern Beaches Council
Current Zoning:	RU4 Primary Production Small Lots
Site Area (m^2) (approx.):	28,000
RL (AHD in m) (approx.):	200
Geographical Location (decimal degrees) (approx.):	Latitude: -33.686399 Longitude: 151.225561
Site Location Plan:	Figure 1
Sample Location Plan:	Figure 2

2.2 Site Location and Regional Setting

The site is located in a mixed residential and commercial area of Terrey Hills and is bound by Mona Vale Road to the east, Cooyong Road to the north and Myoora Road to the west. The site is located approximately 500m to the west of Kimbriki Resource Recovery Centre (landfill).

2.3 Topography

The site is located towards the crest of a south-east facing hillside that falls towards Deep Creek and eventually Narrabeen Lagoon. The site itself falls to the south-east at approximately 1-3°. Parts of the site appear to have been levelled to account for the slope and accommodate the existing development. The hill becomes markedly steeper on the east side of Mona Vale Road.

2.4 Site Inspection

A walkover inspection of the site was undertaken by JKE on 12 August 2021. The inspection was limited to accessible areas of the site and immediate surrounds. Internal inspection of buildings was limited to publicly accessible areas.

A summary of the inspection findings is outlined in the following subsections:

2.4.1 Current Site Use and/or Indicators of Former Site Use

At the time of the inspection, the majority of site was occupied by a plant nursery, landscape/garden centre and a café.

2.4.2 Buildings, Structures and Roads

The main retail building, located in the east section of the site, was single storey and of brick construction. A group of three smaller buildings were located south of the main building and included a toilet block, storage shed and cashier. Two portable buildings were located in the centre of the site and were occupied by office space. A large greenhouse was located west of the main building and generally contained potted plants and garden products. Concrete paved footpaths extended through the greenhouse. Two buildings (an existing or former house and a garage) were located in the south-west corner of the site and appeared to include fibre-cement cladding). The cladding on the former garage was damaged.

Asphaltic Concrete (AC) car parks were located along the east and north site boundaries.

2.4.3 Boundary Conditions, Soil Stability and Erosion

The site was fenced on all boundaries with a chain wire fence. Exposed soils were apparent across much of the site surface and no obvious signs of erosion were evident.

2.4.4 Presence of Drums/Chemical Storage and Waste

No obvious chemical usage was observed, however, we note that there was fertilisers, herbicides and pesticides packaged for sale in the main building. Internal access to all of the buildings was not possible and there is likely to be pesticides and/or herbicides stored on the site for use on the site.

2.4.5 Evidence of Cut and Fill

The site appears to have been cut and filled to accommodate the existing development.

2.4.6 Visible or Olfactory Indicators of Contamination (odours, spills etc)

An Above-ground Storage Tank (AST) was located in a brick and concrete bund, adjacent to the west end of a row of landscaping supply bays. The bund was filled with mulch and, although no staining was observed within the bund, the mulch appeared wet in sections. Staining was observed on the ground surface immediately east of the AST. Consultation with the client indicated that the AST was used to store diesel.

2.4.7 Drainage and Services

Surface water would be expected to flow to on-site stormwater pits in the south and east sections of the site.

2.4.8 Sensitive Environments

Sensitive environments such as wetlands, ponds, creeks or extensive areas of natural vegetation were not identified on site or in the immediate surrounds.

2.4.9 Landscaped Areas and Visible Signs of Plant Stress

Native shrubs and trees were present along the east, north and west site boundaries. Some native and exotic plants were located throughout the site associated with the nursery. No obvious signs of plant stress or dieback were observed.

2.5 Surrounding Land Use

During the site inspection, JKE observed the following land uses in the immediate surrounds:

- North – Cooyong Road, with a residential area beyond that typically included single and double storey brick houses;
- South – a mixed rural and commercial area that included some horticulture, some rural-retail including a mower shop, horse equipment shop and café;
- East – Mona Vale Road, with a vegetation corridor beyond and Kimbriki Recycling Centre; and
- West – Myoora Road, with Terrey Hills Public School beyond.

JKE did not observe any land uses in the immediate surrounds that were identified as potential contamination sources for the site.

2.6 Underground Services

The 'Dial Before You Dig' (DBYD) plans were reviewed for the investigation in order to establish whether any major underground services exist at the site or in the immediate vicinity that could act as a preferential pathway for contamination migration. Major services were not identified that would be expected to act as preferential pathways for contamination migration.

2.7 Section 10.7 Planning Certificate

The section 10.7 (2 and 5) planning certificates were reviewed for the investigation. Copies of the certificates are attached in the appendices. A summary of the relevant information is outlined below:

- The land is not deemed to be: significantly contaminated; subject to a management order; subject of an approved voluntary management proposal; or subject to an on-going management order under the provisions of the CLM Act 1997;
- The land is not the subject of a Site Audit Statement (SAS); and
- The land does not contain an item of environmental heritage.

3 GEOLOGY AND HYDROGEOLOGY

3.1 Regional Geology

Regional geological information was reviewed for the investigation. The information was sourced from the Lotsearch report attached in the appendices. The report indicates that the site is underlain by Hawkesbury Sandstone, which typically consists of medium to coarse grained quartz sandstone with minor shale and laminite lenses.

3.2 Acid Sulfate Soil (ASS) Risk and Planning

The site is not located in an ASS risk area according to the risk maps prepared by the Department of Land and Water Conservation.

3.3 Hydrogeology

Hydrogeological information presented in the Lotsearch report indicated that the regional aquifer on-site and in the areas immediately surrounding the site includes porous, extensive aquifers of low to moderate productivity. There was several registered bores within the report buffer of 2,000m. In summary:

- The nearest registered bore was located approximately 160m to the north-east of the site. This was utilised for domestic purposes;
- The majority of the bores were registered for domestic purposes and were located west of the site;
- The nearest down-gradient bore (east or south-east) from the site was located over 650m from the site; and
- The drillers log information from the closest registered bores typically identified fill and/or clay soil to depths of 0.4-3.3m, underlain by sandstone bedrock. Standing water levels (SWLs) in the bores ranged from 16mBGL to 112mBGL.

The information reviewed for the PSI indicates that the subsurface conditions at the site are likely to consist of relatively low permeability (residual) soils overlying shallow bedrock. The potential for viable groundwater abstraction and use of groundwater under these conditions is considered to be low and only available using very deep wells. There is a reticulated water supply in the area and consumption of groundwater is not expected to occur. Use of groundwater is not proposed as part of the development.

Considering the local topography and surrounding land features, JKE anticipate groundwater to flow towards the south-east.

3.4 Receiving Water Bodies

Surface water bodies were not identified in the immediate vicinity of the site. The closest surface water body is Deep Creek located approximately 1,800m to the south-east of the site. This is down-gradient from site, however, due to the distance from the site, is unlikely to be a potential receptor.

4 SITE HISTORY INFORMATION

4.1 Review of Historical Aerial Photographs

Historical aerial photographs were reviewed for the investigation. The information was sourced for the Lotsearch report. A summary of the review is provided in the following table:

Table 4-1: Summary of Historical Aerial Photographs and Historical Maps

Year	Details
1930	The site and surrounding areas appeared to be occupied by bushland. A narrow road was located immediately south-east of the site and may have been along the existing alignment of Mona Vale Road.
1940	**On-site:** The south-east section of the site had been partially cleared. **Off-site:** Cooyang Road and Myoora Road had been constructed to the north and west of the site, respectively. Some bushland had been cleared to the north, west and south of the site. Some cultivated land (orchards/market gardens) and small buildings/sheds were apparent to the north and south of the site. A small building was located to the west of the site that appeared similar to the existing (2021) primary school building.
1955	**On-site:** The remainder of the site had been cleared. A house and associated shed/garage were located in the south-east section of the site. The remainder appeared to be occupied by cultivated land and market gardens. **Off-site:** some additional land clearing had been undertaken to the north, north-west and south of the site. These areas appeared to include agricultural use. Additional development, in the form of buildings and pathways, had been undertaken on the primary school to the west of the site.
1961	**On-site:** An additional house was located in the north-west section of the site and two small sheds were located in the central section. **Off-site:** The surrounds appeared similar to the previous photograph, except that additional buildings were present within the primary school site and the pathways were no longer apparent.
1965	The site and surrounding features appeared generally similar to the previous photograph, except that two additional small buildings (house and garage) were located in the south-west section of the site.
1970	The site and surrounding features appeared generally similar to the previous photograph.
1978	**On-site:** Multiple additional building were present on the north-east, central and north-west sections of the site. The majority of the south-east section appeared to be either gravel surfaced or paved. A car park was located along the east site boundary. It appeared that the site was likely used as a commercial nursery from at least this time. **Off-site:** Medium density residential development had been undertaken to the north and north-west of the site that typically included houses. Some additional development had been undertaken to the south of the site that included agricultural type buildings and sheds and a large disturbed area to the south-west of the site. Additional buildings were apparent in the primary school site.
1982	The site and surrounding features appeared generally similar to the previous photograph.
1986	**On-site:** Garden beds were more apparent in the north section of the site and the house in the south-east section had been demolished. Storage bays were apparent along the south site boundary.

Year	Details
	Off-site: The surrounding features appeared generally similar to the previous photograph.
1991	**On-site:** Some buildings had been demolished and additional buildings had been constructed in the east section of the site. **Off-site:** A group of buildings had been constructed to the south-west of the site.
1994	**On-site:** Additional sheds/greenhouses had been constructed across the site, primarily in the east and north-west sections. The central and south-east sections appeared to include material storage. **Off-site:** The group of building to the south-west had been demolished.
2000	**On-site:** The site appeared generally similar to the previous photograph. **Off-site:** Large-scale disturbance was apparent to the south of the site. Additional long, narrow buildings (possibly greenhouses) were located south of the disturbed area.
2009	**On-site:** The house in the north-west section of the site had been demolished and the area appeared to be occupied by gardens. The east section of the site had been redeveloped and appeared similar to the existing (2021) buildings. **Off-site:** The area south of the site appeared to be used for storage of material and car/truck parking.
2014	The site and surrounding features appeared generally similar to the previous photograph.
2020	The site and surrounding features appeared generally similar to the previous photograph, except that the property immediately south of the site appeared vacant and grassed.

4.2 Review of Historical Land Title Records

Historical land title records were reviewed for the investigation. The record search was undertaken by InfoTrack. Copies of the title records are attached in the appendices. The title records indicate the following:

- The site was part of a proposed rail reserve from 1881 until 1941;
- The site was privately owned between 1931 and 1972, during which time it was leased for the purpose of a vegetable and nursery garden; and
- The site has been owned by commercial proprietors since 1972.

4.3 Review of Council Records

Council records were sourced under an informal access to information request and were reviewed for the investigation. The council records indicate the following:

- 1964 – A DA was approved for a new fibro residence and tractor shed;
- 1971 – A DA was approved for extension of the existing rural buildings for Warringah Garden Centre;
- 1985 – A DA was approved for a refreshment room at Bond's Nursery;
- 1986 – A DA was approved for erection of a storage shed in association with the existing wholesale and retail plant nursery;

- 1999 - A DA was approved for alterations and additions to the existing retail plant nursery and café; and
- 2003 - A DA was approved for alterations and additions to the existing retail plant nursery.

4.4 SafeWork NSW Records

A review of SafeWork NSW records for the site is currently underway. The results will be summarised in a separate letter when received.

4.5 NSW EPA and Department of Defence Records

A review of the NSW EPA and Department of Defence databases was undertaken for the PSI. Information from the following databases were sourced from the Lotsearch report:

- Records maintained in relation to contaminated land under Section 58 of the CLM Act 1997;
- Records of sites notified in accordance with the Guidelines on the Duty to Report Contamination under Section 60 of the CLM Act 1997 (2015)[5];
- Licensed activities under the Protection of the Environment Operations Act (1997)[6];
- Sites being investigated under the NSW EPA per-and polyfluoroalkyl substances (PFAS) investigation program;
- Sites being investigated by the Department of Defence for PFAS contamination; and
- Sites being managed by the Department of Defence for PFAS contamination.

The search included the site and surrounding areas in the report buffer. A summary of the information is provided below:

Table 4-2: NSW EPA and Department of Defence Records

Records	On-site	Off-site
Records under Section 58 of the CLM Act 1997	None	None
Records under the Duty to Report Contamination under Section 60 of the CLM Act 1997	None	None
Licences under the POEO Act 1997	None	Current and historical licenses were identified for Kimbriki Resource Recovery Centre, located down gradient and to the south-east of the site, and for application of herbicides along waterways. However, these activities are considered unlikely to pose a contamination risk to the site or represent and off-site source of contamination.

[5] NSW EPA, (2015). *Guidelines on the Duty to Report Contamination under Section 60 of the CLM Act 1997*. (referred to as Duty to Report Contamination)

[6] Protection of the Environment Operations Act 1997 (NSW) (referred to as POEO Act 1997)

Records	On-site	Off-site
Records relating to the NSW EPA PFAS Investigation Program	None	None
Records relating to the Department of Defence PFAS management and investigation programs	None	None

4.6 Historical Business Directory and Additional Lotsearch Information

Historical business records and other relevant information were reviewed for the investigation. The information was sourced from the Lotsearch report and summarised in the following table:

Table 4-3: Historical Business Directory and other Records

Records	On-site	Off-site
Historical dry cleaners, motor garages and service stations	None	A motor garage was located approximately 340m to the north and cross-gradient of the site during the 1970s. A service station was located approximately 450m north-east and cross-gradient of the site in the 1960's and 1970's. A dry cleaner was located at least 300m to the north of the site on Booralie Road in the 1970's. Due to the distance and cross-gradient locations, these properties are not considered to represent off-site sources of contamination.
Other historical businesses that could represent potential sources of contamination	None	None
National waste management site database	None	Kimbriki Resource Recovery Centre is located down gradient and to the south-east of the site. Due to the down gradient location, the property is not considered to represent an off-site source of contamination.
National liquid fuel facilities	None	None
Mapped heritage items	None	Ku-Ring-Gai National Park was listed as a heritage item in the report buffer. This is not considered to have any relevance in the context of the PSI objectives.
Mapped ecological constraints	None	Various ecological items were mapped in the report buffer. These are not considered to have any relevance in the context of the PSI objectives.
Mapped naturally	None	None

Records	On-site	Off-site
occurring asbestos		

4.7 Summary of Site History Information

A time line summary of the historical land uses and activities is presented in the following table. The information presented in the table is based on a weight of evidence assessment of the site history documentation and observations made by JKE.

Table 4-4: Summary of Historical Land Uses / Activities

Year(s)	On-site - Potential Land Use / Activities	Off-site - Potential Land Use / Activities
Up to at least 1930	Bushland.	Bushland.
1940's-1970's	Likely use if the site for agricultural purposes, most likely including market gardens/orchards. Development of the site for residential and nursery purposes also occurred.	Terrey Hills Primary School was established and gradually developed to the west of the site. Areas to the north and south were generally rural/residential with cultivated land/gardens.
1970's-present	Commercial ownership of the site commenced and further development of commercial nursery occurred. Some former residential buildings and sheds were demolished in the south-east, north-west and central sections of the site.	The area north of the site was redeveloped for residential purposes from the 1970's.

4.8 Integrity of Site History Information

The majority of the site history information was obtained from government organisations as outlined in the relevant sections of this report. The veracity of the information from these sources is considered to be relatively high. A certain degree of information loss can be expected given the lack of specific land use details over time. JKE have relied upon the Lotsearch report and have not independently verified any information contained within. However, it is noted that the Lotsearch report is generated based on databases maintained by various government agencies and is expected to be reliable.

5 CONCEPTUAL SITE MODEL

NEPM (2013) defines a CSM as a representation of site related information regarding contamination sources, receptors and exposure pathways between those sources and receptors. The CSM for the site is presented in the following sub-sections and is based on the site information (including the site inspection information) and the review of site history information. Reference should also be made to the figures attached in the appendices.

A review of the CSM in relation to source, pathway and receptor (SPR) linkages has been undertaken as part of the Tier 1 risk assessment process, as outlined in Section 10.

5.1 Potential Contamination Sources/AEC and CoPC

The potential contamination sources/AEC and CoPC are presented in the following table:

Table 5-1: Potential (and/or known) Contamination Sources/AEC and Contaminants of Potential Concern

Source / AEC	CoPC
Fill material – The site appears to have been historically filled to achieve the existing levels. The fill may have been imported from various sources and could be contaminated. Fill can also become contaminated in situations where former buildings are demolished and where soils are moved around the site during cut/fill earthworks.	Heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc), petroleum hydrocarbons (referred to as total recoverable hydrocarbons – TRHs), benzene, toluene, ethylbenzene and xylene (BTEX), polycyclic aromatic hydrocarbons (PAHs), organochlorine pesticides (OCPs), organophosphate pesticides (OPPs), polychlorinated biphenyls (PCBs) and asbestos.
Fuel storage – At least one AST was identified at the site (see Figure 2). The AST was located in a concrete bund, however staining was observed on the ground surface immediately east.	Lead, TRH, BTEX and PAHs
Historical agricultural use – The site appears to have been used for market garden purposes and as a commercial nursery. This could have resulted in contamination across the site via use of machinery, application of pesticides/herbicides and building/ demolition of various structures. Irrigation pipes made from asbestos cement may also be associated with this AEC.	Heavy metals, TRH, PAHs, OCPs, OPPs, PCBs, herbicides and asbestos JKE note that OCPs only became commercially available in the 1940s. Prior to this time pesticides were predominantly heavy metal compounds.
Use of pesticides – Pesticides may have been used beneath the buildings and/or around the site for general pest control purposes (including termite applications during construction etc).	Heavy metals and OCPs
Hazardous Building Material – Hazardous building materials may be present as a result of former building and demolition activities. These materials may also be present in the existing buildings/ structures on site, or within fill used during earthworks.	Asbestos, lead and PCBs

5.2 Mechanism for Contamination, Affected Media, Receptors and Exposure Pathways

The mechanisms for contamination, affected media, receptors and exposure pathways relevant to the potential contamination sources/AEC are outlined in the following CSM table:

Table 5-2: CSM

Potential mechanism for contamination	The potential mechanisms for contamination are most likely to include 'top-down' impacts and spills. There is a potential for sub-surface releases to have occurred if deep fill (or other buried industrial infrastructure) is present, although this is considered to be the least likely mechanism for contamination.
Affected media	Soil and groundwater have been identified as potentially affected media. It is acknowledged that some of the soil CoPC are volatile. Consideration of soil vapour impacts would need to occur after evaluation of the soil/groundwater data to establish whether soil vapour is a potentially affected medium.
Receptor identification	Human receptors include site occupants/users (including primarily adults), construction workers and intrusive maintenance workers. Off-site human receptors include adjacent land users, with the most sensitive receptors being children in a residential or primary school land use scenario. Ecological receptors include terrestrial organisms and plants within unpaved areas (including the proposed landscaped areas).
Potential exposure pathways	Potential exposure pathways relevant to the human receptors include ingestion, dermal absorption and inhalation of dust (all contaminants) and vapours (volatile TRH, naphthalene and BTEX). The potential for exposure would typically be associated with the construction and excavation works, and future use of the site. Potential exposure pathways for ecological receptors include primary/direct contact and ingestion. Exposure during future site use could occur via direct contact with soil in unpaved areas such as gardens, inhalation of airborne asbestos fibres during soil disturbance, or inhalation of vapours within enclosed spaces such as buildings and basements.
Potential exposure mechanisms	The following have been identified as potential exposure mechanisms for site contamination: • Vapour intrusion into the proposed basement and/or building (either from soil contamination or volatilisation of contaminants from groundwater); • Contact (dermal, ingestion or inhalation) with exposed soils in landscaped areas and/or unpaved areas; and • Migration of groundwater off-site into areas where it may represent a vapour risk.
Presence of preferential pathways for contaminant movement	No obvious preferential pathways for contamination were observed at the site.

6 SAMPLING, ANALYSIS AND QUALITY PLAN

6.1 Data Quality Objectives (DQO)

Data Quality Objectives (DQOs) were developed to define the type and quality of data required to achieve the project objectives outlined in Section 1.2. The DQOs were prepared with reference to the process outlined in Schedule B2 of NEPM (2013). The seven-step DQO approach for this project is outlined in the following sub-sections.

The DQO process is validated in part by the Data Quality Assurance/Quality Control (QA/QC) Evaluation. The Data (QA/QC) Evaluation is summarised in Section 8.1 and the detailed evaluation is provided in the appendices.

6.1.1 Step 1 - State the Problem

The CSM identified potential sources of contamination/AEC at the site that may pose a risk to human health and the environment. Investigation data is required to assess the contamination status of the site, assess the risks posed by the contaminants in the context of the proposed development/intended land use, and assess whether remediation is required. This information will be considered by the consent authority in exercising its planning functions in relation to the development proposal.

A waste classification is required prior to off-site disposal of excavated soil/bedrock.

The DQOs were developed by the author of this report and checked by the reviewer. Both the author and reviewer were joint decision-makers in relation to Step 2 of the DQO process.

The investigation was constrained by the timeline imposed by the client and, in-part, by access limitations associated with the existing structures on site.

6.1.2 Step 2 - Identify the Decisions of the Study

The objectives of the investigation are outlined in Section 1.2. The decisions to be made reflect these objectives and are as follows:

- Did the site inspection, or does the historical information identify potential contamination sources/AEC at the site?
- Are any results above the SAC?
- Do potential risks associated with contamination exist, and if so, what are they?
- Is remediation required?
- Is the site suitable for the proposed development, or can the site be made suitable subject to further characterisation and/or remediation?

6.1.3 Step 3 - Identify Information Inputs

The primary information inputs required to address the decisions outlined in Step 2 include the following:

- Site information, including site observations and site history documentation;
- Sampling of soil;

- Observations of sub-surface variables such as soil type, photo-ionisation detector (PID) concentrations, odours and staining;
- Laboratory analysis of soils for the CoPC identified in the CSM, except for herbicides which were not assessed at the PSI stage; and
- Field and laboratory QA/QC data.

6.1.4 Step 4 - Define the Study Boundary

The sampling will be confined to the site boundaries as shown in Figure 2 and will be limited vertically to a depth of 2.5m (spatial boundary). The sampling was completed on 12 and 13 August 2021 (temporal boundary). The assessment of potential risk to adjacent land users has been made based on data collected within the site boundary.

Sampling was not undertaken within the existing building footprint due to access constraints.

6.1.5 Step 5 - Develop an Analytical Approach (or Decision Rule)

6.1.5.1 Tier 1 Screening Criteria

The laboratory data will be assessed against relevant Tier 1 screening criteria (referred to as SAC), as outlined in Section 7. Exceedances of the SAC do not necessarily indicate a requirement for remediation or a risk to human health and/or the environment. Exceedances are considered in the context of the CSM and valid SPR-linkages.

For this investigation, the individual results have been assessed as either above or below the SAC. Statistical evaluation of the dataset via calculation of mean values and/or 95% upper confidence limit (UCL) values has not been undertaken due to the spatial distribution of the data and the number of samples submitted for analysis.

6.1.5.2 Field and Laboratory QA/QC

Field QA/QC included analysis of an intra-laboratory duplicate and trip blank samples. Further details regarding the sampling and analysis undertaken, and the acceptable limits adopted, is provided in the Data Quality (QA/QC) Evaluation in the appendices.

The suitability of the laboratory data is assessed against the laboratory QA/QC criteria which is outlined in the attached laboratory reports. These criteria were developed and implemented in accordance with the laboratory's National Association of Testing Authorities, Australia (NATA) accreditation and align with the acceptable limits for QA/QC samples as outlined in NEPM (2013) and other relevant guidelines.

In the event that acceptable limits are not met by the laboratory analysis, other lines of evidence are reviewed (e.g. field observations of samples, preservation, handling etc) and, where required, consultation with the laboratory is undertaken in an effort to establish the cause of the non-conformance. Where uncertainty exists, JKE typically adopt the most conservative concentration reported (or in some cases, consider the data from the affected sample as an estimate).

6.1.5.3 Appropriateness of Practical Quantitation Limits (PQLs)

The PQLs of the analytical methods are considered in relation to the SAC to confirm that the PQLs are less than the SAC. In cases where the PQLs are greater than the SAC, a discussion of this is provided.

6.1.6 Step 6 – Specify Limits on Decision Errors

To limit the potential for decision errors, a range of quality assurance processes are adopted. A quantitative assessment of the potential for false positives and false negatives in the analytical results is undertaken with reference to Schedule B(3) of NEPM (2013) using the data quality assurance information collected.

Decision errors can be controlled through the use of hypothesis testing. The test can be used to show either that the baseline condition is false or that there is insufficient evidence to indicate that the baseline condition is false. The null hypothesis is an assumption that is assumed to be true in the absence of contrary evidence. For this investigation, the null hypothesis has been adopted which is that, there is considered to be a complete SPR linkage for the CoPC identified in the CSM unless this linkage can be proven not to (or unlikely to) exist. The null hypothesis has been adopted for this investigation.

Quantitative limits on decision errors were not established as the sample plan was not probabilistic.

6.1.7 Step 7 - Optimise the Design for Obtaining Data

The most resource-effective design will be used in an optimum manner to achieve the investigation objectives. Adjustment of the investigation design can occur following consultation or feedback from project stakeholders. For this investigation, the design was optimised via consideration of the various lines of evidence used to select the sample locations, the media being sampled, and also by the way in which the data were collected.

The sampling plan and methodology are outlined in the following sub-sections.

Data Quality Indicators (DQI) for field and laboratory QA/QC samples are defined in the QA/QC Data Evaluation in the appendices. An assessment of the DQI's was made in relation to precision, accuracy, representativeness, completeness and comparability.

6.2 Soil Sampling Plan and Methodology

The soil sampling plan and methodology adopted for this investigation is outlined in the table below:

Table 6-1: Soil Sampling Plan and Methodology

Aspect	Input
Sampling Density	Samples were collected from 10 locations as shown on the attached Figure 2. Based on the site area (28,000m^2), this number of locations corresponded to a sampling density of approximately one sample per 2,800m^2. The sampling plan was not designed to meet the minimum sampling density for hotspot identification, as outlined in the NSW EPA Contaminated Sites Sampling Design Guidelines (1995)[7].

[7] NSW EPA, (1995), *Contaminated Sites Sampling Design Guidelines.* (referred to as EPA Sampling Design Guidelines 1995)

Aspect	Input
Sampling Plan	The sampling locations were placed on a judgemental sampling plan and were broadly positioned for site coverage, taking into consideration areas that were not easily accessible. This sampling plan was considered suitable to make a preliminary assessment of potential risks associated with the AEC and CoPC identified in the CSM, and assess whether further investigation is warranted. We note that no sampling was undertaken in the vicinity of the AST.
Set-out and Sampling Equipment	Sampling locations were set out using a tape measure. In-situ sampling locations were checked for underground services by an external contractor prior to sampling. Samples were collected using a drill rig equipped with spiral flight augers. Soil samples were obtained from a Standard Penetration Test (SPT) split-spoon sampler, or directly from the auger when conditions did not allow use of the SPT sampler.
Sample Collection and Field QA/QC	Soil samples were obtained on 12-13 August 2021 in accordance with standard field procedures. Soil samples were collected from the fill and natural profiles based on field observations. The sample depths are shown on the logs attached in the appendices. Samples were placed in glass jars with plastic caps and teflon seals with minimal headspace. Samples for asbestos analysis were placed in zip-lock plastic bags. During sampling, soil at selected depths was split into primary and duplicate samples for field QA/QC analysis. The field splitting procedure included splitting the soil by hand and alternately filling the sampling containers to obtain a representative split sample.
Field Screening	A portable Photoionisation Detector (PID) fitted with a 10.6mV lamp was used to screen the samples for the presence of volatile organic compounds (VOCs). PID screening for VOCs was undertaken on soil samples using the soil sample headspace method. VOC data was obtained from partly filled zip-lock plastic bags following equilibration of the headspace gases. PID calibration records are maintained on file by JKE. Fill/spoil at the sampling locations was visually inspected during the works for the presence of fibre cement fragments.
Decontami-nation and Sample Preservation	Sampling personnel used disposable nitrile gloves during sampling activities. Soil samples were preserved by immediate storage in an insulated sample container with ice or ice bricks. On completion of the fieldwork, the samples were stored temporarily in fridges in the JKE warehouse before being delivered in the insulated sample container to a NATA registered laboratory for analysis under standard chain of custody (COC) procedures.

6.2.1 Laboratory Analysis

Samples were analysed by an appropriate, NATA Accredited laboratory using the analytical methods detailed in Schedule B(3) of NEPM 2013. Reference should be made to the laboratory reports attached in the appendices for further details.

Table 6-2: Laboratory Details

Samples	Laboratory	Report Reference
All primary samples and field QA/QC samples including (intra-laboratory duplicates and trip blank samples)	Envirolab Services Pty Ltd NSW, NATA Accreditation Number – 2901 (ISO/IEC 17025 compliance)	276408 and 276408-A

7 SITE ASSESSMENT CRITERIA (SAC)

The SAC were derived from the NEPM 2013 and other guidelines as discussed in the following sub-sections. The guideline values for individual contaminants are presented in the attached report tables and further explanation of the various criteria adopted is provided in the appendices.

We understand that all commercially grown plants at the site are and will continue to be located in planter boxes. Therefore, the only exposure mechanism to human receptors is through customers or staff walking or driving around the site.

7.1 Soil

Soil data were compared to relevant Tier 1 screening criteria in accordance with NEPM (2013) as outlined below.

7.1.1 Human Health

- Health Investigation Levels (HILs) for a 'commercial/industrial' exposure scenario (HIL-D);
- Health Screening Levels (HSLs) for a 'commercial/industrial' exposure scenario (HSL-D). HSLs were calculated based on conservative assumptions including a 'sand' type and a depth interval of 0m to 1m;
- HSLs for direct contact presented in the CRC Care Technical Report No. 10 – Health screening levels for hydrocarbons in soil and groundwater Part 1: Technical development document (2011)[8]; and
- Asbestos was assessed against the HSL-D criteria. A summary of the asbestos criteria is provided in the table below:

Table 7-1: Details for Asbestos SAC

Guideline	Applicability
Asbestos in Soil	The HSL-D criteria were adopted for the assessment of asbestos in soil. The SAC adopted for asbestos were derived from the NEPM 2013 and are based on the Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia (2021)[9]. The SAC include the following: • No visible asbestos at the surface/in the top 10cm of soil; and • <0.001% w/w asbestos fines/fibrous asbestos (AF/FA) in soil.

7.1.2 Environment (Ecological – terrestrial ecosystems)

- Ecological Investigation Levels (EILs) and Ecological Screening Levels (ESLs) for an 'commercial/industrial' exposure scenario. These have only been applied to the top 2m of soil as

[8] Cooperative Research Centre for Contamination Assessment and Remediation of the Environment (CRC Care), (2011). Technical Report No. 10 - *Health screening levels for hydrocarbons in soil and groundwater Part 1: Technical development document*

[9] Western Australian (WA) Department of Health (DoH), (2021). *Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia*. (referred to as WA DoH 2021)

outlined in NEPM (2013). The criterion for benzo(a)pyrene has been increased from the value presented in NEPM (2013) based on the Canadian Soil Quality Guidelines[10];

- ESLs were adopted based on the soil type; and
- EILs for selected metals were calculated using site specific soil parameters for pH, cation exchange capacity and clay content for the BH2 (0.6-0.7m) and BH3 (0-0.1m) samples. These data were used to select the added contaminant limit (ACL) values presented in Schedule B(1) of NEPM (2013), and published ambient background concentration (ABC) presented in the document titled Trace Element Concentrations in Soils from Rural and Urban Areas of Australia (1995)[11]. EILs for selected metals for the remaining samples were calculated based on the most conservative added contaminant limit (ACL) values presented in Schedule B(1) of NEPM (2013). This method is considered to be adequate for the Tier 1 screening.

7.1.3 Management Limits for Petroleum Hydrocarbons

Management limits for petroleum hydrocarbons (as presented in Schedule B1 of NEPM 2013) were considered.

7.1.4 Waste Classification

Data for the waste classification assessment were assessed in accordance with the Waste Classification Guidelines, Part 1: Classifying Waste (2014)[12] as outlined in the following table:

Table 7-2: Waste Categories

Category	Description
General Solid Waste (non-putrescible)	• If Specific Contaminant Concentration (SCC) ≤ Contaminant Threshold (CT1) then Toxicity Characteristics Leaching Procedure (TCLP) not needed to classify the soil as general solid waste; and • If TCLP ≤ TCLP1 and SCC ≤ SCC1 then treat as general solid waste.
Restricted Solid Waste (non-putrescible)	• If SCC ≤ CT2 then TCLP not needed to classify the soil as restricted solid waste; and • If TCLP ≤ TCLP2 and SCC ≤ SCC2 then treat as restricted solid waste.
Hazardous Waste	• If SCC > CT2 then TCLP not needed to classify the soil as hazardous waste; and • If TCLP > TCLP2 and/or SCC > SCC2 then treat as hazardous waste.
Virgin Excavated Natural Material (VENM)	Natural material (such as clay, gravel, sand, soil or rock fines) that meet the following: • That has been excavated or quarried from areas that are not contaminated with manufactured chemicals, or with process residues, as a result of industrial, commercial mining or agricultural activities; • That does not contain sulfidic ores or other waste; and • Includes excavated natural material that meets such criteria for virgin excavated natural material as may be approved from time to time by a notice published in the NSW Government Gazette.

[10] Canadian Council of Ministers of the Environment, (1999). *Canadian soil quality guidelines for the protection of environmental and human health: Benzo(a)Pyrene (1997)* (referred to as the Canadian Soil Quality Guidelines)

[11] Olszowy, H., Torr, P., and Imray, P., (1995), *Trace Element Concentrations in Soils from Rural and Urban Areas of Australia. Contaminated Sites Monograph Series No. 4*. Department of Human Services and Health, Environment Protection Agency, and South Australian Health Commission.

[12] NSW EPA, (2014). *Waste Classification Guidelines, Part 1: Classifying Waste.* (referred to as Waste Classification Guidelines 2014)

8 RESULTS

8.1 Summary of Data (QA/QC) Evaluation

The data evaluation is presented in the appendices. In summary, JKE are of the opinion that the data are adequately precise, accurate, representative, comparable and complete to serve as a basis for interpretation to achieve the investigation objectives.

8.2 Subsurface Conditions

A summary of the subsurface conditions encountered during the investigation is presented in the following table. Reference should be made to the borehole logs attached in the appendices for further details.

Table 8-1: Summary of Subsurface Conditions

Profile	Description
Pavement	Asphaltic Concrete (AC), approximately 40mm to 100mm thick, was encountered at the surface in BH1 to BH3. Concrete pavement, approximately 135mm to 230mm thick, was encountered at the surface in BH5 and BH6.
Fill	Fill was encountered at the surface or beneath the pavement in all boreholes and extended to depths of approximately 0.3m to 2.7m, and was typically deepest towards the central section of the site. The fill typically comprised silty sand, sandy clay, sandy gravel, gravelly silty sand or gravelly sandy clay with inclusions of igneous and ironstone gravel. Building rubble (brick, concrete, glass, tile, timber and steel fragments) was encountered in the fill in BH2, BH4 and BH7 to BH10.
Natural Soil	Gravelly sandy clay, clayey sand/sandy clay, silty sand and/or silty clay was encountered beneath the fill in all boreholes, except BH2, and extended to depths of approximately 1m to 9.5m. The natural soil was typically grey or orange-brown and contained traces of ironstone gravel.
Bedrock	Sandstone bedrock was encountered beneath the fill or natural soil in all boreholes and extended to the termination of the boreholes at a maximum depth of approximately 10m.
Groundwater	Groundwater seepage was encountered in all boreholes, except BH2 and BH10, during drilling at depths of approximately 1.3m to 6.5m. No long-term groundwater monitoring was undertaken.

8.3 Field Screening

PID soil sample headspace readings are presented in attached report tables and the COC documents attached in the appendices. All results were less than 1ppm isobutylene equivalents which generally indicates a lack of PID detectable VOCs.

8.4 Soil Laboratory Results

The soil laboratory results were assessed against the SAC presented in Section 7.1. Individual SAC are shown in the report tables attached in the appendices. A summary of the results is presented below:

8.4.1 Human Health and Environmental (Ecological) Assessment

Table 8-2: Summary of Soil Laboratory Results – Human Health and Environmental (Ecological)

Analyte	N	Max. (mg/kg)	N> Human Health SAC	N> Ecological SAC	Comments
Arsenic	15	18	0	0	-
Cadmium	15	0.6	0	NSL	-
Chromium (total)	15	87	0	0	-
Copper	15	45	0	0	-
Lead	15	40	0	0	-
Mercury	15	<0.1	0	NSL	-
Nickel	15	91	0	0	-
Zinc	15	540	0	0	-
Total PAHs	15	9	0	NSL	-
Benzo(a)pyrene	15	0.75	NSL	0	-
Carcinogenic PAHs (as BaP TEQ)	15	1.1	0	NSL	-
Naphthalene	15	<1	0	NSL	0
DDT+DDE+DDD	10	<0.1	0	NSL	-
DDT	10	<0.1	NSL	0	-
Aldrin and dieldrin	10	<0.1	0	NSL	-
Chlordane	10	<0.1	0	NSL	-
Heptachlor	10	<0.1	0	NSL	-
PCBs	10	<0.1	0	NSL	-
TRH F1	15	<25	0	0	-
TRH F2	15	<50	0	0	-
TRH F3	15	330	0	0	-
TRH F4	15	500	0	0	-
Benzene	15	<0.2	0	0	-

Analyte	N	Max. (mg/kg)	N> Human Health SAC	N> Ecological SAC	Comments
Toluene	15	<0.5	0	0	-
Ethylbenzene	15	<01	0	0	-
Xylenes	15	<3	0	0	-
Asbestos (in soil)	10	AF/FA <0.001%w/w ACM <0.01%w/w	0	NA	-

Notes:

N: Total number (primary samples)

NSL: No set limit

NL: Not limiting

8.4.2 Waste Classification Assessment

The laboratory results were assessed against the criteria presented in Section 7.1.4. The results are presented in the report tables attached in the appendices. A summary of the results is presented in the following table:

Table 8-3: Summary of Soil Laboratory Results Compared to CT and SCC Criteria

Analyte	N	N > CT Criteria	N > SCC Criteria	Comments
Arsenic	15	0	0	-
Cadmium	15	0	0	-
Chromium	15	0	0	-
Copper		NSL	NSL	-
Lead	15	0	0	-
Mercury	15	0	0	-
Nickel	15	2	0	Nickel concentrations exceeded the CT1 criterion in fill samples collected from BH1 (0.1-0.2m) and BH3 (0.1-0.2m). The maximum nickel concentration was 91mg/kg.
Zinc		NSL	NSL	-
TRH (C_6-C_9)	15	0	0	-
TRH (C_{10}-C_{36})	15	0	0	-
BTEX	15	0	0	-
Total PAHs	15	0	0	-

Analyte	N	N > CT Criteria	N > SCC Criteria	Comments
Benzo(a)pyrene	15	0	0	-
OCPs & OPPs	10	0	0	-
PCBs	10	0	0	-
Asbestos	10	-	-	Asbestos was not detected in the samples analysed.

N: Total number (primary samples)

NSL: No set limit

9 WASTE CLASSIFICATION ASSESSMENT

9.1 Preliminary Waste Classification of Fill

Further assessment for waste classification purposes will be required to classify fill for off-site disposal. However, based on the results of the waste classification assessment, and at the time of reporting, the fill material fell within the **General Solid Waste (non-putrescible)** category.

9.2 Preliminary Classification of Natural Soil and Bedrock

Further assessment will be required to classify natural soil and bedrock for off-site disposal. Based on the scope of work undertaken for this assessment, and at the time of reporting, JKE are of the opinion that the natural soil and bedrock at the site is likely to classify as **VENM**. The main risk for classifying VENM is considered to be a leak from the AST and this will need to be considered carefully when designing any future in-situ waste classification assessment(s).

10 DISCUSSION

10.1 Contamination Sources/AEC and Potential for Site Contamination

Based on the scope of work undertaken for this investigation, JKE identified the following potential contamination sources/AEC:

- Fill material;
- AST;
- Historical agricultural use of the site;
- Pesticides may have been used beneath the buildings and/or around the site; and
- Hazardous building materials from former building and demolition activities. These materials may also be present in the existing buildings/structures on site.

Considering the above, and based on a qualitative assessment of various lines of evidence as discussed throughout this report, JKE are of the opinion that there is a potential for site contamination. The preliminary soil data collected for the investigation is discussed further in the following subsection, as part of the Tier 1 risk assessment.

It is noted that agricultural/horticultural activities are listed in Table 1 of the SEPP55 Planning Guidelines as activities that may cause contamination. This triggers a need for a detailed (Stage 2) site investigation (DSI) under the purview of SEPP55.

10.2 Tier 1 Risk Assessment and Review of CSM

For a contaminant to represent a risk to a receptor, the following three conditions must be present:

1. Source – The presence of a contaminant;
2. Pathway – A mechanism or action by which a receptor can become exposed to the contaminant; and
3. Receptor – The human or ecological entity which may be adversely impacted following exposure to contamination.

If one of the above components is missing, the potential for adverse risks is relatively low.

10.2.1 Soil

All soil laboratory results were less than the relevant SAC. No actual contamination has been encountered in soil samples obtained for the PSI and, therefore, there is no complete SPR link to any of the human or ecological receptors in the context of the current dataset.

We note that the adopted soil sampling density did not meet the minimum recommended density and that the site history review identified various potential sources of contamination at the site. Therefore, JKE consider that there remains a risk of potential contamination at the site.

10.2.2 Groundwater

Contamination was not encountered in soil to the extent that the soil could be considered a source of potential groundwater contamination via mechanisms such as leaching. An investigation of groundwater will

be needed as part of the DSI to assess risks associated with the AST. Groundwater analysis should target heavy metals as a general screening and also the CoPC associated with the AST. This analytical suite must be expanded in the event that other CoPC are found in soil that are assessed to pose a potential migration risk to groundwater.

10.2.3 Other

Considering the depth of fill encountered in some locations (up to 2.7m deep) and the inclusion of carbonaceous organic matter, roots and timber in the fill, the potential exists for hazardous ground gases such as methane and carbon dioxide etc to be present. It is also noted that organic odours were observed during drilling of BH2. This must be considered in the next iteration of the CSM and factored into the design of the DSI.

10.3 Decision Statements

The decision statements are addressed below:

> *Did the site inspection, or does the historical information identify potential contamination sources/AEC at the site?*

Yes, as summarised in Section 10.1.

> *Are any results above the SAC?*

No, the results of all soil samples were less than the SAC.

> *Do potential risks associated with contamination exist, and if so, what are they?*

Yes, there remains a risk of potential contamination associated with the potential sources summarised in Section 10.1.

> *Is remediation required?*

At this stage, no remediation is required.

> *Is the site suitable for the proposed development, or can the site be made suitable subject to further characterisation and/or remediation?*

It is unlikely that the potential contamination sources would preclude the proposed development. Further investigation will be required to better assess the risks associated with contamination and the suitability of the site for the proposed development.

10.4 Data Gaps

An assessment of data gaps is provided in the following table:

Table 10-1: Data Gap Assessment

Data Gap	Assessment
SafeWork records not yet reviewed	These records have not yet been received. The results will be issued in an addendum letter once received.
Groundwater and soil vapour not assessed	Based on the potential contamination sources identified at the site, assessment of groundwater will be required. The soil and groundwater data will be used to establish whether there is a need for a soil vapour assessment.
Soil sampling density below minimum guideline density	Sampling was limited to approximately 25% of the minimum sampling density recommended in the EPA Sampling Design Guidelines 1995. Additionally, asbestos quantification was not undertaken due to the preliminary nature of the investigation. The investigation identified fill containing demolition waste. Recommendations for additional soil sampling are included in the report to address this data gap.

11 CONCLUSIONS AND RECOMMENDATIONS

The investigation included a review of historical information and sampling from 10 boreholes. The site has historically been occupied by a commercial nursery and market gardens.

The following is recommended to better assess the risks associated with potential contamination at the site:

- A DSI should be undertaken to better characterise the site contamination conditions and establish whether remediation and/or management is required to render the site suitable for the proposed development; and
- A hazardous building materials survey should be undertaken prior to redevelopment of the buildings. Following removal of any hazardous material in the buildings (and preferably prior to removal any hardstand), an asbestos clearance certificate should be obtained.

JKE also recommend that a waste classification be undertaken to classify waste soil/bedrock material to be excavated for the proposed development. Fill and contaminated soil disposal costs are significant and should be assessed at an early stage of the project.

JKE consider that, at this stage, there is no requirement to report any contamination under the NSW EPA Guidelines on the Duty to Report Contamination under Section 60 of the CLM Act 1997 (2015)[13]

JKE consider that the report objectives outlined in Section 1.2 have been addressed.

[13] NSW EPA, (2015). *Guidelines on the Duty to Report Contamination under Section 60 of the CLM Act 1997* (referred to as Duty to Report Contamination)

12 LIMITATIONS

The report limitations are outlined below:

- JKE accepts no responsibility for any unidentified contamination issues at the site. Any unexpected problems/subsurface features that may be encountered during development works should be inspected by an environmental consultant as soon as possible;
- Previous use of this site may have involved excavation for the foundations of buildings, services, and similar facilities. In addition, unrecorded excavation and burial of material may have occurred on the site. Backfilling of excavations could have been undertaken with potentially contaminated material that may be discovered in discrete, isolated locations across the site during construction work;
- This report has been prepared based on site conditions which existed at the time of the investigation; scope of work and limitation outlined in the JKE proposal; and terms of contract between JKE and the client (as applicable);
- The conclusions presented in this report are based on investigation of conditions at specific locations, chosen to be as representative as possible under the given circumstances, visual observations of the site and immediate surrounds and documents reviewed as described in the report;
- Subsurface soil and rock conditions encountered between investigation locations may be found to be different from those expected. Groundwater conditions may also vary, especially after climatic changes;
- The investigation and preparation of this report have been undertaken in accordance with accepted practice for environmental consultants, with reference to applicable environmental regulatory authority and industry standards, guidelines and the assessment criteria outlined in the report;
- Where information has been provided by third parties, JKE has not undertaken any verification process, except where specifically stated in the report;
- JKE has not undertaken any assessment of off-site areas that may be potential contamination sources or may have been impacted by site contamination, except where specifically stated in the report;
- JKE accept no responsibility for potentially asbestos containing materials that may exist at the site. These materials may be associated with demolition of pre-1990 constructed buildings or fill material at the site;
- JKE have not and will not make any determination regarding finances associated with the site;
- Additional investigation work may be required in the event of changes to the proposed development or landuse. JKE should be contacted immediately in such circumstances;
- Material considered to be suitable from a geotechnical point of view may be unsatisfactory from a soil contamination viewpoint, and vice versa; and
- This report has been prepared for the particular project described and no responsibility is accepted for the use of any part of this report in any other context or for any other purpose.

Important Information About This Report

These notes have been prepared by JKE to assist with the assessment and interpretation of this report.

The Report is based on a Unique Set of Project Specific Factors
This report has been prepared in response to specific project requirements as stated in the JKE proposal document which may have been limited by instructions from the client. This report should be reviewed, and if necessary, revised if any of the following occur:

- The proposed land use is altered;
- The defined subject site is increased or sub-divided;
- The proposed development details including size, configuration, location, orientation of the structures or landscaped areas are modified;
- The proposed development levels are altered, eg addition of basement levels; or
- Ownership of the site changes.

JKE will not accept any responsibility whatsoever for situations where one or more of the above factors have changed since completion of the investigation. If the subject site is sold, ownership of the investigation report should be transferred by JKE to the new site owners who will be informed of the conditions and limitations under which the investigation was undertaken. No person should apply an investigation for any purpose other than that originally intended without first conferring with the consultant.

Changes in Subsurface Conditions
Subsurface conditions are influenced by natural geological and hydrogeological process and human activities. Groundwater conditions are likely to vary over time with changes in climatic conditions and human activities within the catchment (e.g. water extraction for irrigation or industrial uses, subsurface waste water disposal, construction related dewatering). Soil and groundwater contaminant concentrations may also vary over time through contaminant migration, natural attenuation of organic contaminants, ongoing contaminating activities and placement or removal of fill material. The conclusions of an investigation report may have been affected by the above factors if a significant period of time has elapsed prior to commencement of the proposed development.

This Report is based on Professional Interpretations of Factual Data
Site investigations identify actual subsurface conditions at the actual sampling locations at the time of the investigation. Data obtained from the sampling and subsequent laboratory analyses, available site history information and published regional information is interpreted by geologists, engineers or environmental scientists and opinions are drawn about the overall subsurface conditions, the nature and extent of contamination, the likely impact on the proposed development and appropriate remediation measures.

Actual conditions may differ from those inferred, because no professional, no matter how qualified, and no subsurface exploration program, no matter how comprehensive, can reveal what is hidden by earth, rock and time. The actual interface between materials may be far more gradual or abrupt than an investigation indicates. Actual conditions in areas not sampled may differ from predictions. Nothing can be done to prevent the unanticipated, but steps can be taken to help minimise the impact. For this reason, site owners should retain the services of their consultants throughout the development stage of the project, to identify variances, conduct additional tests which may be needed, and to recommend solutions to problems encountered on site.

Investigation Limitations
Although information provided by a site investigation can reduce exposure to the risk of the presence of contamination, no environmental site investigation can eliminate the risk. Even a rigorous professional investigation may not detect all contamination on a site. Contaminants may be present in areas that were not surveyed or sampled, or may migrate to areas which showed no signs of contamination when sampled. Contaminant analysis cannot possibly cover every type of contaminant which may occur; only the most likely contaminants are screened.

Misinterpretation of Site Investigations by Design Professionals
Costly problems can occur when other design professionals develop plans based on misinterpretation of an investigation report. To minimise problems associated with misinterpretations, the environmental consultant should be retained to work with appropriate professionals to explain relevant findings and to review the adequacy of plans and specifications relevant to contamination issues.

Logs Should not be Separated from the Investigation Report
Borehole and test pit logs are prepared by environmental scientists, engineers or geologists based upon interpretation of field conditions and laboratory evaluation of field samples. Logs are normally provided in our reports and these should not be re-drawn for inclusion in site remediation or other design drawings, as subtle but significant drafting errors or omissions may occur in the transfer process. Photographic reproduction can eliminate this problem, however contractors can still misinterpret the logs during bid preparation if separated from the text of the investigation. If this occurs, delays, disputes and unanticipated costs may result. In all cases it is necessary to refer to the rest of the report to obtain a proper understanding of the investigation. Please note that logs with the 'Environmental Log' header are not suitable for geotechnical purposes as they have not been peer reviewed by a Senior Geotechnical Engineer.

To reduce the likelihood of borehole and test pit log misinterpretation, the complete investigation should be available to persons or organisations involved in the project, such as contractors, for their use. Denial of such access and disclaiming responsibility for the accuracy of subsurface information does not insulate an owner from the attendant liability. It is critical that the site owner provides all available site information to persons and organisations such as contractors.

Read Responsibility Clauses Closely
Because an environmental site investigation is based extensively on judgement and opinion, it is necessarily less exact than other disciplines. This situation has resulted in wholly unwarranted claims being lodged against consultants. To help prevent this problem, model clauses have been developed for use in written transmittals. These are definitive clauses designed to indicate consultant responsibility. Their use helps all parties involved recognise individual responsibilities and formulate appropriate action. Some of these definitive clauses are likely to appear in the environmental site investigation, and you are encouraged to read them closely. Your consultant will be pleased to give full and frank answers to any questions.

Appendix A: Report Figures

AERIAL IMAGE SOURCE: MAPS.AU.NEARMAP.COM

This plan should be read in conjunction with the Environmental report.

Title: **SITE LOCATION PLAN**

Location: 277 MONA VALE ROAD, TERREY HILLS, NSW

Project No: E34278PH

Figure No: 1

JKEnvironments

PLOT DATE: 25/10/2021 1:24:06 PM DWG FILE: S:\5 EIS\5C EIS JOBS\34000'S\E34278PH TERREY HILLS\CAD\E34278PH.DWG

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LEGEND

— — — —	APPROXIMATE SITE BOUNDARY
● BH(Fill Depth)	BOREHOLE LOCATION, NUMBER AND DEPTH OF FILL (m)

0 8 16 24 32 40

SCALE 1:800 @A3 METRES

This plan should be read in conjunction with the Environmental report.

Title: **SAMPLE LOCATION PLAN**

Location: 277 MONA VALE ROAD, TERREY HILLS, NSW

Project No: E34278PH

Figure No: 2

JKEnvironments

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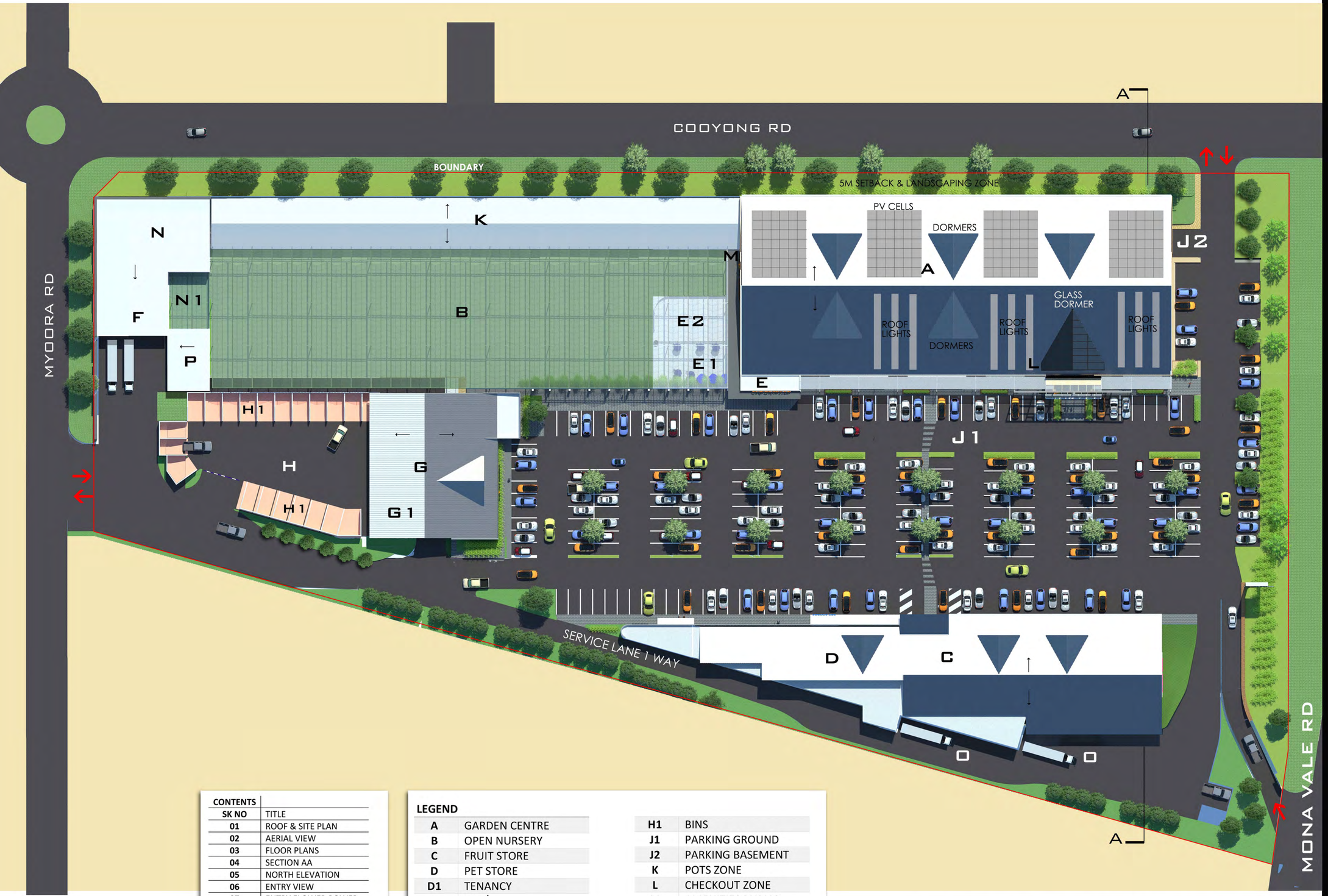
Appendix B: Site Information and Site History

Proposed Development Plans



FLOWER POWER TERREY HILLS

CONTENTS	
SK NO	TITLE
01	ROOF & SITE PLAN
02	AERIAL VIEW
03	FLOOR PLANS
04	SECTION AA
05	NORTH ELEVATION
06	ENTRY VIEW
07	ENTRY FLOWER POWER
08	CORNER VIEW
09	FRUIT & VEG MARKET
10	OPEN NURSERY VIEW
11	LANDSCAPE SHOP
12	COOYONG RD VIEW 1
13	COOYONG RD VIEW 2
14	STUDIO VIEW
15	COOYONG RD

LEGEND

A	GARDEN CENTRE	H1	BINS
B	OPEN NURSERY	J1	PARKING GROUND
C	FRUIT STORE	J2	PARKING BASEMENT
D	PET STORE	K	POTS ZONE
D1	TENANCY	L	CHECKOUT ZONE
E	CAFÉ	M	AMENITIES PUBLIC
E1	OUTDOOR CAFE	N	STORE
E2	KIDS PLAYGROUND	N1	PLANT STORAGE
F	LOADING FOR NURSERY	O	LOADING FRUIT & PET
G	SHOP	P	STAFF ZONE
G1	LANDSCAPE DISPLAY	Q	PLANT
H	LANDSCAPE ZONE		

SITE & ROOF PLAN

1:400 @ A1

0 10 20 50m

NORTH

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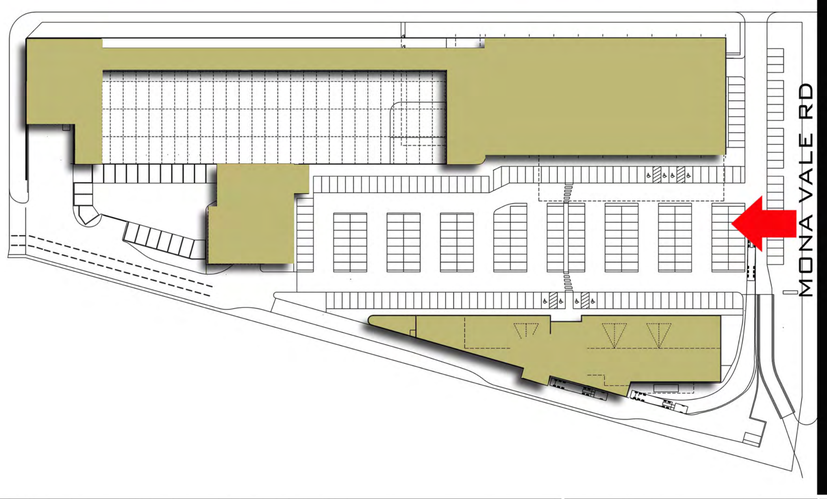
FLOWER POWER TERREY HILLS

VIEW 1

AERIAL VIEW FROM MONA VALE ROAD SIDE SHOWING THE EXTENT OF BUILDINGS PROPOSED.
CONCEPTUALLY, THE DESIGN PROPOSES AN INTROSPECTIVE ARRANGEMENT WITH THE ACTIVITIES OF THE CARPARK AT THE CENTRE. FROM THERE, ALL FACILITIES ARE VISIBLE, WITH THE CARPARK SHARING ITS SPACES FOR ALL TENANTS.



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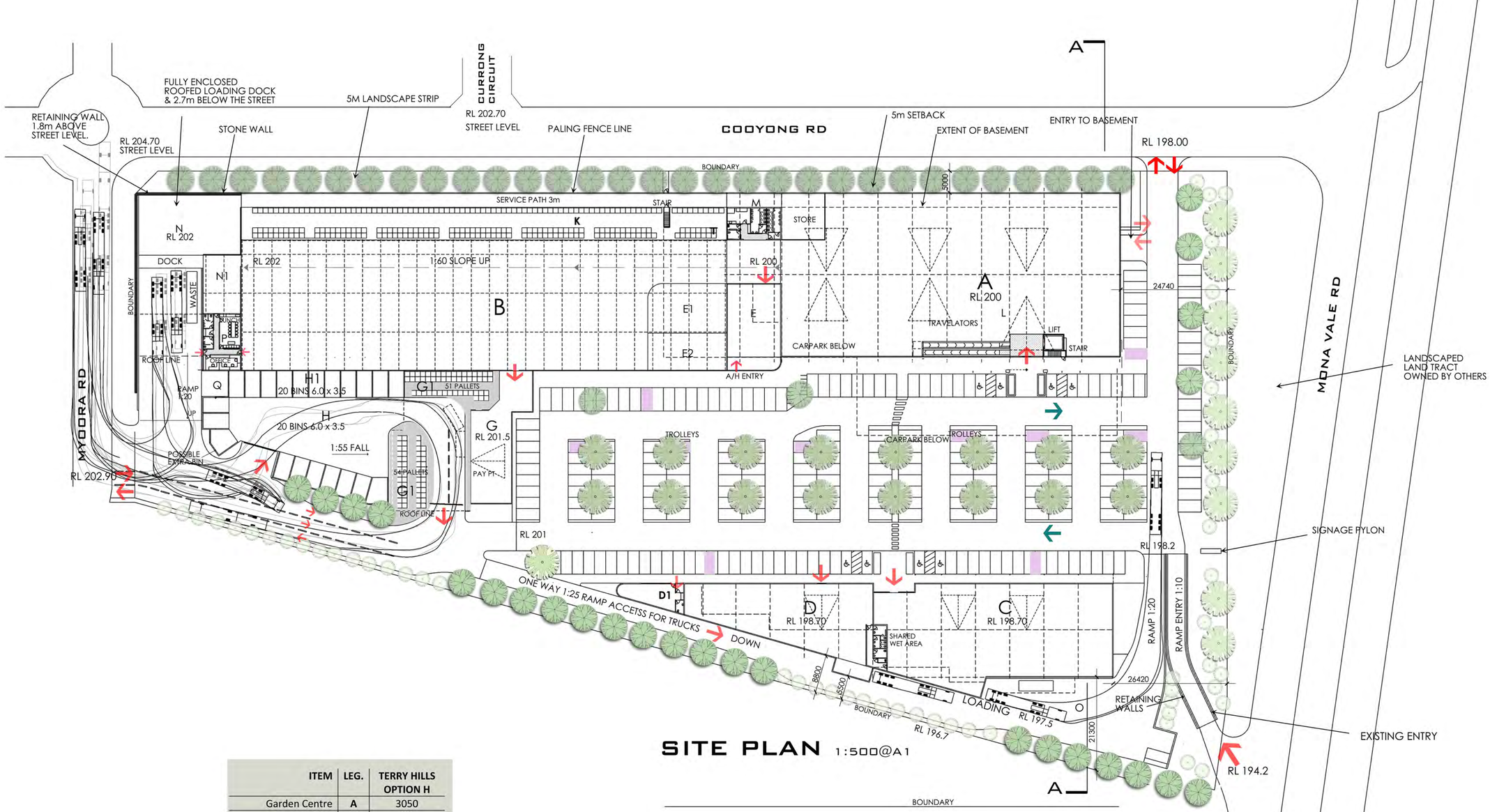
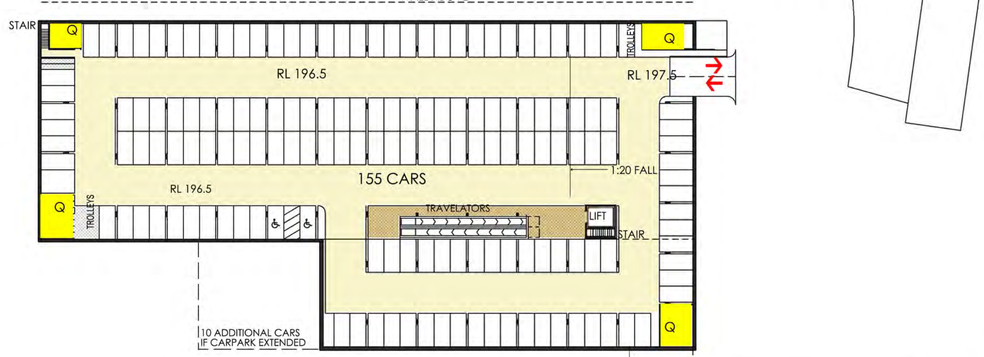


SITE PLAN 1:500@A1



BASEMENT PLAN

0 10 20 50m

NORTH

OPTION J1

LEGEND	
A	GARDEN CENTRE
B	OPEN NURSERY
C	FRUIT STORE
D	PET STORE
D1	TENANCY
E	CAFÉ
E1	OUTDOOR CAFE
E2	KIDS PLAYGROUND
F	LOADING FOR NURSERY
G	SHOP
G1	LANDSCAPE DISPLAY
H	LANDSCAPE ZONE
H1	BINS
J1	PARKING GROUND
J2	PARKING BASEMENT
K	POTS ZONE
L	CHECKOUT ZONE
M	AMENITIES PUBLIC
N	STORE
N1	PLANT STORAGE
O	LOADING FRUIT & PET
P	STAFF ZONE
Q	PLANT

ITEM	LEG.	TERRY HILLS OPTION H
Garden Centre	A	3050
Toilets	M	90
Shop	G	277
Garden Display	G1	600
Open Nursery	B	3025
Pots	K	845
Checkout	L	-
Café	E	245
Café Outdoor Seat	E1	157
Play area	E2	207
Total Café Zone	E	**609**
Staff Area	P	110
Store & Dock	N	370
Plant Storage	N1	115
TOTAL		**9091**
Landscape Zone	H	1100
Bins 6m x 3.5m	H1	420
Fruit & Veg Store	C	1200
Pet Store	D	600
Tenancy	D1	70
Parking Grnd Level		248
Parking Basement		155
Total Parking		**403**

ITEM	AREA m2
SITE AREA	28299
GFA	5677

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SECTION AA 1:200 @ A1

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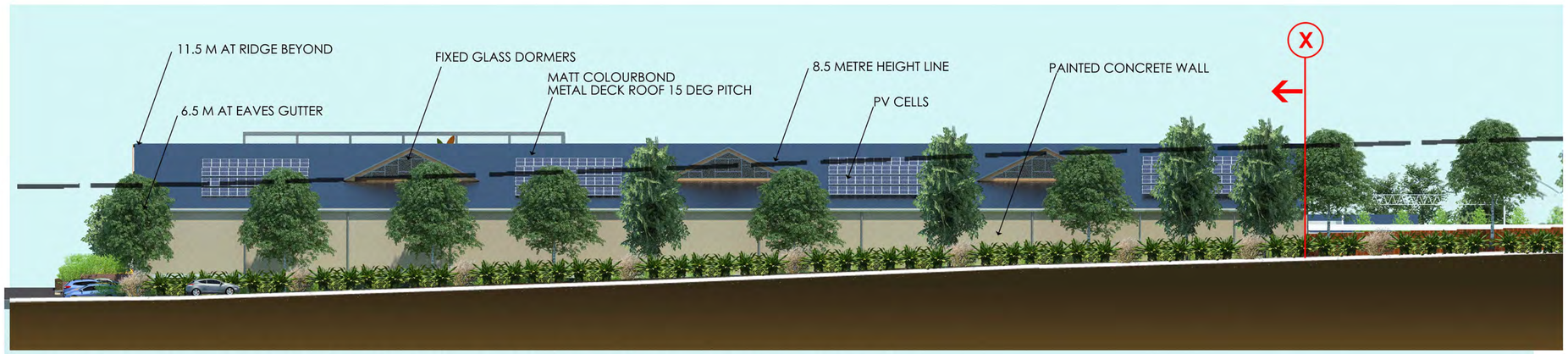
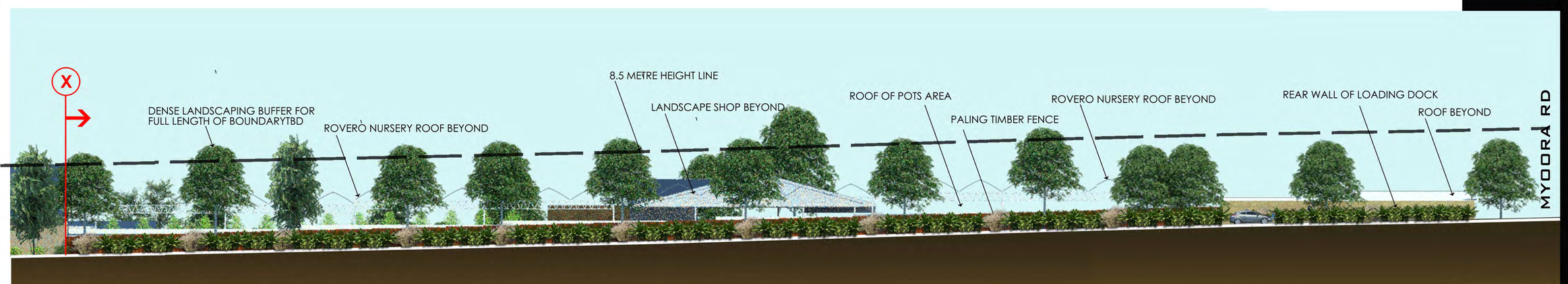


NORTH / COOYONG RD ELEVATION (EAST END)



NORTH / COOYONG RD ELEVATION (WEST END)

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FLOWER POWER TERREY HILLS

VIEW 2

VIEW FROM MONA VALE ROAD ADJACENT TO ENTRY RAMP
SHOWING SIGNAGE PYLON AND THE MAIN FLOWER POWER BUILDING BEYOND.

THE ARCHITECTURAL TREATMENT IS ANIMATED BY THE DESIRE TO CREATE FORMS THAT ARE OF HUMAN SCALE BY BEING SEGMENTED INTO SMALLER ELEMENTS.

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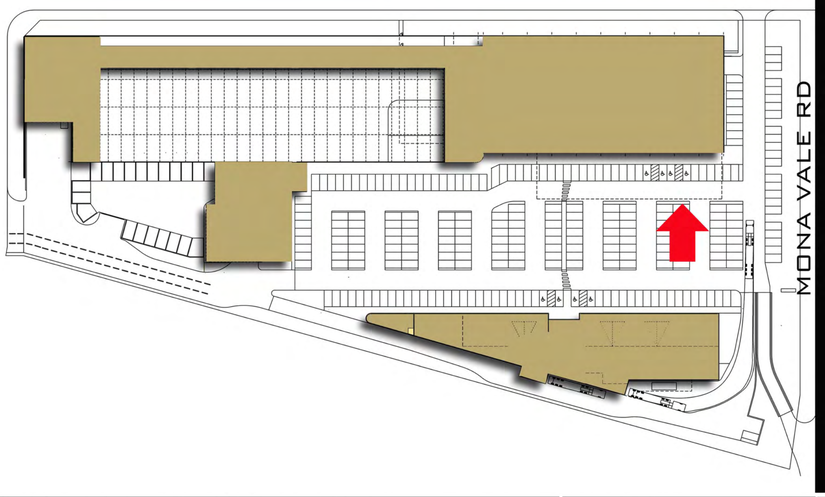
FLOWER POWER TERREY HILLS

VIEW 3

VIEW FROM MAIN CARPARK TO THE NORTH, SHOWING THE MAIN ENTRY OF THE FLOWER POWER STRUCTURE, MANSARDS ARE INCLUDED FOR LIGHT AND VENTILATION AND ALSO TO MODULATE THE LARGE EXPANSE OF METAL ROOF DECKING.
MATERIALS INCLUDE FACE BRICK, PRE-FINISHED FIBRE CEMENT, TIMBER PANELLING, MATT FINISH METAL DECK ROOFING ETC.



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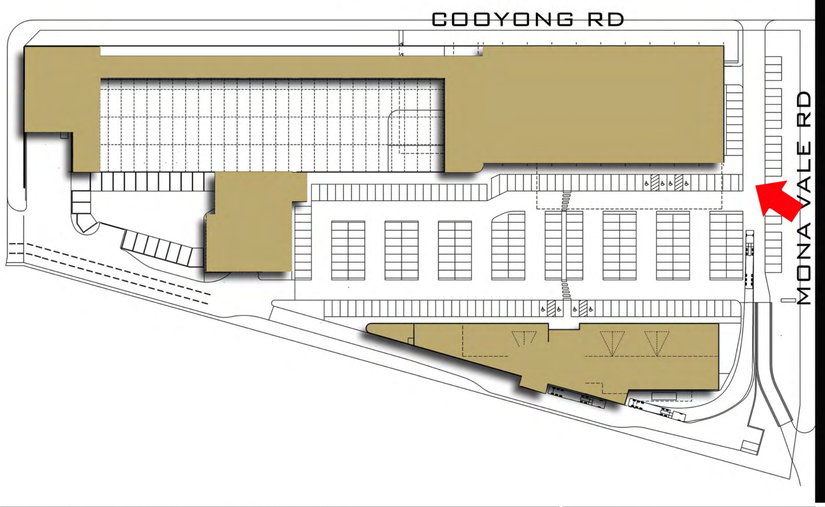
FLOWER POWER TERREY HILLS

VIEW 4

VIEW FROM MONA VALE ROAD SIDE LOOKING AT THE MAIN FLOWER POWER ENTRY STATEMENT. TO THE RIGHT IS THE BASEMENT CAR PARK.
ACCESS TO THE MAIN SHOPPING ZONE IS VIA TRAVELATORS AND LIFT.

THE LOFT ROOF MANSARDS WILL PROVIDE NATURAL LIGHT AND VENTILATION FOR THE MAIN STRUCTURES.



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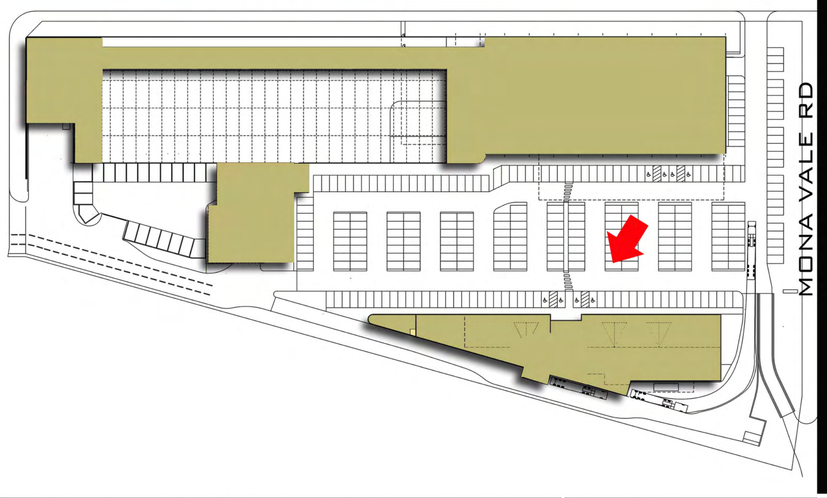
FLOWER POWER TERREY HILLS

VIEW 5

VIEW FROM CARPARK TO THE SOUTH LOOKING AT THE SECONDARY BUILDING WHICH INCLUDES A MAJOR FARMERS' MARKET FOOD STORE AND PET STORE.

A SLIGHTLY DIFFERENT TREATMENT IS PROPOSED FOR THE ENTRIES. THE MANSARDS PROVIDE NATURAL LIGHT AND VENTILATION.



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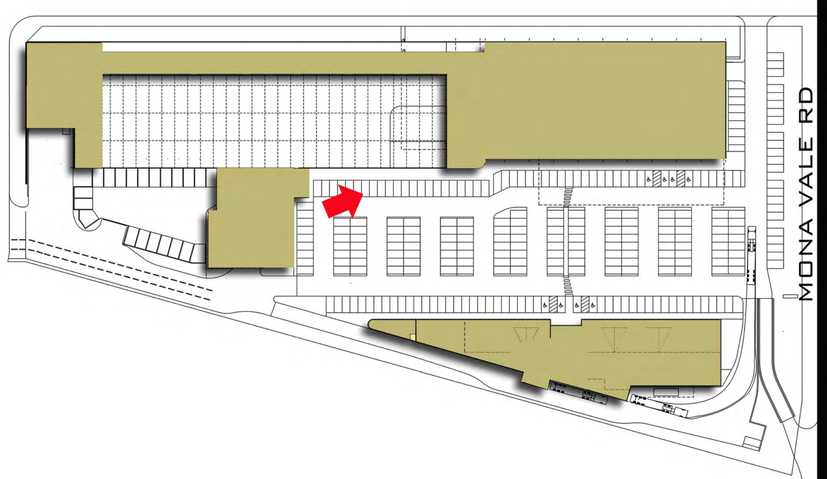
FLOWER POWER TERREY HILLS

VIEW 6

VIEW FROM CARPARK LOOKING AT THE MAIN FACADE WALLS OF FLOWER POWER. THE ROVERO HIGH TECH ROOF OVER THE OPEN NURSERY PROVIDES WATERING AND MODULATES THE SUN EFFECT ACCORDING TO THE SEASONS.



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FLOWER POWER TERREY HILLS
277 MONA VALE ROAD, TERREY HILLS NSW 2084

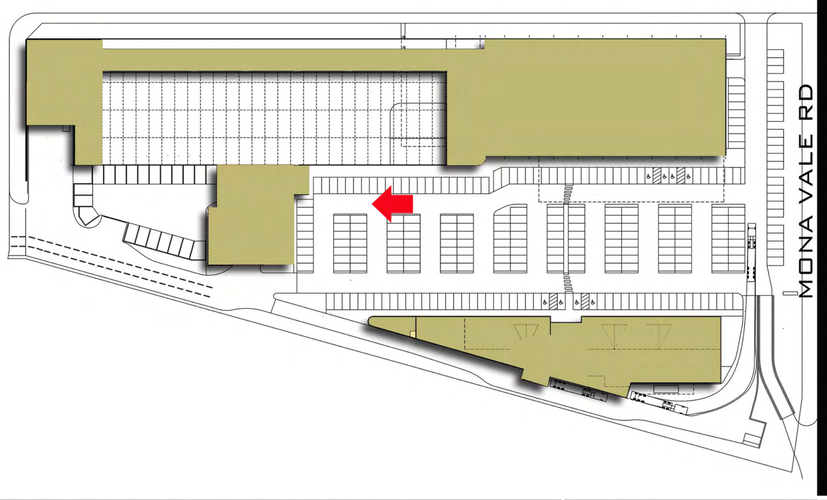
JOB NO: 4932
DATE: JUL 21
DRAWN: GMR
DWG NO. SK10
REV. B

LEFFLER SIMES ARCHITECTS

FLOWER POWER TERREY HILLS

VIEW 7

VIEW FROM CARPARK TO THE WEST SHOWING THE END VISTA BUILDING WHICH CONTAINS THE LANDSCAPE SHOP. ROVERO OPEN NURSERY TO THE RIGHT



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MELBOURNE LEVEL 2 - 370 LT BOURKE ST, VIC 3000 T:+61 3 96546344
BRISBANE 2 - 290 BOUNDARY ST, SPRING HILL, QLD 4004 T:+61 7 31235544

FLOWER POWER TERREY HILLS
277 MONA VALE ROAD, TERREY HILLS NSW 2084

JOB NO: 4932
DATE: JUL 21
DRAWN: GMR
DWG NO. SK11
REV. B

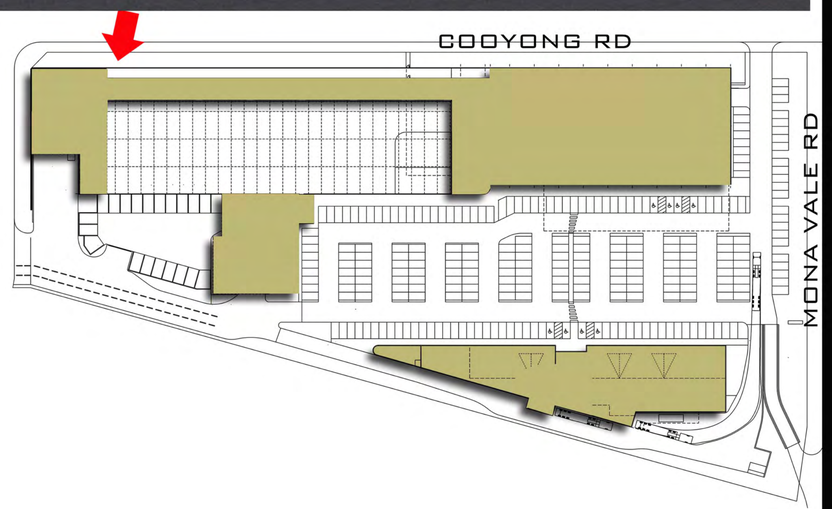
LEFFLER SIMES ARCHITECTS

FLOWER POWER TERREY HILLS

VIEW 8

VIEW FROM COOYONG ST SHOWING THE REAR OF THE LOADING DOCK. A STONE WALL OF 2.4m MAXIMUM HEIGHT DOWN TO 1.8m AT THE CORNER. THE LOADING DOCK IS FULLY ACOUSTICALLY TREATED WITH DENSE MASONRY WALLS

THE STREET IS HEAVILLY LANDSCAPED AND HAS NO ACTIVE FRONTAGES. A DESIGNER TIMBER PALING FENCE IS ON THE REMAINDER OF THE FACADE.



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FLOWER POWER TERREY HILLS
277 MONA VALE ROAD, TERREY HILLS NSW 2084

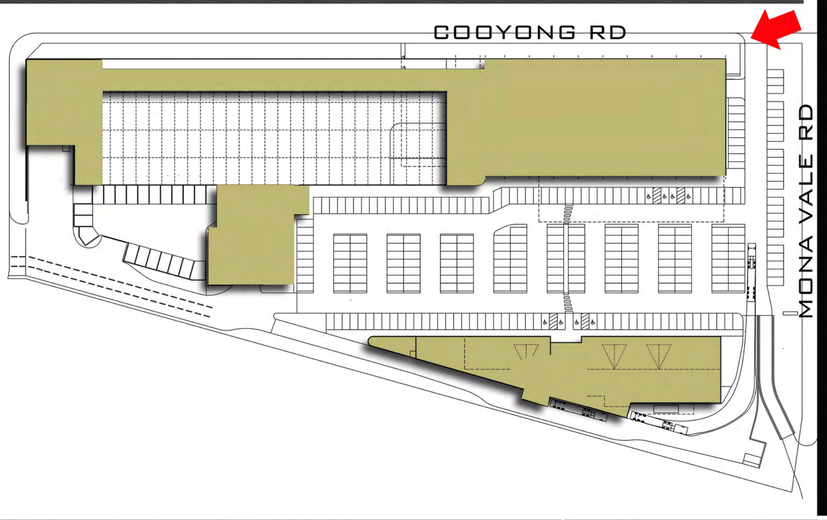
JOB NO: 4932
DATE: JUL 21
DRAWN: GMR
DWG NO. SK12
REV. B

LEFFLER SIMES ARCHITECTS

FLOWER POWER TERREY HILLS

VIEW 9

VIEW FROM COOYONG ROAD TO THE WEST SHOWING A HIGHLY LANDSCAPED SETBACK OF 8 METRES (INCLUDING STREET FOOTPATH) NOTE THAT THERE IS NO ACTIVITY OR OUTLOOK FROM THE CENTRE ONTO COOYONG RD.



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BRISBANE 2 - 290 BOUNDARY ST, SPRING HILL, QLD 4004 T:+61 7 31235544

FLOWER POWER TERREY HILLS
277 MONA VALE ROAD, TERREY HILLS NSW 2084

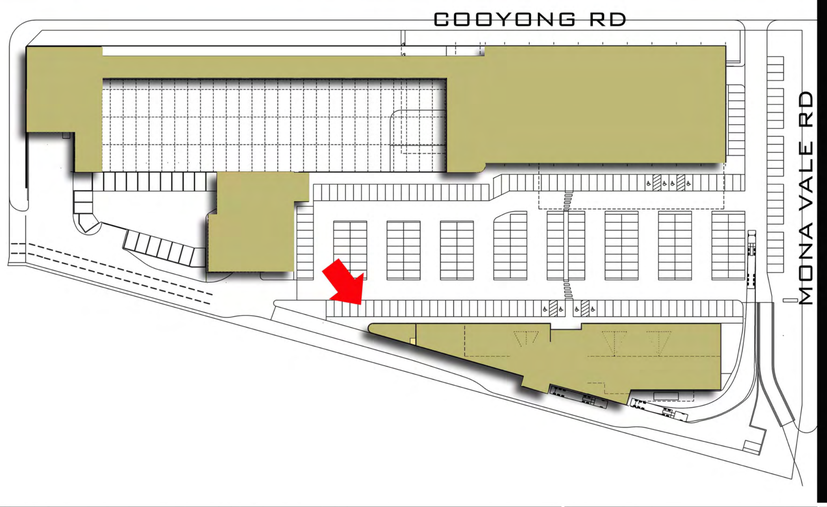
JOB NO: 4932
DATE: JUL 21
DRAWN: GMR
DWG NO. SK13
REV.

LEFFLER SIMES ARCHITECTS

FLOWER POWER TERREY HILLS

VIEW 10

VIEW FROM CARPARK TO THE CIRCULAR CONCLUSION OF THE SECONDARY BUILDING. A SMALL TENANCY IS ENVISAGED. REFER TO PLANS.



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MELBOURNE LEVEL 2 - 370 LT BOURKE ST, VIC 3000 T:+61 3 96546344
BRISBANE 2 - 290 BOUNDARY ST, SPRING HILL, QLD 4004 T:+61 7 31235544

FLOWER POWER TERREY HILLS
277 MONA VALE ROAD, TERREY HILLS NSW 2084

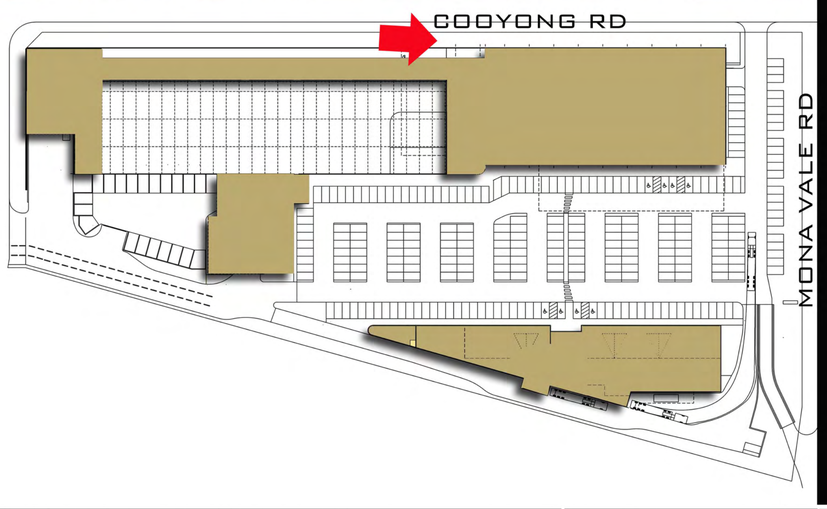
JOB NO: 4932
DATE: JUL 21
DRAWN: GMR
DWG NO. SK14
REV. B

LEFFLER SIMES ARCHITECTS

FLOWER POWER TERREY HILLS

VIEW 11

VIEW ON COOYONG ROAD LOOKING EAST. EXISTING SCRUB LANDSCAPING HAS BEEN RETAINED TO SHOW THE EXTENT OF THE BUILDING THAT WILL BE VISIBLE. THE PROPOSED NEW LANDSCAPING WILL BE AT LEAST AS DENSE AND HIGH AS EXISTING SHOWING A LOW IMPACT ONTO RESIDENTS OF COOYONG RD.



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FLOWER POWER TERREY HILLS
277 MONA VALE ROAD, TERREY HILLS NSW 2084

JOB NO: 4932
DATE: JUL 21
DRAWN: GMR
DWG NO. SK15
REV.

LEFFLER SIMES ARCHITECTS

Lotsearch Environmental Risk and Planning Report

LOTSEARCH

LOTSEARCH ENVIRO PROFESSIONAL

Date: 10 Aug 2021 15:21:43

Reference: LS023041 EP

Address: 62 Myoora Road, Terrey Hills, NSW 2084

Disclaimer:
The purpose of this report is to provide an overview of some of the site history, environmental risk and planning information available, affecting an individual address or geographical area in which the property is located. It is not a substitute for an on-site inspection or review of other available reports and records. It is not intended to be, and should not be taken to be, a rating or assessment of the desirability or market value of the property or its features.
You should obtain independent advice before you make any decision based on the information within the report.
The detailed terms applicable to use of this report are set out at the end of this report.

Dataset Listing

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

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features On-site	No. Features within 100m	No. Features within Buffer
Cadastre Boundaries	NSW Department of Finance, Services & Innovation	30/06/2021	30/06/2021	Quarterly	-	-	-	-
Topographic Data	NSW Department of Finance, Services & Innovation	25/06/2019	25/06/2019	As required	-	-	-	-
List of NSW contaminated sites notified to EPA	Environment Protection Authority	12/07/2021	08/07/2021	Monthly	1000m	0	0	0
Contaminated Land Records of Notice	Environment Protection Authority	06/08/2021	06/08/2021	Monthly	1000m	0	0	0
Former Gasworks	Environment Protection Authority	11/05/2021	11/10/2017	Quarterly	1000m	0	0	0
National Waste Management Facilities Database	Geoscience Australia	12/05/2021	07/03/2017	Annually	1000m	0	1	1
National Liquid Fuel Facilities	Geoscience Australia	15/02/2021	13/07/2012	Annually	1000m	0	0	0
EPA PFAS Investigation Program	Environment Protection Authority	22/07/2021	28/04/2021	Monthly	2000m	0	0	0
Defence PFAS Investigation & Management Program - Investigation Sites	Department of Defence	02/08/2021	02/08/2021	Monthly	2000m	0	0	0
Defence PFAS Investigation & Management Program - Management Sites	Department of Defence	02/08/2021	02/08/2021	Monthly	2000m	0	0	0
Airservices Australia National PFAS Management Program	Airservices Australia	05/08/2021	05/08/2021	Monthly	2000m	0	0	0
Defence 3 Year Regional Contamination Investigation Program	Department of Defence	11/05/2021	11/05/2021	Quarterly	2000m	0	0	0
EPA Other Sites with Contamination Issues	Environment Protection Authority	02/02/2021	13/12/2018	Annually	1000m	0	0	0
Licensed Activities under the POEO Act 1997	Environment Protection Authority	16/07/2021	16/07/2021	Monthly	1000m	0	5	5
Delicensed POEO Activities still regulated by the EPA	Environment Protection Authority	16/07/2021	16/07/2021	Monthly	1000m	0	0	0
Former POEO Licensed Activities now revoked or surrendered	Environment Protection Authority	16/07/2021	16/07/2021	Monthly	1000m	0	2	5
UBD Business Directories (Premise & Intersection Matches)	Hardie Grant			Not required	150m	7	7	11
UBD Business Directories (Road & Area Matches)	Hardie Grant			Not required	150m	-	71	71
UBD Business Directory Dry Cleaners & Motor Garages/Service Stations (Premise & Intersection Matches)	Hardie Grant			Not required	500m	0	0	5
UBD Business Directory Dry Cleaners & Motor Garages/Service Stations (Road & Area Matches)	Hardie Grant			Not required	500m	-	7	10
Points of Interest	NSW Department of Finance, Services & Innovation	14/05/2021	14/05/2021	Quarterly	1000m	0	1	30
Tanks (Areas)	NSW Department of Customer Service - Spatial Services	14/05/2021	14/05/2021	Quarterly	1000m	0	0	1
Tanks (Points)	NSW Department of Customer Service - Spatial Services	14/05/2021	14/05/2021	Quarterly	1000m	0	0	2
Major Easements	NSW Department of Finance, Services & Innovation	14/05/2021	14/05/2021	Quarterly	1000m	0	0	2
State Forest	Forestry Corporation of NSW	25/02/2021	14/02/2021	Annually	1000m	0	0	0
NSW National Parks and Wildlife Service Reserves	NSW Office of Environment & Heritage	22/01/2021	11/12/2020	Annually	1000m	0	0	2
Hydrogeology Map of Australia	Commonwealth of Australia (Geoscience Australia)	08/10/2014	17/03/2000	As required	1000m	1	1	1
Temporary Water Restriction (Botany Sands Groundwater Source) Order 2018	NSW Department of Planning, Industry and Environment	26/10/2020	21/02/2018	Annually	1000m	0	0	0
Groundwater Boreholes	NSW Dept. of Primary Industries - Water NSW; Commonwealth of Australia (Bureau of Meteorology)	24/07/2018	23/07/2018	Annually	2000m	0	0	36

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features On-site	No. Features within 100m	No. Features within Buffer
Geological Units 1:100,000	NSW Department of Planning, Industry and Environment	20/08/2014		Annually	1000m	1	1	2
Geological Structures 1:100,000	NSW Department of Planning, Industry and Environment	20/08/2014		Annually	1000m	0	0	0
Naturally Occurring Asbestos Potential	NSW Dept. of Industry, Resources & Energy	04/12/2015	24/09/2015	Unknown	1000m	0	0	0
Atlas of Australian Soils	Australian Bureau of Agriculture and Resource Economics and Sciences (ABARES)	19/05/2017	17/02/2011	As required	1000m	1	1	1
Soil Landscapes of Central and Eastern NSW	NSW Department of Planning, Industry and Environment	14/10/2020	27/07/2020	Annually	1000m	1	3	6
Environmental Planning Instrument Acid Sulfate Soils	NSW Department of Planning, Industry and Environment	16/07/2021	28/06/2021	Monthly	500m	0	-	-
Atlas of Australian Acid Sulfate Soils	CSIRO	19/01/2017	21/02/2013	As required	1000m	1	1	1
Dryland Salinity - National Assessment	National Land and Water Resources Audit	18/07/2014	12/05/2013	None planned	1000m	0	0	0
Mining Subsidence Districts	NSW Department of Customer Service - Subsidence Advisory NSW	14/05/2021	28/04/2021	Quarterly	1000m	0	0	0
Current Mining Titles	NSW Department of Industry	03/08/2021	03/08/2021	Monthly	1000m	0	0	0
Mining Title Applications	NSW Department of Industry	03/08/2021	03/08/2021	Monthly	1000m	0	0	0
Historic Mining Titles	NSW Department of Industry	03/08/2021	03/08/2021	Monthly	1000m	12	12	12
Environmental Planning Instrument SEPP State Significant Precincts	NSW Department of Planning, Industry and Environment	16/07/2021	07/12/2018	Monthly	1000m	0	0	0
Environmental Planning Instrument Land Zoning	NSW Department of Planning, Industry and Environment	16/07/2021	09/07/2021	Monthly	1000m	1	5	22
Commonwealth Heritage List	Australian Government Department of the Agriculture, Water and the Environment	18/05/2021	20/11/2019	Annually	1000m	0	0	0
National Heritage List	Australian Government Department of the Agriculture, Water and the Environment	18/05/2021	20/11/2019	Annually	1000m	0	0	1
State Heritage Register - Curtilages	NSW Department of Planning, Industry and Environment	14/05/2021	26/03/2021	Quarterly	1000m	0	0	0
Environmental Planning Instrument Local Heritage	NSW Department of Planning, Industry and Environment	16/07/2021	09/07/2021	Monthly	1000m	0	0	0
Bush Fire Prone Land	NSW Rural Fire Service	09/08/2021	08/06/2021	Weekly	1000m	1	3	3
Native Vegetation of the Sydney Metropolitan Area	NSW Office of Environment & Heritage	01/03/2017	16/12/2016	As required	1000m	1	5	56
Ramsar Wetlands of Australia	Australian Government Department of Agriculture, Water and the Environment	24/02/2021	19/03/2020	Annually	1000m	0	0	0
Groundwater Dependent Ecosystems	Bureau of Meteorology	14/08/2017	15/05/2017	Annually	1000m	0	0	0
Inflow Dependent Ecosystems Likelihood	Bureau of Meteorology	14/08/2017	15/05/2017	Unknown	1000m	0	0	0
NSW BioNet Species Sightings	NSW Office of Environment & Heritage	09/08/2021	09/08/2021	Weekly	10000m	-	-	-

Site Diagram

62 Myoora Road, Terrey Hills, NSW 2084

Legend

- Site Boundary
- Internal Parcel Boundaries

Total Area: 28299m²

Total Perimeter: 732m

Disclaimers:

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

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

Scale: 0 25 50 Meters

Data Source Aerial Imagery:
© Aerometrex Pty Ltd

Coordinate System:
GDA 1994 MGA Zone 56

Date: 06 August 2021

Contaminated Land

62 Myoora Road, Terrey Hills, NSW 2084

List of NSW contaminated sites notified to EPA

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

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

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

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

NSW EPA Contaminated Land List Data Source: Environment Protection Authority
© State of New South Wales through the Environment Protection Authority

Contaminated Land

62 Myoora Road, Terrey Hills, NSW 2084

Contaminated Land: Records of Notice

Record of Notices within the dataset buffer:

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

Contaminated Land Records of Notice Data Source: Environment Protection Authority
© State of New South Wales through the Environment Protection Authority
Terms of use and disclaimer for Contaminated Land: Record of Notices, please visit
http://www.epa.nsw.gov.au/clm/clmdisclaimer.htm

Former Gasworks

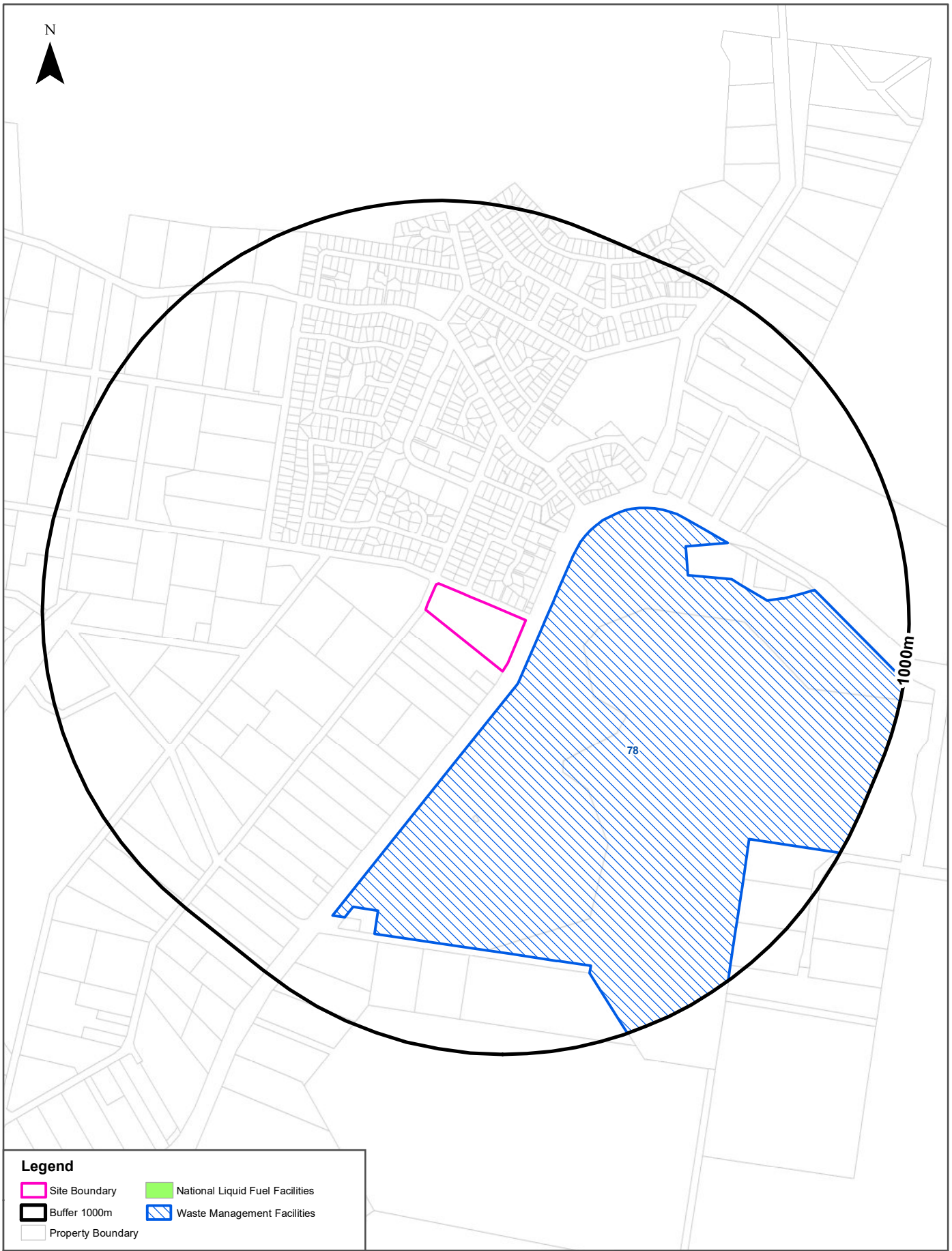
Former Gasworks within the dataset buffer:

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

Former Gasworks Data Source: Environment Protection Authority
© State of New South Wales through the Environment Protection Authority

Waste Management & Liquid Fuel Facilities

62 Myoora Road, Terrey Hills, NSW 2084



Scale: 0 100 200 400 600 Meters

Data Sources: Property Boundaries & Topographic Data: © Department Finance, Services & Innovation 2021

Coordinate System: GDA 1994 MGA Zone 56

Date: 06 August 2021

Waste Management & Liquid Fuel Facilities

62 Myoora Road, Terrey Hills, NSW 2084

National Waste Management Site Database

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

Site Id	Owner	Name	Address	Suburb	Class	Landfill	Reprocess	Transfer	Comments	Loc Conf	Dist	Direction
78	Warringah Council	Kimbriki Resource Recovery Centre	Kimbriki Road	Terrey Hills	Landfill	Operational			Original information on waste management site collected by WMAA in 2008 via survey	Premise Match	45m	South East

Waste Management Facilities Data Source: Geoscience Australia
Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

National Liquid Fuel Facilities

National Liquid Fuel Facilties within the dataset buffer:

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

National Liquid Fuel Facilities Data Source: Geoscience Australia
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PFAS Investigation & Management Programs

62 Myoora Road, Terrey Hills, NSW 2084

EPA PFAS Investigation Program

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

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

EPA PFAS Investigation Program: Environment Protection Authority
© State of New South Wales through the Environment Protection Authority

Defence PFAS Investigation Program

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

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

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

Defence PFAS Management Program

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

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

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

Airservices Australia National PFAS Management Program

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

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

Airservices Australia National PFAS Management Program Data Custodian: Airservices Australia

Defence Sites

62 Myoora Road, Terrey Hills, NSW 2084

Defence 3 Year Regional Contamination Investigation Program

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

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

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

EPA Other Sites with Contamination Issues

62 Myoora Road, Terrey Hills, NSW 2084

EPA Other Sites with Contamination Issues

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

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

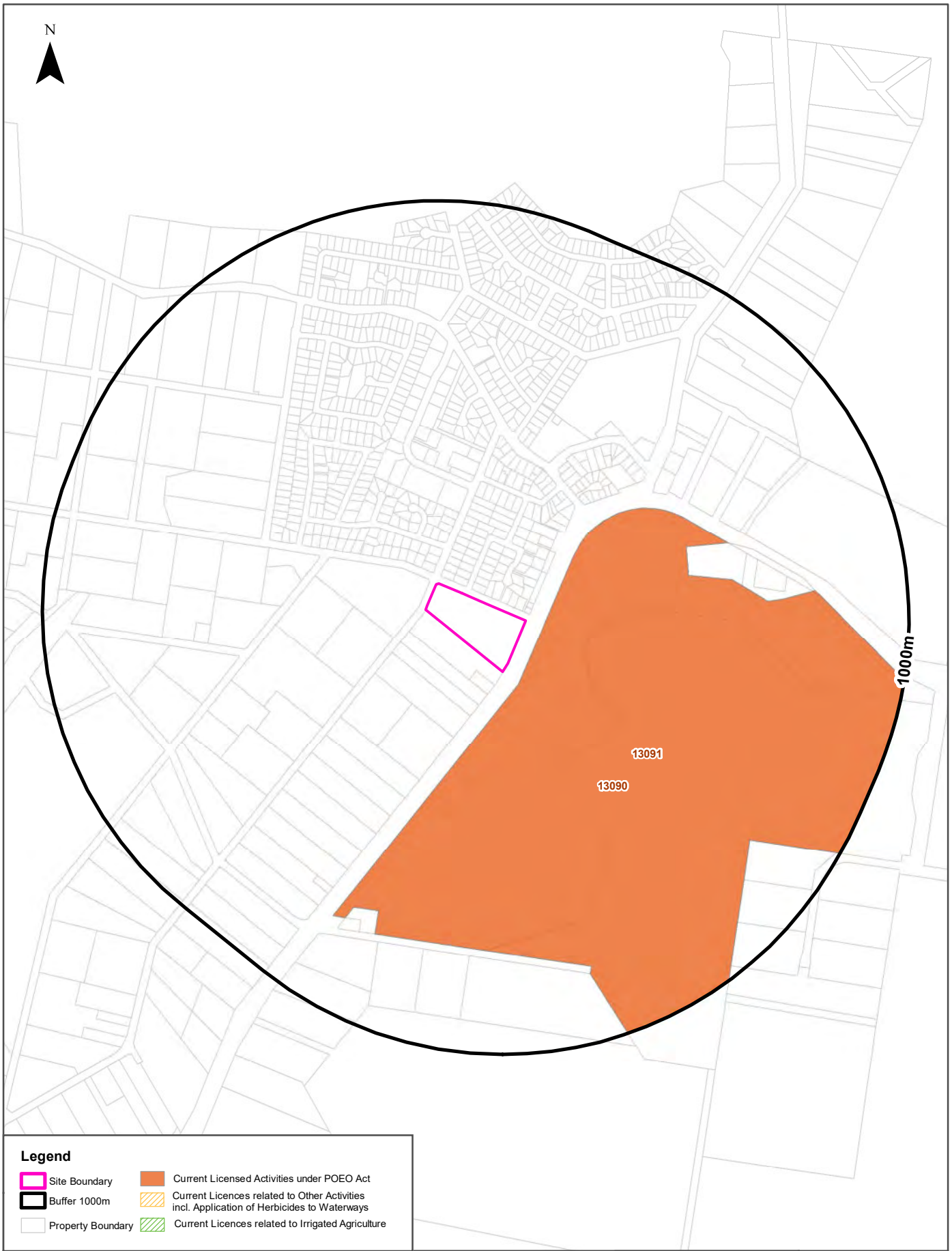
Sites within the dataset buffer:

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

EPA Other Sites with Contamination Issues: Environment Protection Authority
© State of New South Wales through the Environment Protection Authority

Current EPA Licensed Activities

62 Myoora Road, Terrey Hills, NSW 2084



Scale: 0 100 200 400 600 Meters	Data Sources: Property Boundaries & Topographic Data: © Department Finance, Services & Innovation 2021	Coordinate System: GDA 1994 MGA Zone 56	Date: 06 August 2021

EPA Activities

62 Myoora Road, Terrey Hills, NSW 2084

Licensed Activities under the POEO Act 1997

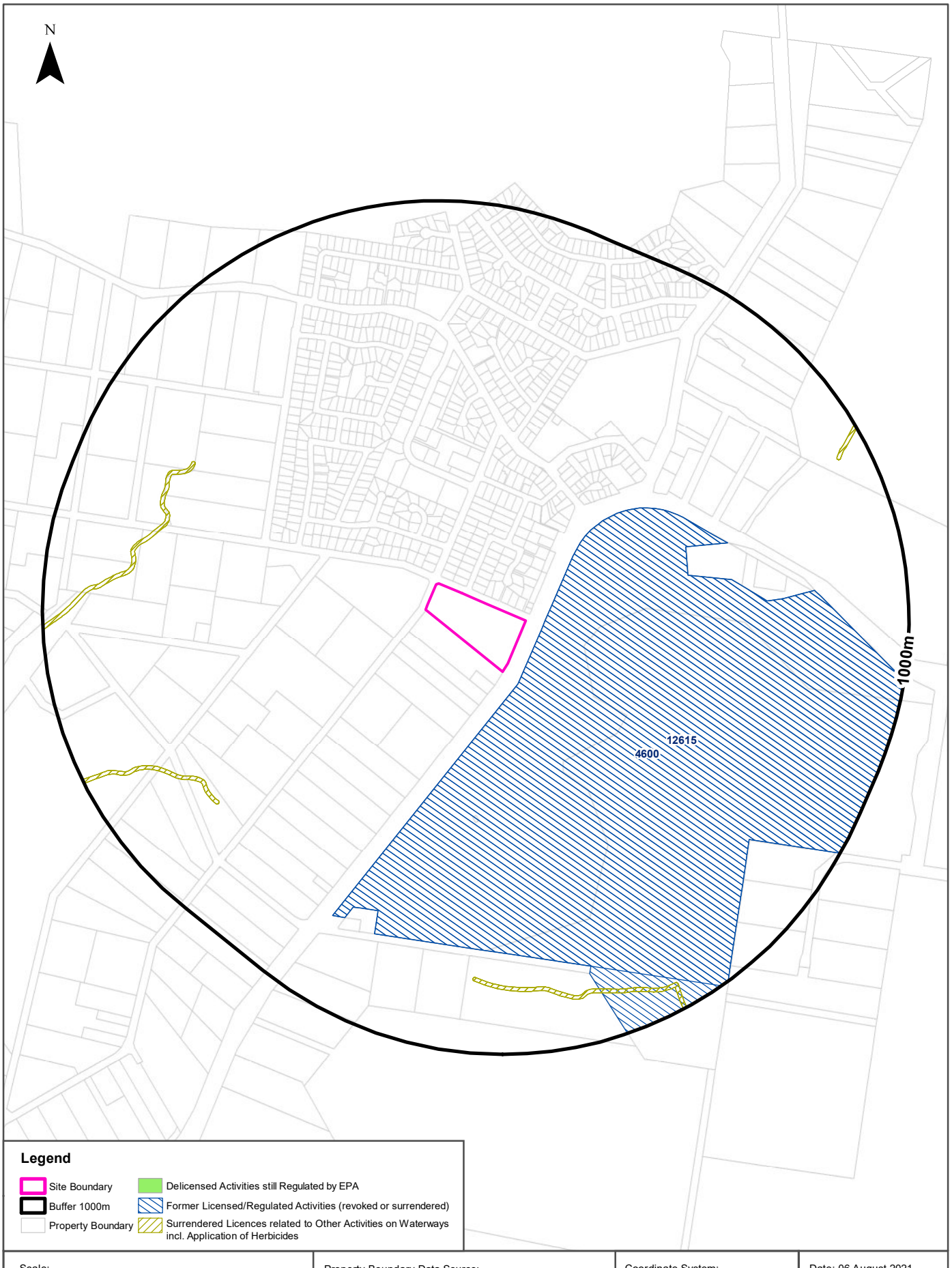
Licensed activities under the Protection of the Environment Operations Act 1997, within the dataset buffer:

EPL	Organisation	Name	Address	Suburb	Activity	Loc Conf	Distance	Direction
13090	KIMBRIKI ENVIRONMENTAL ENTERPRISES PTY LIMITED	Kimbriki Recycling and Waste Disposal Centre	Kimbriki Road	TERREY HILLS	Recovery of general waste	Premise Match	45m	South East
13090	KIMBRIKI ENVIRONMENTAL ENTERPRISES PTY LIMITED	Kimbriki Recycling and Waste Disposal Centre	Kimbriki Road	TERREY HILLS	Waste storage - other types of waste	Premise Match	45m	South East
13090	KIMBRIKI ENVIRONMENTAL ENTERPRISES PTY LIMITED	Kimbriki Recycling and Waste Disposal Centre	Kimbriki Road	TERREY HILLS	Composting	Premise Match	45m	South East
13091	KIMBRIKI ENVIRONMENTAL ENTERPRISES PTY LIMITED	Kimbriki Recycling and Waste Disposal Centre	Kimbriki Road	TERREY HILLS	Land-based extractive activity	Premise Match	45m	South East
13091	KIMBRIKI ENVIRONMENTAL ENTERPRISES PTY LIMITED	Kimbriki Recycling and Waste Disposal Centre	Kimbriki Road	TERREY HILLS	Waste disposal by application to land	Premise Match	45m	South East

POEO Licence Data Source: Environment Protection Authority
© State of New South Wales through the Environment Protection Authority

Delicensed & Former Licensed EPA Activities

62 Myoora Road, Terrey Hills, NSW 2084



Scale: 0 100 200 400 600 Meters

Property Boundary Data Source:
© Department Finance, Services & Innovation 2021

Coordinate System:
GDA 1994 MGA Zone 56

Date: 06 August 2021

EPA Activities

62 Myoora Road, Terrey Hills, NSW 2084

Delicensed Activities still regulated by the EPA

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

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

Delicensed Activities Data Source: Environment Protection Authority
© State of New South Wales through the Environment Protection Authority

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

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

Licence No	Organisation	Location	Status	Issued Date	Activity	Loc Conf	Distance	Direction
4600	WARRINGAH COUNCIL	KIMBRIKI ROAD, TERREY HILLS, NSW 2084	Surrendered	17/01/2001	Waste storage - other types of waste; Land-based extractive activity; Waste disposal by application to land; Non-thermal treatment of general waste	Premise Match	45m	South East
12615	WARRINGAH COUNCIL	Kimbriki Road, TERREY HILLS, NSW 2084	Surrendered	17/01/2007	Composting	Premise Match	45m	South East
4653	LUHRMANN ENVIRONMENT MANAGEMENT PTY LTD	WATERWAYS THROUGHOUT NSW	Surrendered	06/09/2000	Other Activities / Non Scheduled Activity - Application of Herbicides	Network of Features	703m	South West
4838	Robert Orchard	Various Waterways throughout New South Wales - SYDNEY NSW 2000	Surrendered	07/09/2000	Other Activities / Non Scheduled Activity - Application of Herbicides	Network of Features	703m	South West
6630	SYDNEY WEED & PEST MANAGEMENT PTY LTD	WATERWAYS THROUGHOUT NSW - PROSPECT, NSW, 2148	Surrendered	09/11/2000	Other Activities / Non Scheduled Activity - Application of Herbicides	Network of Features	703m	South West

Former Licensed Activities Data Source: Environment Protection Authority
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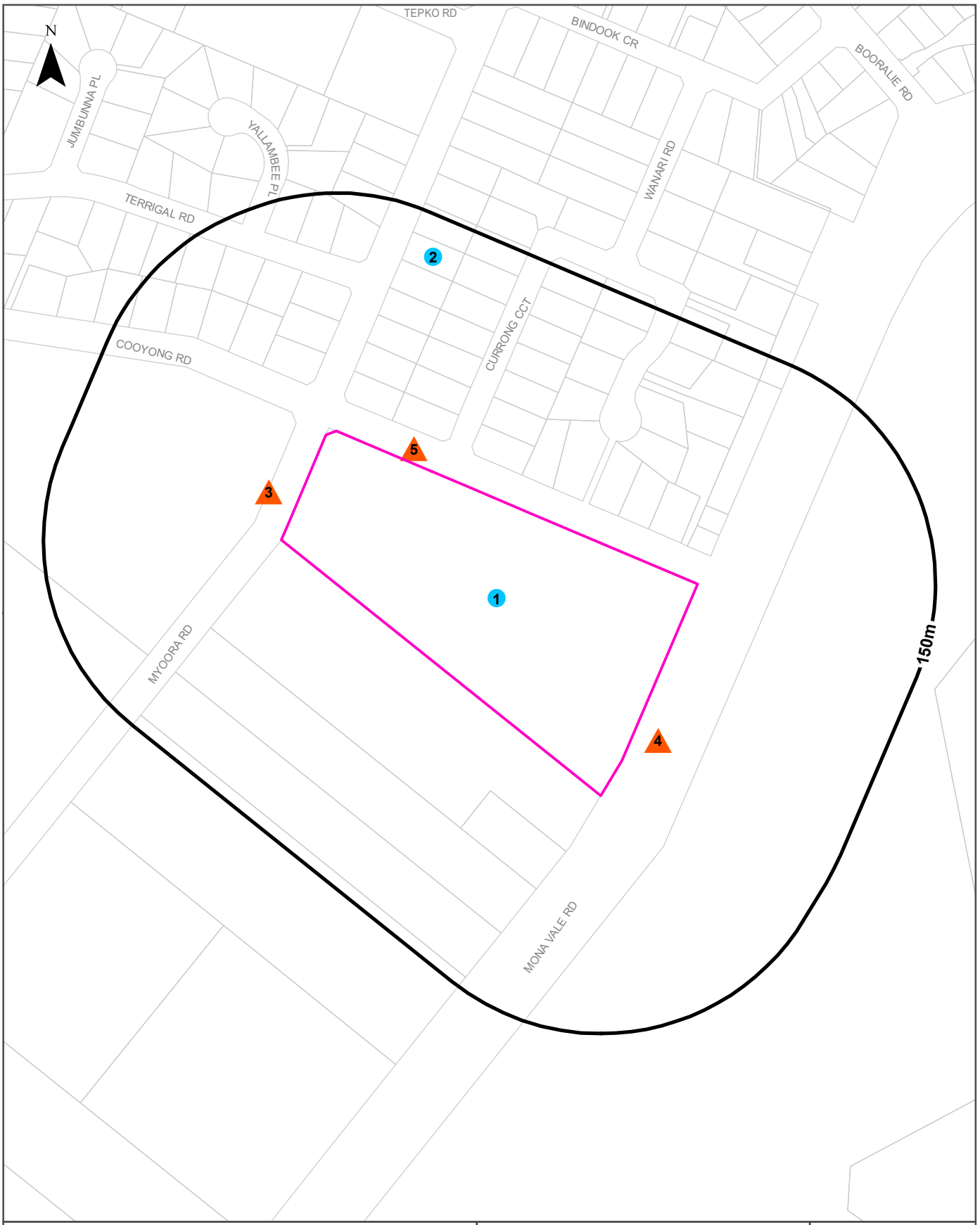
Historical Business Directories

62 Myoora Road, Terrey Hills, NSW 2084



Legend

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

Scale: 0 40 80 120 160 Meters

Coordinate System: GDA 1994 MGA Zone 56

Date: 10 August 2021

Data Sources: Reproduced with permission of UBD and Hardie Grant Media Pty Ltd DD 01/08/2018
Property Boundaries © NSW Department Finance, Services & Innovation 2021

Historical Business Directories

62 Myoora Road, Terrey Hills, NSW 2084

Business Directory Records 1950-1991
Premise or Road Intersection Matches

Universal Business Directory records from years 1991, 1986, 1982, 1978, 1975, 1970, 1965, 1961 & 1950, mapped to a premise or road intersection within the dataset buffer:

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
1	GARDENERS SUPPLIES - RETAIL(G0750)	Warringah Nursery & Garden Centre Pty. Ltd., Cooyong & Mona Vale Rd., Terrey Hills. 2084.	35800	1982	Premise Match	0m	On-site
	NURSERYMEN (N1700)	Warringah Nursery & Garden Centre Pty. Ltd., Cooyong & Mona Vale Rd., Terrey Hills. 2084.	61248	1982	Premise Match	0m	On-site
	NURSERYMEN.	Warringah Nursery & Garden Centre Pty Ltd, Cooyong & Mona Vale Rd, Terrey Hills 2087	54498	1978	Premise Match	0m	On-site
	GARDENERS SUPPLIES-RETAIL.	Warringah Nursery & Garden Centre Pty. Ltd., Cooyong & Mona Vale Rd., Terrey Hills. 2084	32440	1978	Premise Match	0m	On-site
	HONEY MERCHANTS (H510)	Van Mens, M., Mona Vale & Cooyong Rds., Terrey Hills	316677	1970	Premise Match	0m	On-site
	Honey Merchants	Van Mens, M., Mona Vale & Cooyong Rds., Terrey Hills	100651	1965	Premise Match	0m	On-site
	NURSERYMEN	Van Mens, M., Mona Vale & Cooyong Rds., Terrey Hills	354230	1961	Premise Match	0m	On-site
2	Engineers Electronic	Toptech Engineering, 74 Myoora Rd Terrey Hills 2084	43671	1991	Premise Match	115m	North
	ENGINEERS – ELECTRONIC.	Toptech Engineering, 74 Myoora Rd., Terrey Hills. 2084	29307	1986	Premise Match	115m	North
	ENGINEERS - ELECTRONIC. (E6810)	Toptech Engineering, 74 Myoora Rd., Terrey Hills. 2084.	27444	1982	Premise Match	115m	North
	ENGINEERS-ELECTRONIC.	Toptech Engineering, 74 Myoora Rd., Terrey Hills. 2084	24502	1978	Premise Match	115m	North

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Business Directory Records 1950-1991
Road or Area Matches

Universal Business Directory records from years 1991, 1986, 1982, 1978, 1975, 1970, 1965, 1961 & 1950, mapped to a road or an area, within the dataset buffer. Records are mapped to the road when a building number is not supplied, cannot be found, or the road has been renumbered since the directory was published:

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area
3	Landscapers	Australian Native Landscapes, 77 Myoora Rd., Terrey Hills. 2084	50555	1991	Road Match	0m
	LANDSCAPERS.	Australian Native Landscapes, 77 Myoora Rd., Terrey Hills. 2084	50973	1986	Road Match	0m
	LANDSCAPE GARDENERS. (L1350)	Australian Native Landscapes, 77 Myoora Rd., Terrey Hills. 2084.	44636	1982	Road Match	0m
	LANDSCAPE GARDENERS.	Australian Native Landscapes, 77 Myoora Rd., Terrey Hills. 2084	39662	1978	Road Match	0m
	HARDWARE DEALERS &/OR IRONMONGERS	Barrie, B. J., Myoora Rd., Terrey Hills	60852	1950	Road Match	0m
	MIXED BUSINESSES & GENERAL STORES	Barrie, B. J., Myoora Rd., Terrey Hills	79328	1950	Road Match	0m
	POULTRY FARMERS	Mead, A. O. W., Myoora Rd., Terrey Hills	94176	1950	Road Match	0m
4	RESTAURANTS.	Excalibur, The, Mona Vale Rd., Terrey Hills. 2084	81564	1986	Road Match	0m
	FLORISTS-RETAIL.	Hills Bros., Mona Vale Rd., Terrey Hills. 2084	33773	1986	Road Match	0m
	FLORISTS-WHOLESALE.	Hills Bros., Mona Vale Rd., Terrey Hills. 2084	33974	1986	Road Match	0m
	FRUITERERS &/OR GREENGROCERS.	Rodi, R., Mona Vale Rd., Terrey Hills. 2084	36303	1986	Road Match	0m
	NURSERYMEN.	Tallangatta Nursery, Mona Vale Rd., Terrey Hills. 2084	70095	1986	Road Match	0m
	MOTELS.	Terrey Hills Motel & Caravan Park, Mona Vale Rd., Terrey Hills. 2084	60656	1986	Road Match	0m
	RESTAURANTS. (R5180)	French Revolution, The, Mona Vale & West Head Rds., Terrey Hills. 2084.	70870	1982	Road Match	0m
	FLORISTS - WHOLESALE. (F4175)	Hills Bros., Mona Vale Rd., Terrey Hills. 2084.	31664	1982	Road Match	0m
	FRUITERERS &/OR GREENGROCERS. (F6775)	Rodi, R., Mona Vale Rd., Terrey Hills. 2084.	33889	1982	Road Match	0m
	NURSERYMEN (N1700)	Tallangatta Nursery, Mona Vale Rd., Terrey Hills. 2084.	61239	1982	Road Match	0m
	MOTELS. (M4620)	Terrey Hills Motel & Caravan Park, Mona Vale Rd., Terrey Hills. 2084.	53681	1982	Road Match	0m
	FLORISTS-W/SALE.	Hills Bros., Mona Vale Rd., Terrey Hills. 2084	28648	1978	Road Match	0m
	FRUITERERS &/OR GREENGROCERS.	Rod. R., Mona Vale Rd., Terrey Hills. 2084	30780	1978	Road Match	0m
	NURSERYMEN.	Tallangatta Nursery, Mona Vale Rd, Terrey Hills 2084	54488	1978	Road Match	0m
	MOTELS.	Terrey Hills Motel & Caravan Park, Mona Vale Rd., Terrey Hills. 2084	47261	1978	Road Match	0m
	NURSERYMEN.	Warringah Garden Centre Pty Ltd, Mona Vale Rd, Terrey Hills 2087	54497	1978	Road Match	0m
	GARDENERS SUPPLIES-RETAIL.	Warringah Garden Centre Pty. Ltd., Mona Vale Rd., Terrey Hills. 2084	32437	1978	Road Match	0m
	RESTAURANTS.	French Revolution. The., Mona Vale Rd., Terrey Hills. 2084	73735	1975	Road Match	0m
	FLORISTS-RETAIL	Hills Bros., Mona Vale Rd., Terrey Hills. 2084	33063	1975	Road Match	0m
	FLORISTS-W/SALE	Hills Bros., Mona Vale Rd., Terrey Hills. 2084	33171	1975	Road Match	0m
	NURSERYMEN	Hills Bros., Mona Vale Rd., Terrey Hills. 2084	64235	1975	Road Match	0m

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area
4	FRUITERERS &/OR GREENGROCERS.	Pioneer Stall, The., Mona Vale Rd., Terrey Hills. 2084.	35692	1975	Road Match	0m
	FRUITERERS &/OR GREENGROCERS.	Polfrone Fruit Shop., Mona Vale Rd., Terrey Hills. 2084.	35703	1975	Road Match	0m
	NURSERYMEN	Tallangatta Fuchsia Nursery., Mona Vale Rd., Terrey Hills. 2084	64303	1975	Road Match	0m
	MOTELS	Terrey Hills Motel & Caravan Park., Mona Vale Rd., Terrey Hills. 2084	56046	1975	Road Match	0m
	MOTOR SERVICE STATIONS - PETROL, OIL	Terrey Hills Service Centre Pty. Ltd., Mona Vale Rd., Terrey Hills. 2084	61982	1975	Road Match	0m
	FRUITERERS &/OR GREENGROCERS.	Terrey Hills Wayside Farm Produce Stall., Mona Vale Rd., Terrey Hills. 2084.	35894	1975	Road Match	0m
	GARDENERS SUPPLIES-RETAIL	Warringah Nursery & Garden Centre., Mona Vale Rd., Terrey Hills. 2087	37694	1975	Road Match	0m
	NURSERYMEN	Warringah Nursery & Garden Centre., Mona Vale Rd., Terrey Hills. 2087	64312	1975	Road Match	0m
	REAL ESTATE AGENTS/VALUERS(R205)	Hill & Vale Real Estate, Mona Vale Rd., TERREY HILLS	355480	1970	Road Match	0m
	FLORISTS-WHOLESALE (F345)	Hills Bros., Mona Vale Rd., Terrey Hills	304512	1970	Road Match	0m
	NURSERYMEN (N190)	Hills, M. S., Mona Vale Rd., Terrey Hills	344497	1970	Road Match	0m
	FRUITERERS/GREENGROCERS (F640)	Pioneer Stall (The)., Mona Vale Rd. (at Pymble Rd.)., Terrey Hills	307749	1970	Road Match	0m
	MIXED BUSINESSES (M408)	Terrey Hills General Store., Mona Vale Rd. (at Church PointRd.)., Terrey Hills	333978	1970	Road Match	0m
	MOTELS (M442)	Terrey Hills Motel & Caravan Park., Mona Vale Rd., Terrey Hills	334466	1970	Road Match	0m
	FRUITERERS/GREENGROCERS (F640)	Terrey Hills Wayside Farm Produce Stall., Between Aumuna & Corryong Rds. (on Mona Vale Rd.)., Terrey Hills	308027	1970	Road Match	0m
	RESTAURANTS (R320)	Zachary's Restaurant, Mona Vale Rd., Terrey Hills	357331	1970	Road Match	0m
	Real Estate Agents/Valuers	Hill & Vale Real Estate., Mona Vale Rd. Terrey Hills	139716	1965	Road Match	0m
	FLORISTS - Wholesale	Hills Bros., Mona Vale Rd., Terrey Hills	87891	1965	Road Match	0m
	Confectioners - Retail	Hills, M. S., Mona Vale Rd., Terrey Hills	70132	1965	Road Match	0m
	Fruiterers & Greengrocers	Hills, M. S., Mona Vale Rd., Terrey Hills	91427	1965	Road Match	0m
	Grocers - Retail	Hills, M. S., Mona Vale Rd., Terrey Hills	96635	1965	Road Match	0m
	Nurserymen	Hills, M. S., Mona Vale Rd., Terrey Hills	129114	1965	Road Match	0m
	Fruiterers & Greengrocers	Pioneer Stall (The), Mona Vale Rd. (at Pymble Rd.) Terrey Hills	91936	1965	Road Match	0m
	Camping Grounds & Caravan Parks	Terrey Hills Caravan Park., Mona Vale Rd., Terrey Hills	61779	1965	Road Match	0m
	Mixed Businesses	Terrey Hills General Store, Mona Vale Rd. (at Church Point Rd.), Terry Hills	118808	1965	Road Match	0m
	Motels	Terrey Hills Motel & Caravan Park, Mona Vale Rd., Terrey Hills	119271	1965	Road Match	0m
	Camping Grounds & Caravan Parks	Terrey Hills Motel & Caravan Park., Mona Vale Rd., Terrey Hills	61780	1965	Road Match	0m
	Fruiterers & Greengrocers	Terrey Hills Wayside Farm Produce Stall, Between Aumuna & Corryong Rds. (on Mona Vale Rd.) Terrey Hills	92212	1965	Road Match	0m
	Restaurants	Zachary's Restaurant., Mona Vale Rd., Terrey Hills	140661	1965	Road Match	0m
	FRUITERERS/GREENGROCERS	Brereton, J. (The Aussie), Mona Vale Rd. (at Pymble Rd.), Terrey Hills	315081	1961	Road Match	0m
	FLORISTS-RETAIL	Hills Bros., Mona Vale Rd., Terrey Hills	311903	1961	Road Match	0m
	FLORISTS-WHOLESALE	Hills Bros., Mona Vale Rd., Terrey Hills	312116	1961	Road Match	0m
	NURSERYMEN	Hills, M. S., Mona Vale Rd., Terrey Hills	354099	1961	Road Match	0m
	CONFECTIONERS-RETAIL	Hills, M. S., Mona Vale Rd., Terry Hills	292721	1961	Road Match	0m

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area
4	FRUITERERS/GREENGROCERS	Hills, M. S., Mona Vale Rd., Terry Hills	315525	1961	Road Match	0m
	GROCERS-RETAIL	Hills, M. S., Mona Vale Rd., Terry Hills	320630	1961	Road Match	0m
	CAFES, TEA ROOMS, COFFEE LOUNGES, Etc.	La Rancho, Mona Vale Rd., Terry Hills	282287	1961	Road Match	0m
	FRUITERERS/GREENGROCERS	Pioneer Stall (The), Mona Vale Rd. (at Pymble Rd.), Terrey Hills	315995	1961	Road Match	0m
	MIXED BUSINESS	Terrey Hills General Store, Mona Vale Rd. (at Church Point Rd.), Terry Hills	342547	1961	Road Match	0m
5	GARDENERS SUPPLIES-RETAIL.	Warringah Nursery & Garden Centre Pty. Ltd., Cooyong Rd., Terrey Hills. 2084	38424	1986	Road Match	0m
	NURSERYMEN.	Warringah Nursery & Garden Centre Pty. Ltd., Cooyong Rd., Terrey Hills. 2084	70106	1986	Road Match	0m
	GARDENERS SUPPLIES-RETAIL	Warringah Nursery & Garden Centre., Cooyong Rd., Terrey Hills. 2084	37695	1975	Road Match	0m
	NURSERYMEN	Warringah Nursery & Garden Centre., Cooyong Rd., Terrey Hills. 2084	64313	1975	Road Match	0m

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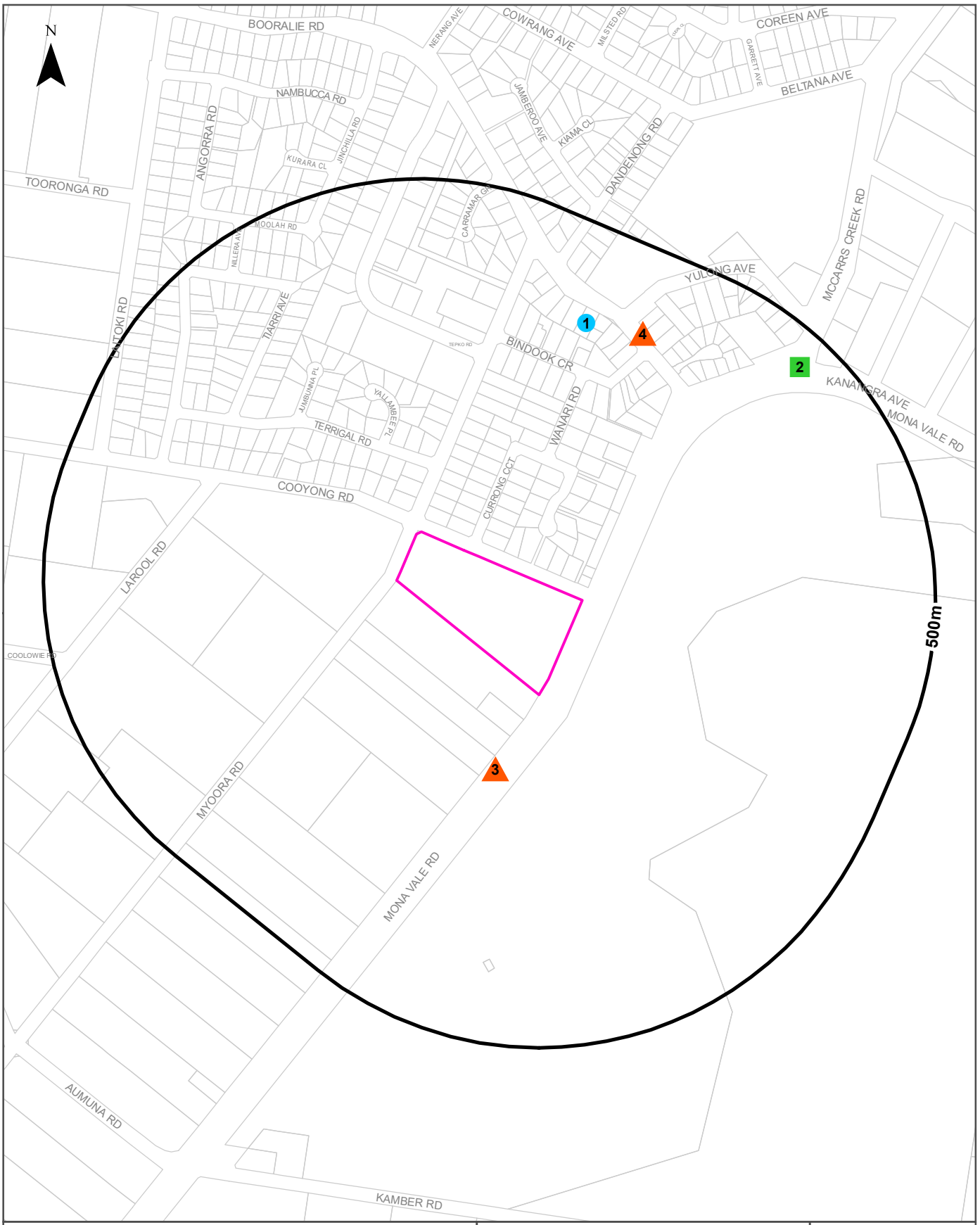
Dry Cleaners, Motor Garages & Service Stations

62 Myoora Road, Terrey Hills, NSW 2084



Legend

- Site Boundary
- Buffer 500m
- Property Boundary
- Business directory records mapped to a specific premise
- Business directory records mapped to a road intersection
- Business directory records mapped to a road corridor
- Business directory records mapped to a general area

Scale: 0 100 200 300 400 Meters

Coordinate System: GDA 1994 MGA Zone 56

Date: 10 August 2021

Data Sources: Reproduced with permission of UBD and Hardie Grant Media Pty Ltd DD 01/08/2018
Property Boundaries © NSW Department Finance, Services & Innovation 2021

Historical Business Directories

62 Myoora Road, Terrey Hills, NSW 2084

Dry Cleaners, Motor Garages & Service Stations 1948-1993 Premise or Road Intersection Matches

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

Note: The Universal Business Directories were published between 1948 and 1993. Dry Cleaners, Motor Garages & Service Stations have been extracted from all of these directories except the following years 1951, 1955, 1957, 1960, 1963, 1973, 1974, 1977, 1987.

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
1	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Terrey Hills Automotive Repairs., 13 Booralie Rd., Terrey Hills. 2084	35012	1976	Premise Match	343m	North
	MOTOR GARAGES &/OR ENGINEERS.	Terrey Hills Automotive Repairs., 13 Booralie Rd., Terrey Hills. 2084	59629	1975	Premise Match	343m	North
	MOTOR GARAGES &/OR ENGINEERS.	Terry Hills Automotive Repairs., 13 Booralie Rd Terrey Hills	13142	1972	Premise Match	343m	North
	MOTOR GARAGES &/OR ENGINEERS.	Terry Hills Automotive Repairs., 13 Booralie Rd., Terrey Hills	62801	1971	Premise Match	343m	North
2	Motor Service Stations - Petrol, Oil, Etc.	Terrey Hills Service Centre Pty. Ltd. (Mobiloil), Cnr. Mona Vale & McCarrs Creek Rds. Terrey Hills	126200	1965	Road Intersection	452m	North East

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Dry Cleaners, Motor Garages & Service Stations 1948-1993 Road or Area Matches

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

Note: The Universal Business Directories were published between 1948 and 1993. Dry Cleaners, Motor Garages & Service Stations have been extracted from all of these directories except the following years 1951, 1955, 1957, 1960, 1963, 1973, 1974, 1977, 1987.

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area
3	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Terrey Hills Service Centre Pty. Ltd., Mona Vale Rd., Terrey Hills 2084	35013	1976	Road Match	0m
	MOTOR SERVICE STATIONS - PETROL, OIL	Terrey Hills Service Centre Pty. Ltd., Mona Vale Rd., Terrey Hills. 2084	61982	1975	Road Match	0m
	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	Terrey Hills Service Centre Pty. Ltd., Mona Vale Rd Terrey Hills	18229	1972	Road Match	0m
	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	Terry Hills Service Centre Pty. Ltd., Mona Vale Rd., Terrey Hills	2639	1971	Road Match	0m
	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	Terry Hills Service Station., Mona Vale Rd., Terrey Hills	36897	1968	Road Match	0m
	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	Terry Hills Service Station., Mona Vale Rd., Terrey Hills	20363	1967	Road Match	0m
	MOTOR SERVICE STATIONS-PETROL, OIL, ETC.	Terry Hills Service Station., Mona Vale Rd., Terrey Hills	1865	1966	Road Match	0m
4	DRY CLEANERS, PRESSERS &/OR DYERS.	Sara Jane., Booralie Rd., Terrey Hills 2084	23792	1976	Road Match	314m
	MOTOR GARAGES &/OR ENGINEERS.	Hawes. J., 47 Booralie Rd., Terrey Hills. 2084	59032	1975	Road Match	314m
	DRY CLEANERS, PRESSERS &/OR DYERS.	Sara Jane, Booralie Rd., Terrey Hills. 2084	24316	1975	Road Match	314m

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Aerial Imagery 2020

62 Myoora Road, Terrey Hills, NSW 2084

Scale:	Data Source Aerial Imagery:	Coordinate System:	Date: 06 August 2021
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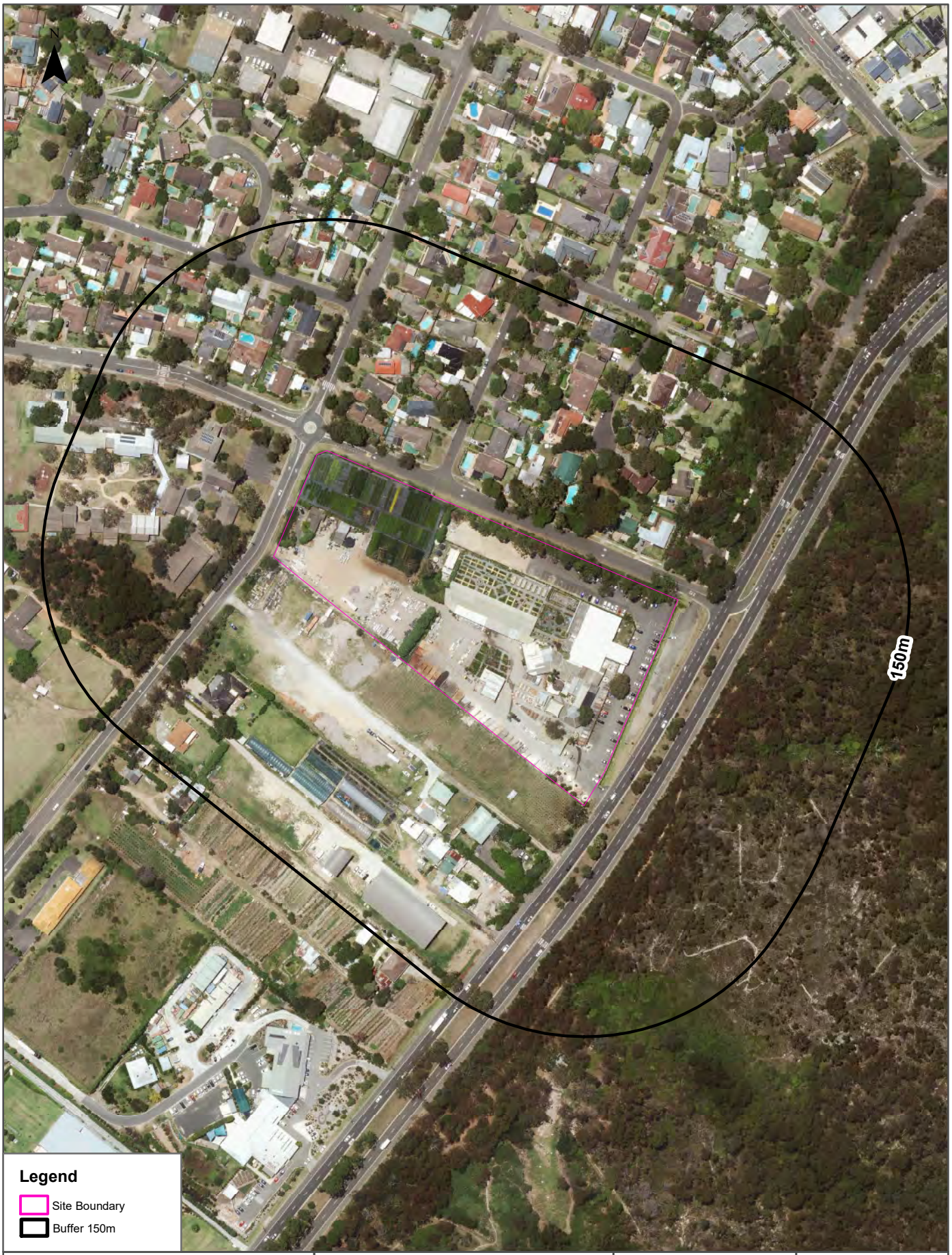
Aerial Imagery 2014

62 Myoora Road, Terrey Hills, NSW 2084



Scale:	Data Source Aerial Imagery:	Coordinate System:	Date: 06 August 2021
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Aerial Imagery 2009

62 Myoora Road, Terrey Hills, NSW 2084

Scale:
0 30 60 90 120
Meters

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Date: 06 August 2021

Aerial Imagery 2000

62 Myoora Road, Terrey Hills, NSW 2084

Scale:
0 30 60 90 120
Meters

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GDA 1994 MGA Zone 56

Date: 06 August 2021

Aerial Imagery 1994

62 Myoora Road, Terrey Hills, NSW 2084

Scale:	Data Source Aerial Imagery:	Coordinate System:	Date: 05 August 2021
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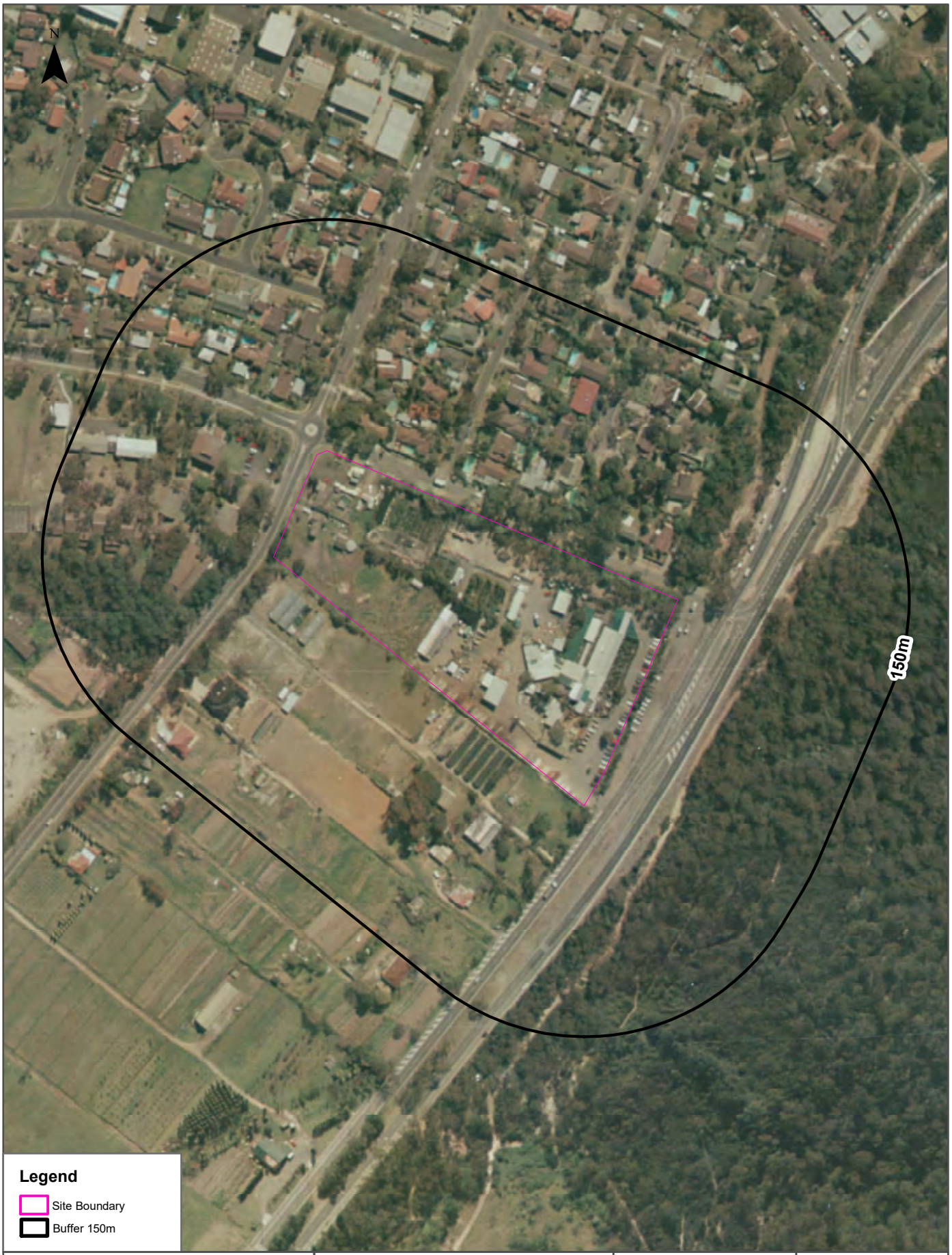
Aerial Imagery 1991

62 Myoora Road, Terrey Hills, NSW 2084



Scale:
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Meters

Data Sources: Aerial Imagery:
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Coordinate System:
GDA 1994 MGA Zone 56

Date: 06 August 2021

Aerial Imagery 1986

62 Myoora Road, Terrey Hills, NSW 2084

Scale: 0 40 80 120 160 Meters

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Coordinate System:
GDA 1994 MGA Zone 56

Date: 05 August 2021

Aerial Imagery 1982

62 Myoora Road, Terrey Hills, NSW 2084

Scale:
0 30 60 90 120
Meters

Data Sources: Aerial Imagery:
© NSW Department of Customer Service

Coordinate System:
GDA 1994 MGA Zone 56

Date: 06 August 2021

Aerial Imagery 1978

62 Myoora Road, Terrey Hills, NSW 2084

Scale:	Data Source Aerial Imagery:	Coordinate System:	Date: 05 August 2021
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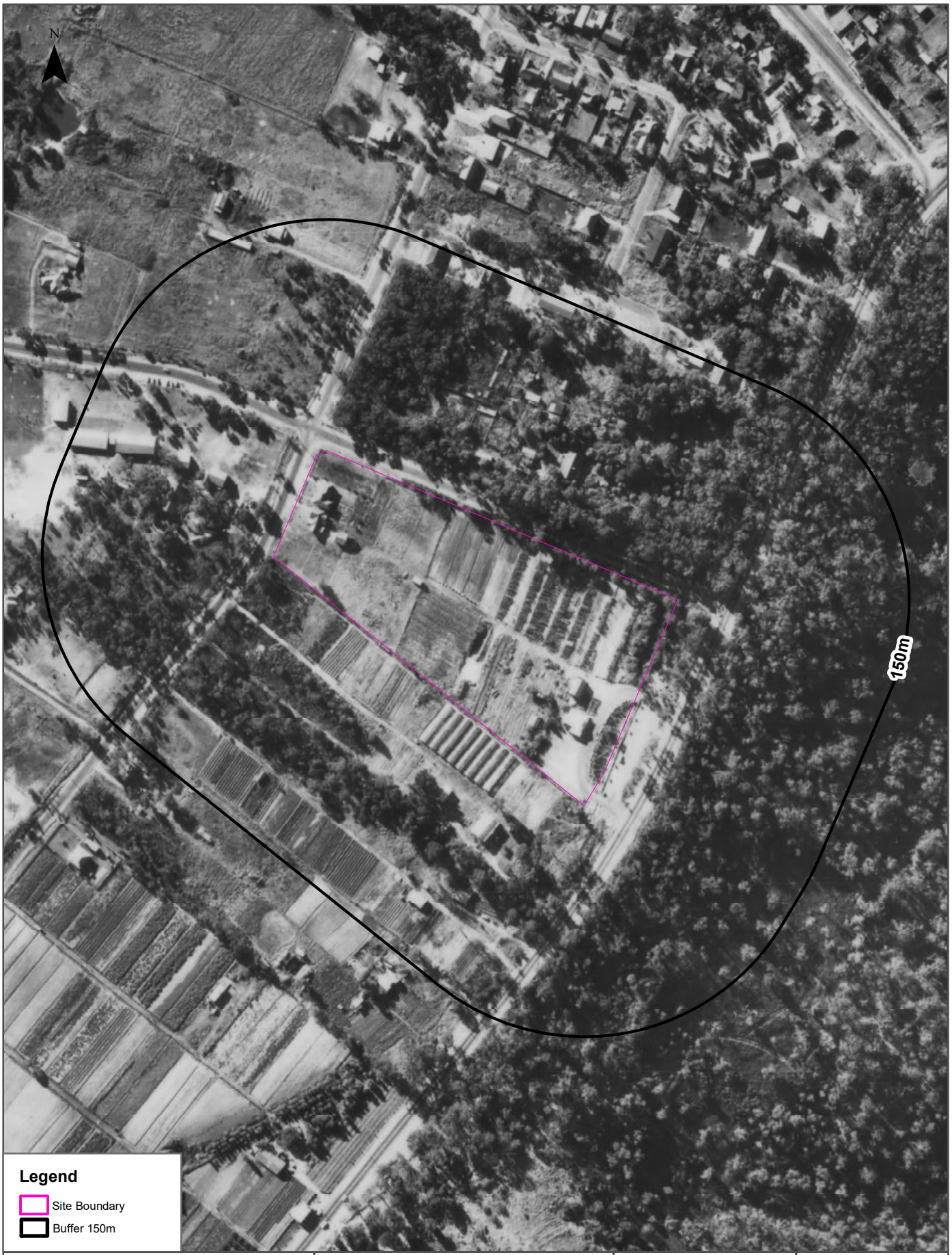
Aerial Imagery 1970

62 Myoora Road, Terrey Hills, NSW 2084



Scale:
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Meters

Data Sources: Aerial Imagery:
© NSW Department of Customer Service

Coordinate System:
GDA 1994 MGA Zone 56

Date: 06 August 2021

Aerial Imagery 1965

62 Myoora Road, Terrey Hills, NSW 2084

Scale: 0 40 80 120 160 Meters

Data Source Aerial Imagery:
© NSW Department of Customer Service

Coordinate System:
GDA 1994 MGA Zone 56

Date: 05 August 2021

Aerial Imagery 1961

62 Myoora Road, Terrey Hills, NSW 2084

Scale:
0 40 80 120 160
Meters

Data Source Aerial Imagery:
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Coordinate System:
GDA 1994 MGA Zone 56

Date: 05 August 2021

Aerial Imagery 1955

62 Myoora Road, Terrey Hills, NSW 2084

Scale:
0 40 80 120 160
Meters

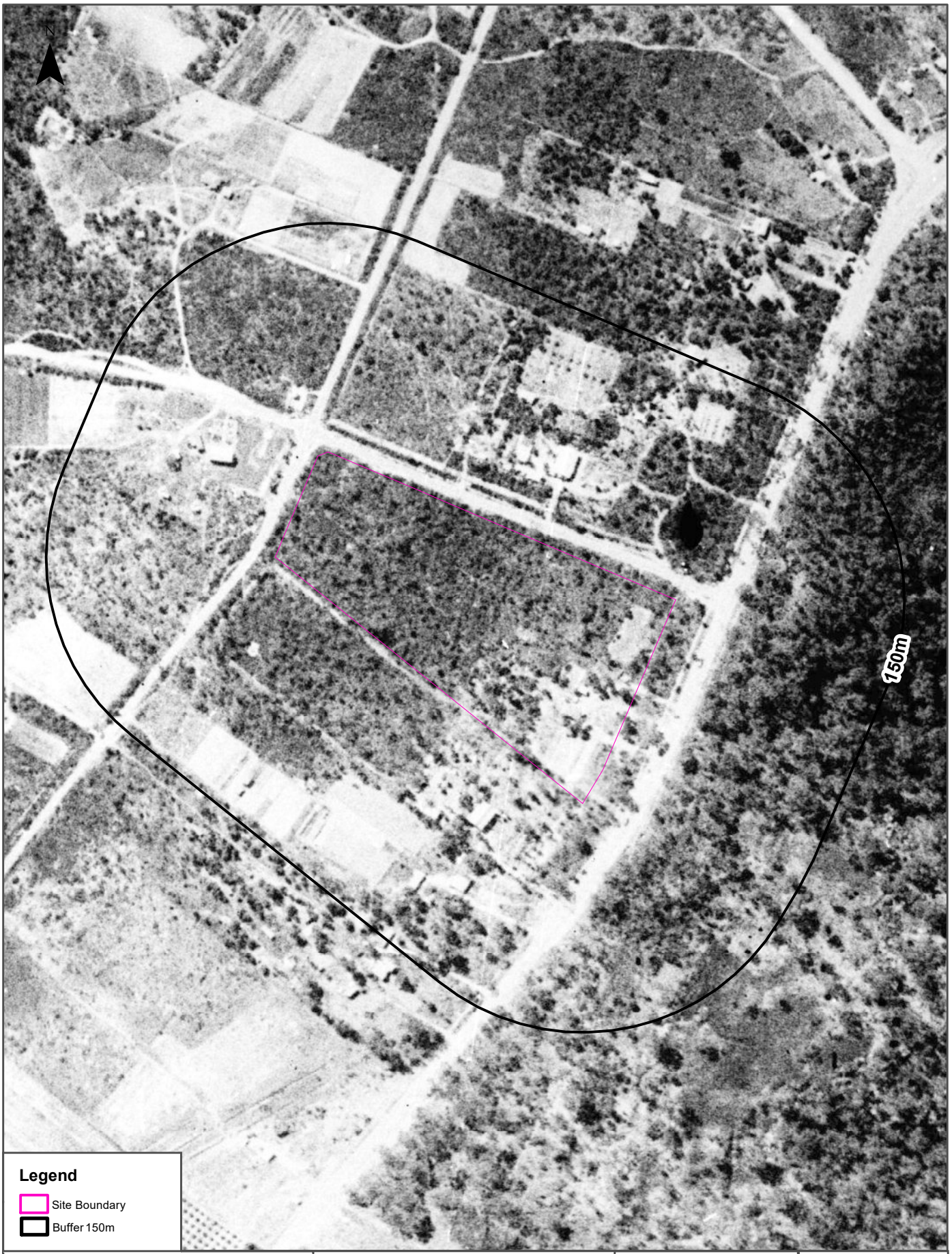
Data Source Aerial Imagery:
© NSW Department of Customer Service

Coordinate System:
GDA 1994 MGA Zone 56

Date: 05 August 2021

Aerial Imagery 1940

62 Myoora Road, Terrey Hills, NSW 2084



Scale:
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Meters

Data Source Aerial Imagery: ©2021 Geoscience Australia

Coordinate System:
GDA 1994 MGA Zone 56

Date: 05 August 2021

Aerial Imagery 1930

62 Myoora Road, Terrey Hills, NSW 2084

Scale:
0 30 60 90 120
Meters

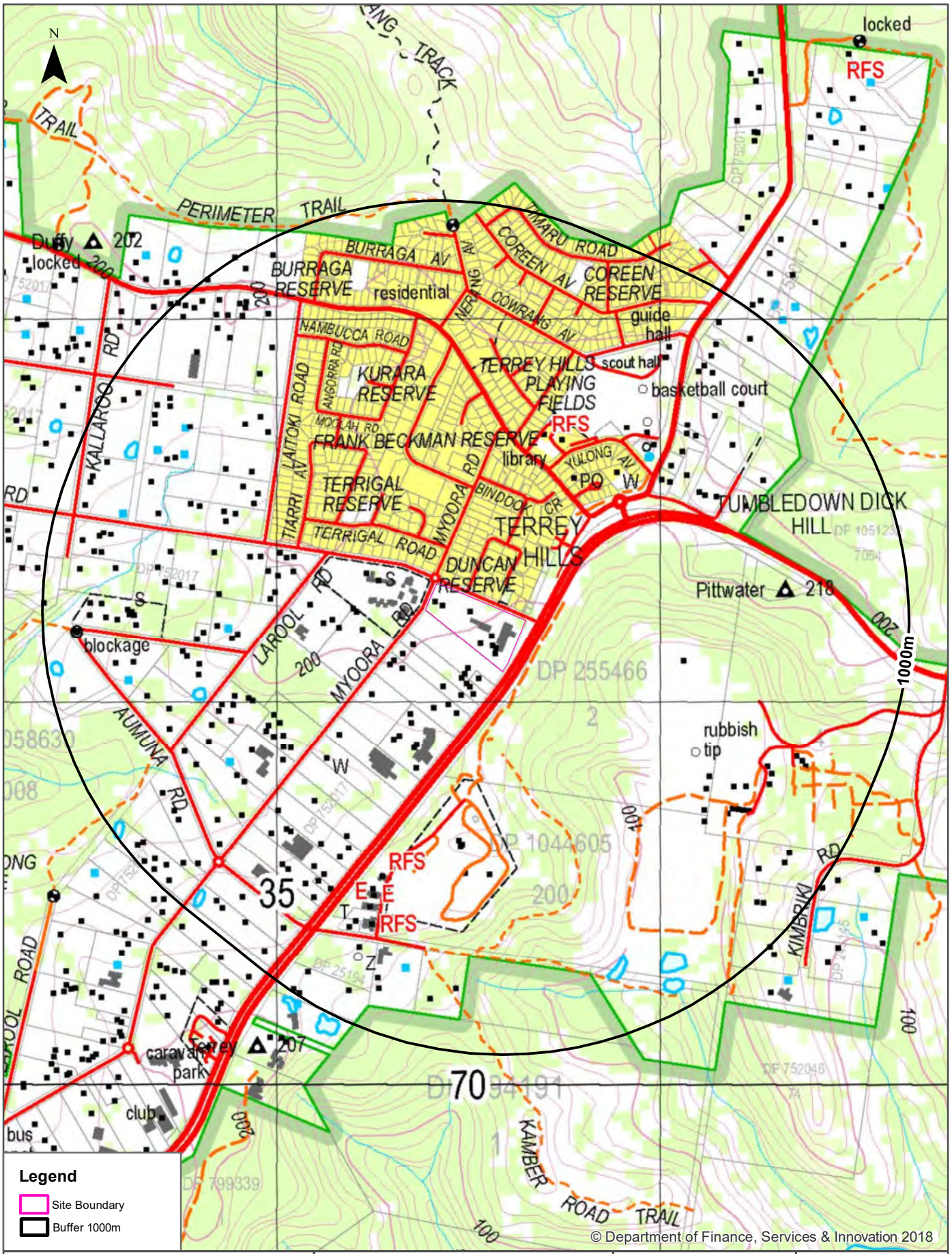
Data Sources: Aerial Imagery:
© Geoscience Australia

Coordinate System:
GDA 1994 MGA Zone 56

Date: 06 August 2021

Topographic Map 2015

62 Myoora Road, Terrey Hills, NSW 2084



Scale: 0 160 320 480 640 Meters

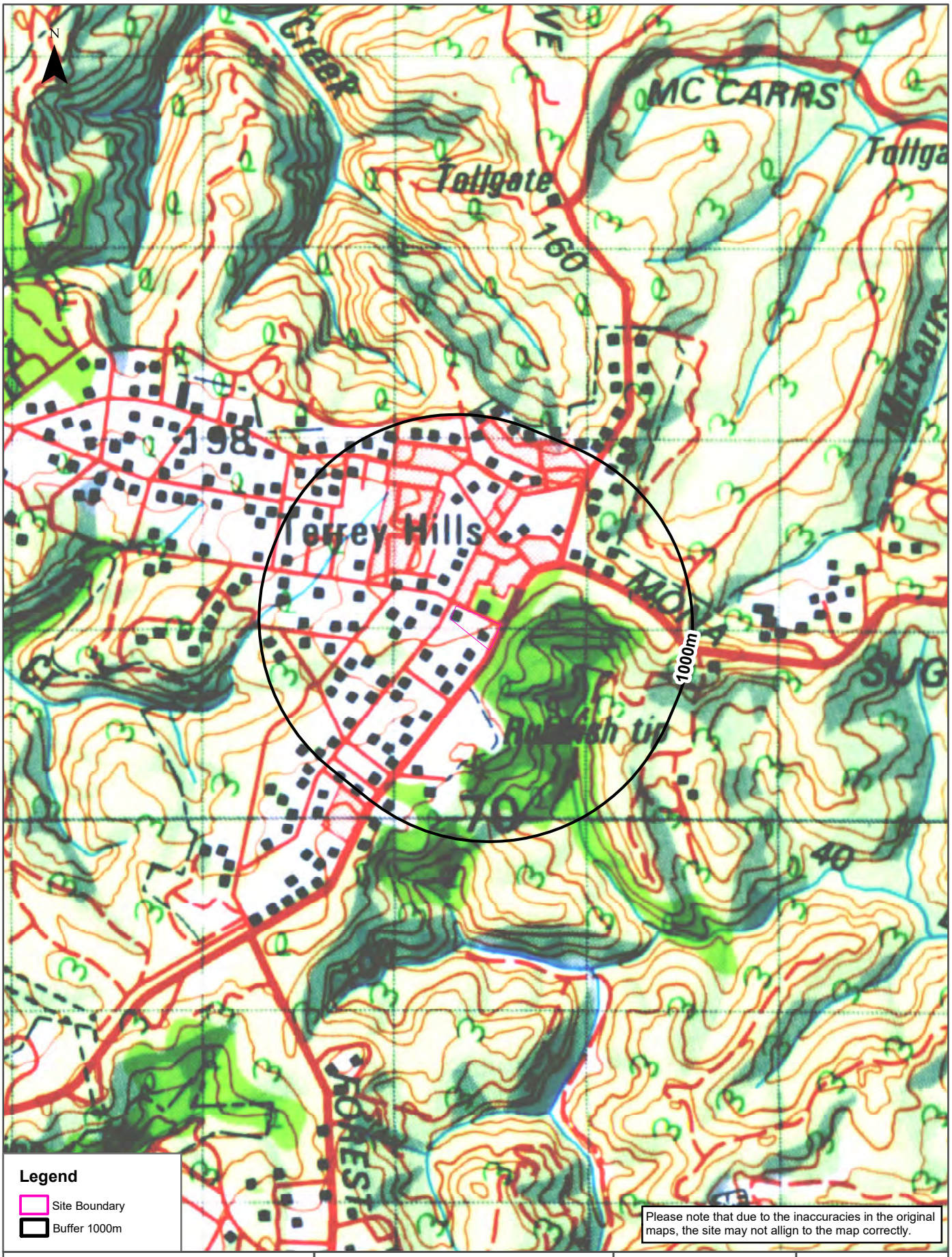
Data Sources: Topographic Map Data
© NSW Land and Property Information

Coordinate System:
GDA 1994 MGA Zone 56

Date: 06 August 2021

Historical Map 1975

62 Myoora Road, Terrey Hills, NSW 2084



Scale: 0 310 620 930 1,240 Meters

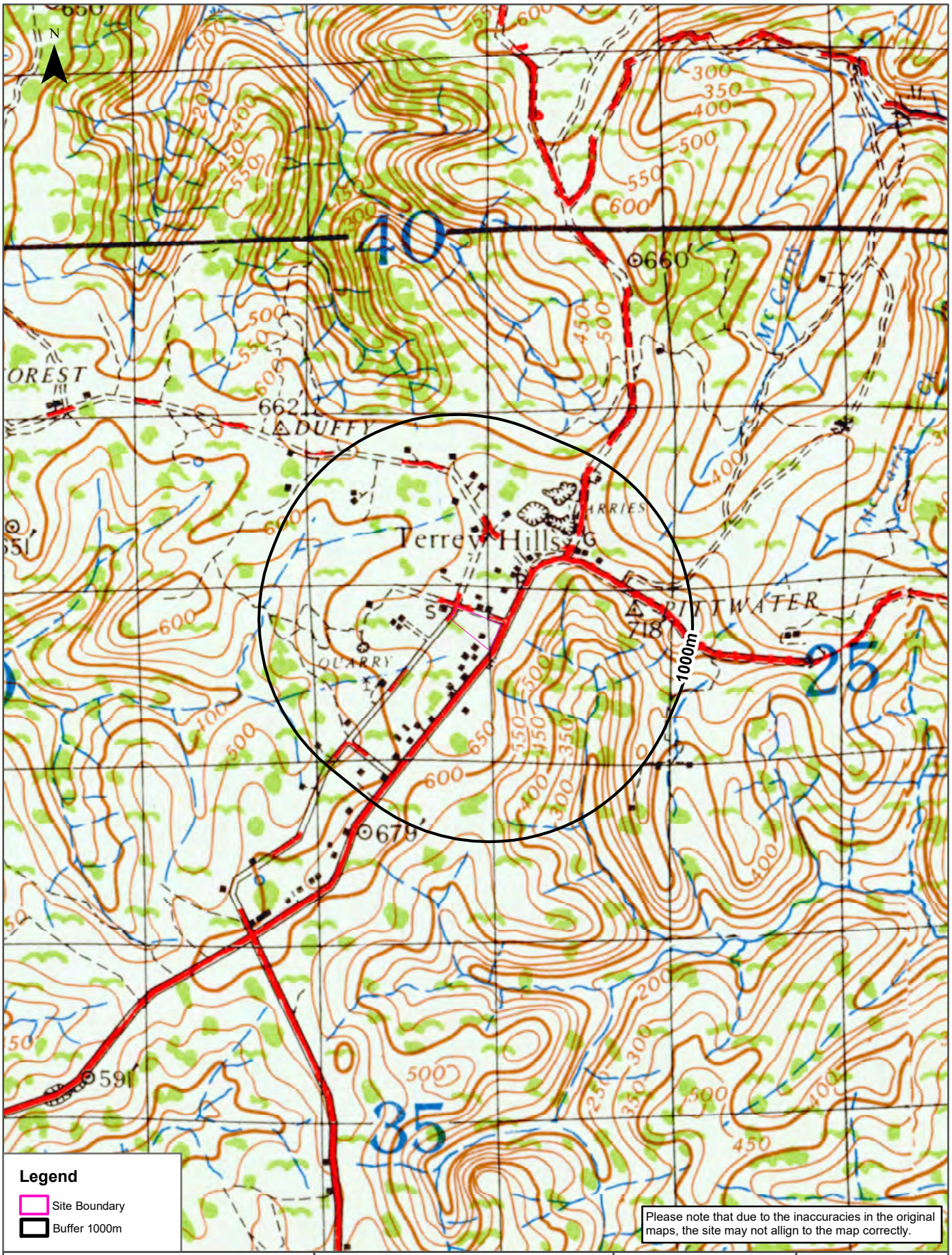
Data Sources: NATMAP 1:100,000
Topographic Maps Geoscience Australia

Coordinate System:
GDA 1994 MGA Zone 56

Date: 06 August 2021

Historical Map c.1942

62 Myoora Road, Terrey Hills, NSW 2084



Scale: 0 310 620 930 1,240 Meters

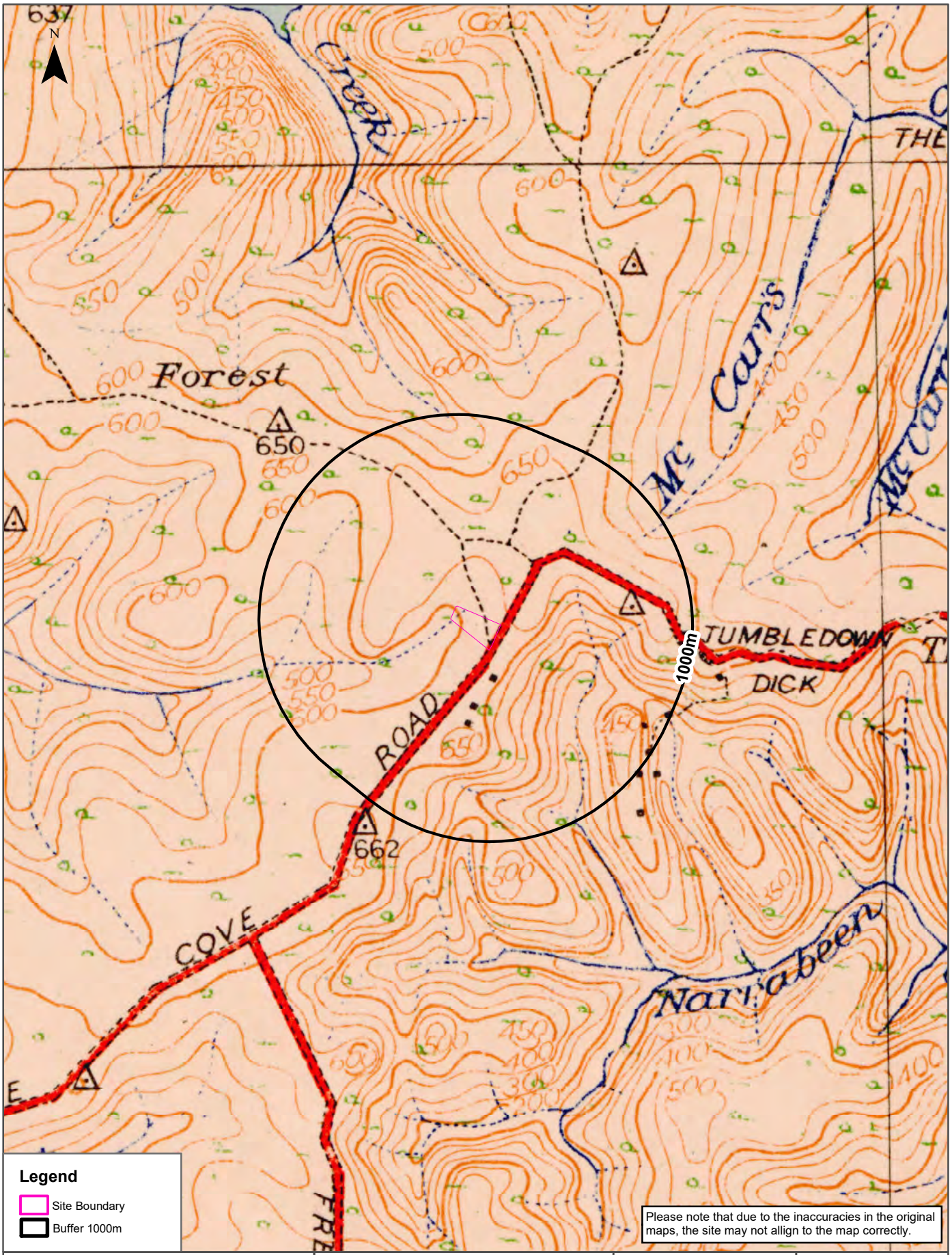
Data Sources: Australia 1:63360
Produced by Australian Section Imperial General Staff

Coordinate System:
GDA 1994 MGA Zone 56

Date: 06 August 2021

Historical Map c.1920

62 Myoora Road, Terrey Hills, NSW 2084



Scale: 0 310 620 930 1,240 Meters

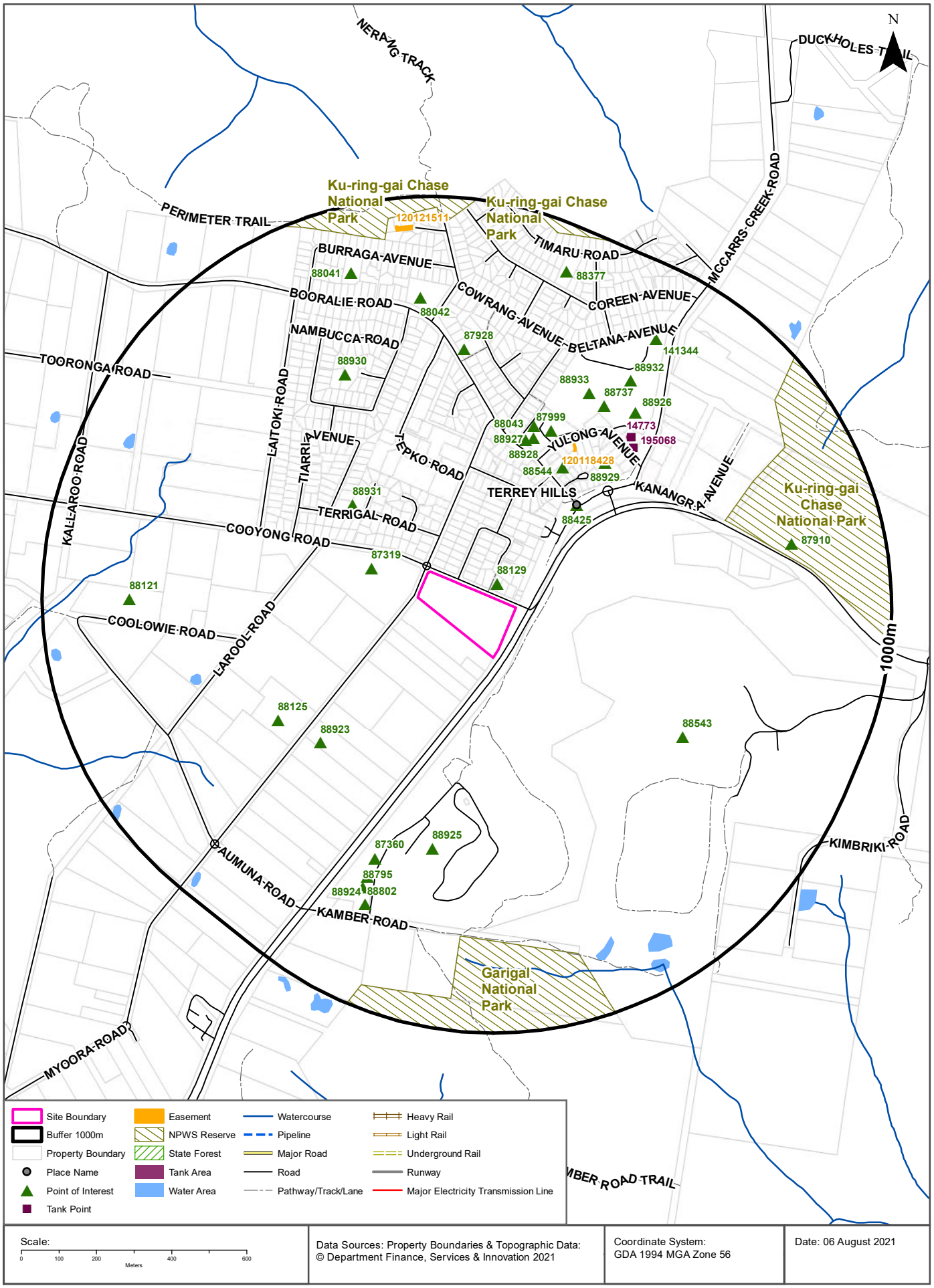
Data Sources: Australia 1:63360
Produced by Australian Section Imperial General Staff

Coordinate System:
GDA 1994 MGA Zone 56

Date: 06 August 2021

Topographic Features

62 Myoora Road, Terrey Hills, NSW 2084



Data Sources: Property Boundaries & Topographic Data: © Department Finance, Services & Innovation 2021

Coordinate System: GDA 1994 MGA Zone 56

Date: 06 August 2021

Topographic Features

62 Myoora Road, Terrey Hills, NSW 2084

Points of Interest

What Points of Interest exist within the dataset buffer?

Map Id	Feature Type	Label	Distance	Direction
88129	Park	DUNCAN RESERVE	38m	North East
87319	Primary School	TERREY HILLS PUBLIC SCHOOL	143m	North West
88931	Park	TERRIGAL RESERVE	270m	North West
88425	Suburb	TERREY HILLS	318m	North East
88544	Post Office	TERREY HILLS POST OFFICE	392m	North East
88928	Library	TERREY HILLS COMMUNITY LIBRARY	421m	North
88927	Park	FRANK BECKMAN RESERVE	434m	North
88929	Place Of Worship	ANGLICAN CHURCH	454m	North East
88923	Place Of Worship	CATHOLIC CHURCH	464m	South West
88043	Firestation - Bush	TERREY HILLS RFB	464m	North
87999	Community Facility	TERREY HILLS COMMUNITY CENTRE	471m	North East
88125	Combined Primary-Secondary School	GERMAN INTERNATIONAL SCHOOL SYDNEY	496m	South West
88925	Park	J J MELBOURNE HILLS MEMORIAL RESERVE	534m	South
88543	Rubbish Depot	KIMBRIKI RESOURCE RECOVERY CENTRE	543m	South East
88930	Park	KURARA RESERVE	573m	North West
88737	Park	KARL BROWN RESERVE	588m	North East
87928	Retirement Village	THE PINES TERREY HILLS	600m	North
88933	Sports Field	TERREY HILLS PLAYING FIELDS	602m	North East
88926	Sports Court	TENNIS COURTS	609m	North East
87360	Firestation - Bush	NORTHERN BEACHES FIRE CONTROL CENTRE	620m	South
88802	SES Facility	MARINE RESCUE TERREY HILLS	672m	South
88932	Sports Court	BASKETBALL COURT	678m	North East
88795	SES Facility	WARRINGAH-PITTWATER SES	704m	South
88042	Community Home	TERREY HILLS NURSING HOME	731m	North
88924	Firestation - Bush	WARRINGAH HEADQUARTERS RFB	741m	South
87910	Mountain Like	TUMBLEDOWN DICK HILL	753m	East
88121	Primary School	KINMA SCHOOL	767m	West
141344	Community Facility	MANLY-WARRINGAH RADIO SOCIETY	807m	North East
88041	Park	BURRAGA RESERVE	825m	North
88377	Park	COREEN RESERVE	877m	North

Topographic Data Source: © Land and Property Information (2015)
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Topographic Features

62 Myoora Road, Terrey Hills, NSW 2084

Tanks (Areas)

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

Map Id	Tank Type	Status	Name	Feature Currency	Distance	Direction
15836	Water	Operational	TERRY HILLS RESERVOIRS	01/09/2013	535m	North East

Tanks (Points)

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

Map Id	Tank Type	Status	Name	Feature Currency	Distance	Direction
195068	Water	Operational		25/08/2000	529m	North East
14773	Water	Feature on Previous LPI Tank Area Supply		25/08/2000	548m	North East

Tanks Data Source: © Land and Property Information (2015)
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Major Easements

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

Map Id	Easement Class	Easement Type	Easement Width	Distance	Direction
120118428	Primary	Undefined		444m	North East
120121511	Primary	Undefined		912m	North

Easements Data Source: © Land and Property Information (2015)
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Topographic Features

62 Myoora Road, Terrey Hills, NSW 2084

State Forest

What State Forest exist within the dataset buffer?

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

State Forest Data Source: © NSW Department of Finance, Services & Innovation (2018)
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National Parks and Wildlife Service Reserves

What NPWS Reserves exist within the dataset buffer?

Reserve Number	Reserve Type	Reserve Name	Gazetted Date	Distance	Direction
N0019	NATIONAL PARK	Ku-ring-gai Chase National Park	01/10/1967	604m	North East
N0076	NATIONAL PARK	Garigal National Park	19/04/1991	747m	South

NPWS Data Source: © NSW Department of Finance, Services & Innovation (2018)
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Elevation Contours (m AHD)

62 Myoora Road, Terrey Hills, NSW 2084

Legend

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

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

Scale: 0 100 200 400 Meters	Data Sources: Property Boundaries & Topographic Data: © Department Finance, Services & Innovation 2021	Coordinate System: GDA 1994 MGA Zone 56	Date: 06 August 2021

Hydrogeology & Groundwater

62 Myoora Road, Terrey Hills, NSW 2084

Hydrogeology

Description of aquifers within the dataset buffer:

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

Hydrogeology Map of Australia : Commonwealth of Australia (Geoscience Australia)
Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

Temporary Water Restriction (Botany Sands Groundwater Source) Order 2018

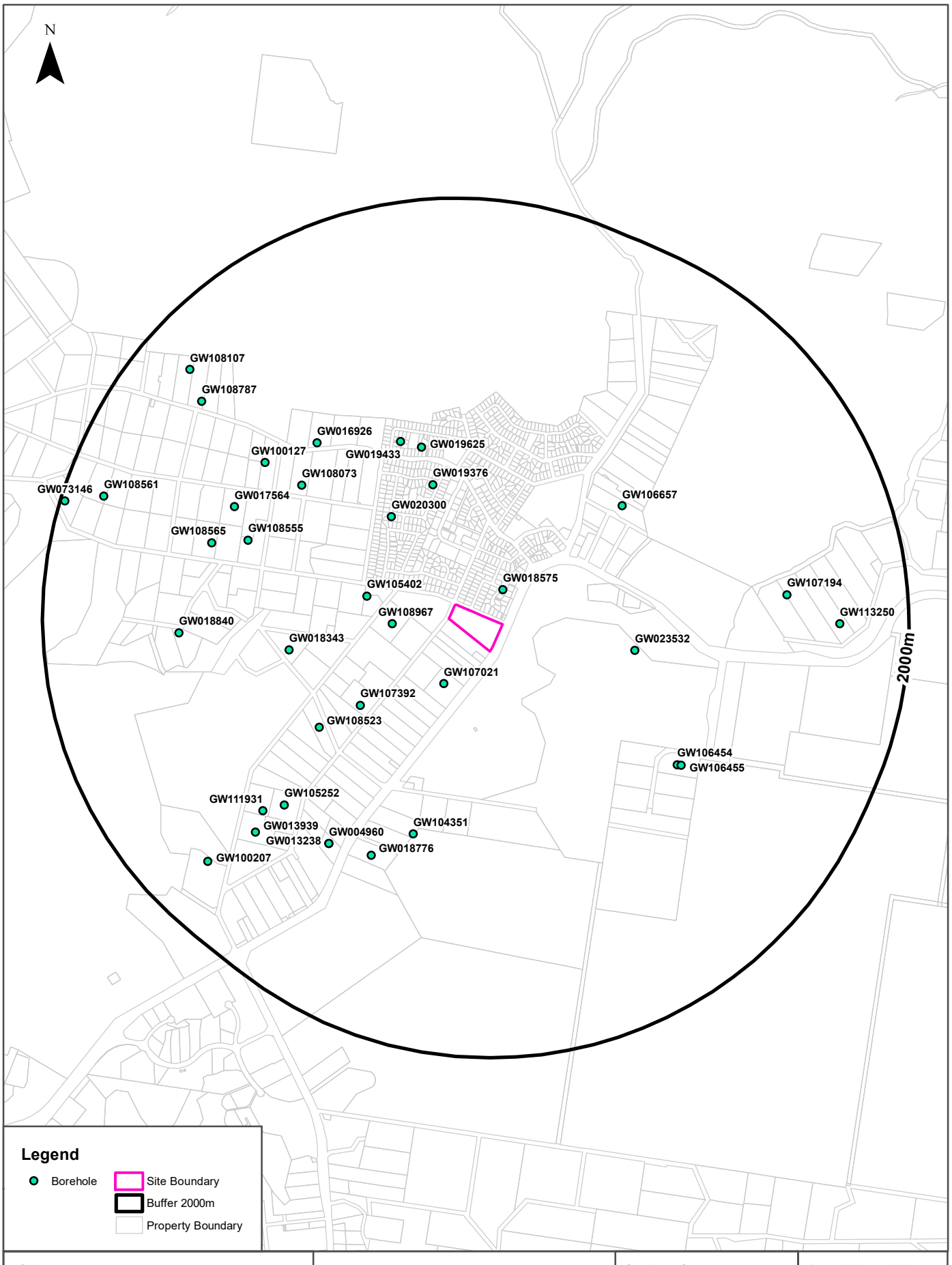
Temporary water restrictions relating to the Botany Sands aquifer within the dataset buffer:

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

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

Groundwater Boreholes

62 Myoora Road, Terrey Hills, NSW 2084



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

Data Sources: Property Boundaries & Topographic Data: © Department Finance, Services & Innovation 2021

Coordinate System: GDA 1994 MGA Zone 56

Date: 06 August 2021

Hydrogeology & Groundwater

62 Myoora Road, Terrey Hills, NSW 2084

Groundwater Boreholes

Boreholes within the dataset buffer:

GW No.	Licence No	Work Type	Owner Type	Authorised Purpose	Intended Purpose	Name	Complete Date	Final Depth (m)	Drilled Depth (m)	Salinity (mg/L)	SWL (m bgl)	Yield (L/s)	Elev (AHD)	Dist	Dir
GW018575	10BL011993, 10WA108109	Bore open thru rock	Private	Domestic	Domestic		01/12/1959	52.40	52.40					156m	North East
GW107021	10BL164925, 10WA108940	Bore	Private	Domestic	Domestic		08/04/2005	156.00	156.00		65.00	0.600		267m	South West
GW108967	10BL602154, 10WA109230	Bore	Private	Domestic, Stock	Domestic, Stock		26/06/2008	172.00		128	88.00	1.200		279m	West
GW105402	10BL161532, 10WA108533	Bore		Domestic	Domestic		10/10/2003	162.10	162.10	153	81.00	0.300		418m	West
GW020300	10BL013105	Well	Private	Domestic, Irrigation, Stock	General Use		01/10/1962	45.10	45.10					534m	North West
GW019376	10BL012172	Bore open thru rock	Private	Irrigation	Irrigation		01/12/1961	51.20	51.20					601m	North
GW107392	10BL165585, 10WA108998	Bore	Private	Domestic, Stock	Domestic, Stock		21/09/2005	138.20	138.20	130	70.00	1.600		610m	South West
GW023532		Bore open thru rock	Private		Stock			15.20						664m	East
GW019625	10BL012826, 10WA108111	Bore open thru rock	Private	Domestic	General Use		01/10/1962	30.40	30.50					792m	North
GW018343	10BL011256, 10WA108100	Excavation	Private	Domestic, General Use	General Use			1.50	1.50					801m	West
GW106657	10BL164136, 10WA108835	Bore	Private	Domestic, Stock	Domestic, Stock		19/11/2004	168.00	168.00	132	58.00	0.300		829m	North East
GW108523	10BL600830, 10WA109123	Bore	Private	Domestic, Stock	Domestic, Stock		07/12/2006	114.00	114.00	128	61.00	3.400		833m	South West
GW019433	10BL011822	Bore open thru rock	Private	Irrigation, Stock	Irrigation		01/09/1961	45.70	45.70					847m	North
GW108073	10BL600298, 10WA109060	Bore	Private	Domestic, Stock	Domestic, Stock		12/05/2006	180.50	180.50		86.50	1.650		956m	North West
GW104351	10BL160638, 10WA108496	Bore	Private	Domestic, Stock	Domestic, Stock		10/05/2002	210.50	210.50	134	112.00	0.150		974m	South
GW016926	10BL007367, 10WA108075	Bore open thru rock	Private	Domestic, Stock	General Use		01/06/1958	22.20	22.30	Good				1047m	North West

GW No.	Licence No	Work Type	Owner Type	Authorised Purpose	Intended Purpose	Name	Complete Date	Final Depth (m)	Drilled Depth (m)	Salinity (mg/L)	SWL (m bgl)	Yield (L/s)	Elev (AHD)	Dist	Dir
GW108555	10BL601249, 10WA109165	Bore	Private	Domestic, Stock	Domestic, Stock		23/01/2007	186.00	186.00	210	81.40	0.400		1060m	West
GW106454	10BL163621	Bore	Private	Domestic, Stock	Domestic, Stock		09/07/2004	90.50	90.50			0.080		1078m	South East
GW106455	10BL163620	Bore	Private	Domestic, Stock	Domestic, Stock		08/07/2004	180.00	180.00			0.150		1097m	South East
GW018776	10BL011323	Well	Private	Irrigation	General Use		01/12/1960	7.30						1160m	South West
GW100127	10BL144576, 10WA108262	Bore	Private	Domestic, Stock	Domestic, Stock		22/11/1991	126.50	126.50	110	37.50	0.950		1167m	North West
GW017564	10BL009762	Excavation	Private	Domestic, Irrigation	Irrigation		01/06/1956	3.60	3.70	Soft				1187m	North West
GW108565	10BL601383, 10WA109178	Bore	Private	Domestic, Stock	Domestic, Stock		20/02/2007	198.00	198.00	188	76.60	0.400		1223m	West
GW105252	10BL162174, 10WA108576	Bore	Private	Domestic, Stock	Domestic, Stock		14/10/2003	210.50	210.50	186	112.00	0.200		1224m	South West
GW004960	10BL009132	Bore	Private	Recreation (groundwater)	General Use		01/02/1959	30.40	30.50					1232m	South West
GW013238	10BL008395	Bore open thru rock	Private	Domestic, Irrigation	General Use		01/07/1957	45.70	45.70					1232m	South West
GW111931	10WA117969	Bore	Private	Drainage	Domestic, Stock		23/11/2012	160.00	160.00	124	81.00	0.850		1316m	South West
GW018840	10BL011646, 10BL013200	Bore open thru rock	Private	Irrigation, Stock	General Use		01/09/1961	76.20	76.20					1330m	West
GW107194	10BL163459, 10WA108741	Bore	Private	Domestic, Stock	Domestic, Stock		28/09/2004	192.00	192.00		18.00	0.400		1408m	East
GW013939	10BL008828, 10WA108088	Excavation	Private	Domestic, Stock	General Use			3.00						1417m	South West
GW108787	10BL601623, 10WA109196	Spear	Private	Domestic, Stock	Domestic, Stock		23/05/2007	198.00	198.00	178	71.00	0.550		1597m	North West
GW113250	10WA118702	Bore	Private	Domestic, Stock	Domestic, Stock		22/08/2013	180.00	180.00	262	37.00	0.200		1661m	East
GW100207	10BL151985, 10WA109377	Bore	Private	Recreation (groundwater)	Recreation (groundwater)		03/04/1993	150.00	150.00	80	16.00	3.730		1683m	South West
GW108107	10BL600328, 10WA109064	Bore		Domestic, Stock			10/05/2007							1743m	North West
GW108561	10BL601275, 10WA109168	Bore	Private	Domestic, Stock	Domestic, Stock		15/02/2007	174.00	174.00		72.00	0.500		1801m	West
GW073146	10BL151445	Bore	Private	Domestic, Stock	Domestic, Stock		12/02/1993	80.00	80.00	110		0.600		1976m	West

Borehole Data Source : NSW Department of Primary Industries - Office of Water / Water Administration Ministerial Corporation for all bores prefixed with GW. All other bores © Commonwealth of Australia (Bureau of Meteorology) 2015. Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

Hydrogeology & Groundwater

62 Myoora Road, Terrey Hills, NSW 2084

Driller's Logs

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

Groundwater No	Drillers Log	Distance	Direction
GW018575	0.00m-2.43m Clay Sandy 2.43m-52.42m Sandstone	156m	North East
GW107021	0.00m-0.30m Topsoil 0.30m-0.90m Sand 0.90m-3.30m Clay Gravel 3.30m-6.10m Sandstone, coarse grained, yellow light 6.10m-12.20m Sandy Clay, yellow 12.20m-16.80m sandstone, coarse grained yellow light / clay 16.80m-31.10m sandstone, coarse grained grey dark 31.10m-35.30m sandstone, coarse grained yellow dark 35.30m-51.20m sandstone, coarse grained grey light 51.20m-52.00m sandstone, coarse grained grey dark water bearing 52.00m-63.70m sandstone, medium grained grey light 63.70m-71.40m sandstone, coarse grained grey dark 71.40m-147.80m sandstone, coarse grained grey light 147.80m-156.00m sandstone, medium grained grey light	267m	South West
GW105402	0.00m-0.40m FILL 0.40m-21.50m SANDSTONE LT BROWN,GREY SOFT 21.50m-22.50m SHALE DARK BROWN 22.50m-27.10m SANDSTONE GREY/SHALE BANDS 27.10m-66.10m SANDSTONE GREY LT GREY 66.10m-79.10m SANDSTONE GREY AND QURATZ (W) 79.10m-102.60m SANDSTONE GREY LT GREY 102.60m-107.10m SANDSTONE GREY AND QURATZ (W)(F) 107.10m-120.10m SANDSTONE GREY 120.10m-132.60m SANDSTONE LT GREY AND QURATZ (W) 132.60m-155.00m SANDSTONE GREY AND QURATZ (W) 155.00m-162.10m SANDSTONE LT BROWN	418m	West
GW020300	0.00m-0.91m Sand Gravel 0.91m-1.52m Sandstone 1.52m-3.04m Sandstone 3.04m-3.35m Pipe Clay White 3.35m-7.31m Sandstone Hard 7.31m-7.62m Clay Yellow 7.62m-11.27m Sandstone Hard 11.27m-11.58m Driller 11.58m-12.19m Pipe Clay White 12.19m-21.64m Sandstone Hard 21.64m-21.94m Pipe Clay White 21.94m-23.16m Sandstone 23.16m-26.51m Clay Grey 26.51m-30.48m Sandstone Hard Water Supply 30.48m-30.78m Clay Grey 30.78m-36.88m Sandstone 36.88m-37.49m Sandstone 37.49m-38.10m Clay 38.10m-42.67m Sandstone Clay 42.67m-45.11m Sandstone Hard	534m	North West
GW019376	0.00m-10.05m Clay Water Supply 10.05m-21.33m Sandstone Yellow 21.33m-33.52m Sandstone Pink 21.33m-33.52m Clay Seams 33.52m-38.10m Sandstone Yellow 38.10m-48.46m Sandstone Black Water Supply 48.46m-51.20m Sandstone White 48.46m-51.20m Clay Seams Water Supply	601m	North

Groundwater No	Drillers Log	Distance	Direction
GW107392	0.00m-2.00m clay, brown/white 2.00m-3.00m sandstone, pink weathered 3.00m-5.00m sandstone, brown 5.00m-13.00m sandstone, light grey 13.00m-23.50m sandstone, brown 23.50m-24.60m shale, grey 24.60m-38.70m sandstone, grey brown 38.70m-38.90m sandstone & Quartz, grey, water bearing 38.90m-51.70m sandstone, grey/brown 51.70m-54.30m shale, grey 54.30m-83.20m sandstone, grey 83.20m-83.40m sandstone/Quartz, grey, water bearing 83.40m-83.90m shale, grey 83.90m-87.10m sandstone, grey 87.10m-88.50m shale, grey 88.50m-97.30m sandstone, light grey 97.30m-97.60m sandstone & Quartz, dark grey, water bearing 97.60m-111.70m sandstone, grey, some black, shale bands 111.70m-115.70m sandstone & Quartz, light grey 115.70m-138.20m sandstone, grey/light grey, and dark Grey Sandstone, some Quartz present	610m	South West
GW019625	0.00m-0.60m Sand 0.60m-1.82m Sandstone 1.82m-1.98m Clay White 1.98m-3.04m Sandstone 3.04m-5.48m Sandstone Red 5.48m-8.22m Sandstone 8.22m-13.41m Sandstone Hard 13.41m-15.24m Sandstone 15.24m-16.76m Sandstone Yellow 16.76m-18.28m Sandstone Hard Clay 18.28m-20.11m Clay 20.11m-21.64m Sandstone Hard 21.64m-22.86m Driller 22.86m-26.21m Sandstone Hard 26.21m-26.36m Sand Gravel Water Supply 26.36m-26.67m Gravel 26.67m-27.61m Clay Gravel 27.61m-30.48m Sandstone Hard	792m	North
GW018343	0.00m-1.52m Shale	801m	West
GW106657	0.00m-22.00m sandstone, light brown 22.00m-25.00m sandstone, light grey 25.00m-37.00m sandstone, ironstone bands 37.00m-37.30m clay 37.30m-49.30m sandstone, grey 49.30m-49.40m sandstone, fractured 49.40m-53.80m sandstone, grey 53.80m-54.00m sandstone, fractured 54.00m-63.00m sandstone, grey 63.00m-65.00m sandstone, ironstone bands 65.00m-100.00m sandstone, grey 100.00m-101.00m sandstone, fractured quartz 101.00m-130.00m sandstone, grey 130.00m-132.00m sandstone, quartz 132.00m-141.00m sandstone, grey 141.00m-143.00m sandstone, quartz 143.00m-163.00m sandstone, grey 163.00m-164.00m sandstone, quartz 164.00m-168.00m sandstone, grey	829m	North East

Groundwater No	Drillers Log	Distance	Direction
GW108523	0.00m-0.75m Clay 0.75m-3.50m Fill, no returns no air 3.50m-20.00m Sandstone, light brown 20.00m-22.00m Ironstone 22.00m-23.00m Sandstone, fine Quartz 23.00m-31.50m Sandstone, Ironstone bands 31.50m-31.60m Clay 31.60m-34.10m Sandstone, grey 34.10m-34.30m Sandstone, fractured 34.30m-37.00m Sandstone, grey 37.00m-37.50m Sandstone-Quartz 37.50m-75.50m Sandstone, grey 75.50m-76.00m Sandstone-Quartz 76.00m-79.00m Sandstone, grey 79.00m-80.00m Sandstone, Shale bedding 80.00m-91.00m Sandstone, grey 91.00m-92.00m Sandstone, fractured, Quartz 92.00m-100.50m Sandstone, grey 100.50m-101.50m Sandstone-Quartz 101.50m-103.00m Sandstone, grey 103.00m-104.50m Sandstone, fractured, Quartz 104.50m-108.30m Sandstone, grey 108.30m-108.40m Sandstone, fractured 108.40m-109.50m Sandstone, grey 109.50m-110.00m Sandstone, very fractured 110.00m-114.00m Sandstone, grey	833m	South West
GW019433	0.00m-1.21m Loam Sandy 1.21m-7.31m Sandstone Yellow 7.31m-11.27m Sandstone White 7.31m-11.27m Clay Bands 11.27m-26.51m Sandstone Water Supply 26.51m-27.12m Shale Bands 27.12m-45.72m Sandstone Water Supply	847m	North
GW108073	0.00m-0.50m clay, fill 0.50m-15.00m sandstone, orange pink 15.00m-26.00m clay, grey sandy 26.00m-28.00m shale 28.00m-30.00m sandstone, grey sandy clay 30.00m-59.00m sandstone, grey 59.00m-62.00m shale, siltstone 62.00m-98.00m sandstone, grey quartz siltstone 98.00m-99.50m sandstone, grey quartz 99.50m-117.00m sandstone, grey siltstone 117.00m-118.00m sandstone, grey quartz siltstone 118.00m-119.00m sandstone, grey siltstone 119.00m-124.00m sandstone, grey quartz 124.00m-125.00m sandstone, grey quartz 125.00m-148.00m sandstone, grey 148.00m-149.00m sandstone, grey quartz 149.00m-155.00m sandstone, grey quartz 155.00m-162.00m sandstone, grey 162.00m-164.00m sandstone, grey quartz 164.00m-165.00m sandstone, grey 165.00m-166.50m sandstone, grey quartz siltstone 166.50m-170.00m sandstone, grey 170.00m-171.00m siltstone 171.00m-173.00m sandstone, grey 173.00m-174.50m siltstone 174.50m-176.00m sandstone, grey 176.00m-180.50m sandstone, grey quartz	956m	North West
GW104351	0.00m-1.00m FILL 1.00m-2.00m SAND/ROCKS 2.00m-5.00m GREY CLAY 5.00m-6.50m WEATHERED SHALE 6.50m-21.00m SANDSTONE LIGHT BROWN/SOFT 21.00m-31.00m SANDSTONE GREY 31.00m-33.00m SILTSTONE 33.00m-53.00m SANDSTONE GREY 53.00m-54.50m SANDSTONE FRACTURED 54.50m-56.00m SILTSTONE 56.00m-79.00m SANDSTONE GREY 79.00m-80.00m SILTSTONE 80.00m-114.00m SANDSTONE GREY 114.00m-115.00m SANDSTONE/QUARTZ 115.00m-133.00m SANDSTONE LIGHT GREY 133.00m-134.50m SANDSTONE QUARTZ 134.50m-158.00m SANDSTONE GREY 158.00m-158.30m SANDSTONE DARK GREY 158.30m-172.00m SANDSTONE GREY 172.00m-174.00m SANDSTONE DARK GREY 174.00m-210.50m SANDSTONE GREY	974m	South
GW016926	0.00m-0.91m Soil 0.91m-22.25m Sandstone Water Supply	1047m	North West

Groundwater No	Drillers Log	Distance	Direction
GW108555	0.00m-1.00m Sandy Clay 1.00m-3.00m Sandstone, grey 3.00m-3.50m Clay 3.50m-27.00m Sandstone, grey 27.00m-33.00m Shale 33.00m-75.00m Sandstone, grey 75.00m-76.00m Sandstone Quartz 76.00m-78.00m Sandstone, grey 78.00m-80.00m Sandstone Quartz, water bearing 80.00m-94.00m Sandstone, grey 94.00m-97.00m Siltstone 97.00m-114.50m Sandstone, grey 114.50m-119.00m Sandstone Quartz, water bearing 119.00m-128.00m Sandstone, grey 128.00m-129.00m Siltstone 129.00m-136.00m Sandstone, grey 136.00m-142.00m Sandstone Quartz 142.00m-146.00m Sandstone, grey 146.00m-147.00m Siltstone 147.00m-160.00m Sandstone Quartz, water bearing 160.00m-176.00m Sandstone, grey 176.00m-178.00m Sandstone Quartz, water bearing 178.00m-180.00m Sandstone, grey 180.00m-184.00m Sandstone Quartz 184.00m-186.00m Sandstone, grey	1060m	West
GW106454	0.00m-2.50m clay, sandy 2.50m-12.00m sandstone, light brown 12.00m-14.00m shale, soft 14.00m-54.00m sandstone, light brown 54.00m-56.00m sandstone, find quartz 56.00m-57.00m sandstone, grey 57.00m-57.50m sandstone, fractured quartz 57.50m-76.50m sandstone, grey 76.50m-77.50m sandstone, quartz 77.50m-90.50m sandstone, grey	1078m	South East
GW106455	0.00m-3.00m sand 3.00m-13.50m sandstone, light brown soft 13.50m-16.00m shale, soft 16.00m-47.50m sandstone, grey 47.50m-48.00m sandstone, quartz 48.00m-53.00m sandstone, grey 53.00m-57.00m sandstone, fractured quartz 57.00m-75.20m sandstone, grey 75.20m-75.30m sandstone, fracture 75.30m-76.00m sandstone, grey 76.00m-78.00m sandstone, fracture quartz 78.00m-84.40m sandstone, grey 84.40m-84.70m shale 84.70m-138.00m sandstone, grey 138.00m-141.00m sandstone, dark grey 141.00m-144.00m siltstone, black 144.00m-146.00m siltstone, light grey 146.00m-154.00m sandstone, dark grey 154.00m-158.00m siltstone, very hard 158.00m-166.00m sandstone, dark grey 166.00m-166.10m sandstone, fracture 166.10m-180.00m sandstone, grey	1097m	South East
GW100127	0.00m-1.00m SOIL CLAY 1.00m-2.50m SANDSTONE 2.50m-16.00m SANDSTONE WHITE 16.00m-22.50m RED/BROWN SANDSTONE 22.50m-24.00m SHALE (CLAYEY) VERY SOFT 24.00m-25.50m SANDSTONE WHITE 25.50m-29.00m (CLAYEY) SHALE VERY SOFT 29.00m-33.00m SAND STONE WHITE 33.00m-37.50m SHALE M/ HARD SOME FRACTURE WB 37.50m-77.50m SANDSTONE FRACTURE COARSE GRAIN SAND ETC WB 77.50m-83.00m SHALE M/ HARD 83.00m-100.50m SANDSTONE FIRM GRAIN SOME FRACTURES COARSE GRAIN 100.50m-101.50m SHALE BAND M/HARD 101.50m-103.50m GREY SANDSTONE 103.50m-111.50m COARSE GRAIN SANDSTONE 111.50m-112.00m SHALE HARD 112.00m-126.50m SANDSTONE SOME FRACTURE MOSTLY FINE GRAIN WELL CEMENTED	1167m	North West
GW017564	0.00m-2.43m Clay Sand 2.43m-3.65m Rock Red Water Supply	1187m	North West

Groundwater No	Drillers Log	Distance	Direction
GW108565	0.00m-2.80m Sandy Clay 2.80m-17.00m Sandstone, yellow 17.00m-18.50m Sandy Clay 18.50m-22.00m Sandstone, grey 22.00m-38.00m Shale 38.00m-55.00m Sandstone, grey 55.00m-57.00m Sandstone-Shale-Quartz 57.00m-73.00m Sandstone, grey 73.00m-77.00m Sandstone-Quartz, water bearing 77.00m-86.00m Sandstone, grey 86.00m-87.50m Shale, Clay band 87.50m-91.00m Sandstone, grey 91.00m-92.00m Siltstone 92.00m-113.00m Sandstone, grey 113.00m-117.00m Sandstone-Quartz, water bearing 117.00m-132.00m Sandstone, grey 132.00m-135.00m Siltstone-Quartz 135.00m-137.50m Sandstone, grey 137.50m-141.00m Sandstone-Quartz, water bearing 141.00m-153.00m Sandstone, grey 153.00m-163.00m Sandstone-Quartz, water bearing 163.00m-166.00m Sandstone, grey 166.00m-167.00m Siltstone 167.00m-188.00m Sandstone, grey 188.00m-191.00m Sandstone-Quartz, water bearing 191.00m-193.00m Sandstone, grey 193.00m-195.00m Sandstone-Quartz 195.00m-198.00m Sandstone, grey	1223m	West
GW105252	0.00m-6.50m CLAY BROWN WHITE 6.50m-24.50m SANDSTONE GREY BROWN M/G 24.50m-46.50m SANDSTONE GREY M/G 46.50m-48.50m SANDSTONE GREY/SHALE BANDS 48.50m-102.50m SANDSTONE GREY/LT GREY 102.50m-117.50m SANDSTONE GREY AND QUARTZ 117.50m-136.60m SANDSTONE GREY AND QUARTZ (F) 136.60m-148.00m QUARTZ 148.00m-153.00m SANDSTONE GREY AND QUARTZ 153.00m-158.50m QUARTZ 158.50m-175.00m SANDSTONE GREY M/G 175.00m-186.50m F. SANDSTONE GREY LT/BROWN 186.50m-210.50m SANDSTONE GREY AND QUARTZ	1224m	South West
GW004960	0.00m-0.91m Soil 0.91m-30.48m Sandstone Water Supply	1232m	South West
GW013238	0.00m-1.21m Soil 1.21m-45.72m Sandstone Water Supply	1232m	South West
GW111931	0.00m-0.50m SAND 0.50m-2.50m SANDY CLAY 2.50m-20.00m SANDSTONE L/BROWN 20.00m-21.00m IRONSTONE AND CLAY 21.00m-32.00m SANDSTONE GREY 32.00m-37.00m SANDSTONE,SILTSTONE 37.00m-74.00m SANDSTONE GREY 74.00m-78.00m SANDSTONE WITH SHALE BEDDING 78.00m-88.00m SANDSTONE,SMALL QUARTZ BANDS 88.00m-91.00m SANDSTONE WITH SHALE BEDDING 91.00m-92.50m SANDSTONE FINE QUARTZ 92.50m-94.50m SANDSTONE GREY 94.50m-96.00m SANDSTONE FINE QUARTZ (W) 96.00m-110.00m SANDSTONE GREY 110.00m-110.50m SANDSTONE QUARTZ 110.50m-112.50m SANDSTONE GREY 112.50m-113.00m SANDSTONE QUARTZ 113.00m-129.00m SANDSTONE GREY 129.00m-131.00m SANDSTONE QUARTZ (W) 131.00m-136.00m SANDSTONE DARK GREY 136.00m-137.00m SANDSTONE FINE QUARTZ 137.00m-141.00m SANDSTONE DARK GREY 141.00m-145.00m SANDSTONE / QUARTZ (W) 145.00m-147.00m SANDSTONE BROWN 147.00m-160.00m SANDSTONE GREY	1316m	South West
GW018840	0.00m-0.91m Soil 0.91m-45.72m Sandstone 45.72m-50.59m Sandstone Hard 50.59m-50.90m Shale 50.90m-54.86m Sandstone White 54.86m-59.43m Sandstone Grey 59.43m-60.96m Sandstone Hard 60.96m-61.26m Sandstone Soft 61.26m-61.56m Clay White 61.56m-64.31m Sandstone 64.31m-64.61m Clay White 64.61m-76.20m Sandstone Hard	1330m	West

Groundwater No	Drillers Log	Distance	Direction
GW107194	0.00m-3.00m tospsoil 3.00m-4.00m clay, sandy 4.00m-20.00m sandstone 20.00m-22.00m shales, grey 22.00m-52.00m sandstone 52.00m-56.00m clays 56.00m-170.00m sandstone 170.00m-192.00m shales, grey	1408m	East
GW108787	0.00m-0.20m topsoil 0.20m-17.00m sandstone, yellow 17.00m-25.00m sandstone, grey 25.00m-27.00m shale 27.00m-49.00m sandstone, grey 49.00m-53.00m sandstone, quartz 53.00m-69.00m sandstone, grey 69.00m-71.00m sandstone, fractured 71.00m-72.00m sandstone, grey 72.00m-74.00m sandstone, quartz 74.00m-81.50m sandstone, grey 81.50m-87.50m shale 87.50m-114.00m sandstone, grey 114.00m-118.00m sandstone, quartz 118.00m-138.00m sandstone, grey 138.00m-144.00m sandstone, quartz siltstone 144.00m-151.00m sandstone, grey 151.00m-155.00m sandstone, quartz 155.00m-160.00m sandstone, grey 160.00m-162.00m siltstone 162.00m-168.00m sandstone, grey 168.00m-171.00m sandstone, quartz 171.00m-175.00m sandstone, siltstone 175.00m-188.00m sandstone, grey 188.00m-192.00m sandstone, quartz 192.00m-198.00m sandstone, grey	1597m	North West
GW113250	0.00m-0.75m SILTY SAND 0.75m-4.00m SANDSTONE SOFT 4.00m-4.50m SANDY CLAY 4.50m-22.00m SANDSTONE L/BROWN 22.00m-22.20m SHALE SOFT 22.20m-23.50m SANDSTONE GREY 23.50m-24.50m SANDSTONE FINE QUARTZ 24.50m-141.00m SANDSTONE GREY 141.00m-142.00m SANDSTONE WITH SHALE BEDDING 142.00m-168.00m SANDSTONE GREY 168.00m-180.00m SANDSTONE D/GREY	1661m	East
GW100207	0.00m-16.00m FINE WHITE SANDSTONE 16.00m-26.00m COARSE WHITE SANDSTONE 26.00m-55.00m MEDIUM GRAIN WHITE SANDSTONE 55.00m-58.00m FINE WHITE SANDSTONE 58.00m-65.00m COARSE GREY SANDSTONE 65.00m-68.00m COARSE BROWN SANDSTONE 68.00m-112.00m MEDIUM GRAIN GREY SANDSTONE 112.00m-130.00m FINE GRAIN GREY SANDSTONE 130.00m-132.00m COARSE GREY SANDSTONE 132.00m-150.00m FINE GREY SANDSTONE	1683m	South West
GW108561	0.00m-0.50m Ttopsoil 0.50m-46.00m Sandstone, grey 46.00m-50.00m Sandstone, grey Quartz, water bearing 50.00m-54.00m Sandstone, grey 54.00m-58.00m Shale 58.00m-82.50m Sandstone, grey 82.50m-93.00m Sandstone-Qquartz 93.00m-94.00m Shale, clay band 94.00m-96.00m Sandstone, grey 96.00m-101.00m Sandstone-Quartz, water bearing 101.00m-121.00m Sandstone, grey 121.00m-128.00m Sandstone-Quartz, water bearing 128.00m-130.00m Sandstone, grey 130.00m-136.00m Sandstone-Quartz 136.00m-157.00m Sandstone, grey 157.00m-160.00m Sandstone-Quartz 160.00m-174.00m Sandstone, grey	1801m	West
GW073146	0.00m-10.00m RED & WHITE S/S F/G 10.00m-28.00m GREY S/S F/G 28.00m-31.50m SHALE BED 31.50m-39.50m SANDSTONE C/G & OPEN GREY & WHITE 39.50m-39.70m FRACTURE WATER BEARING 39.70m-45.00m X BED SHALE & C.G. GREY SANDSTONE 45.00m-69.00m SANDSTONE C.G. & OPEN CLAY IN MATRIX 69.00m-72.00m SANDSTONE X BED SHALE CLAY IN MATRIX 72.00m-80.00m SANDSTONE OPEN GRAIN & WATER BEARING	1976m	West

Drill Log Data Source: NSW Department of Primary Industries - Office of Water / Water Administration Ministerial Corp
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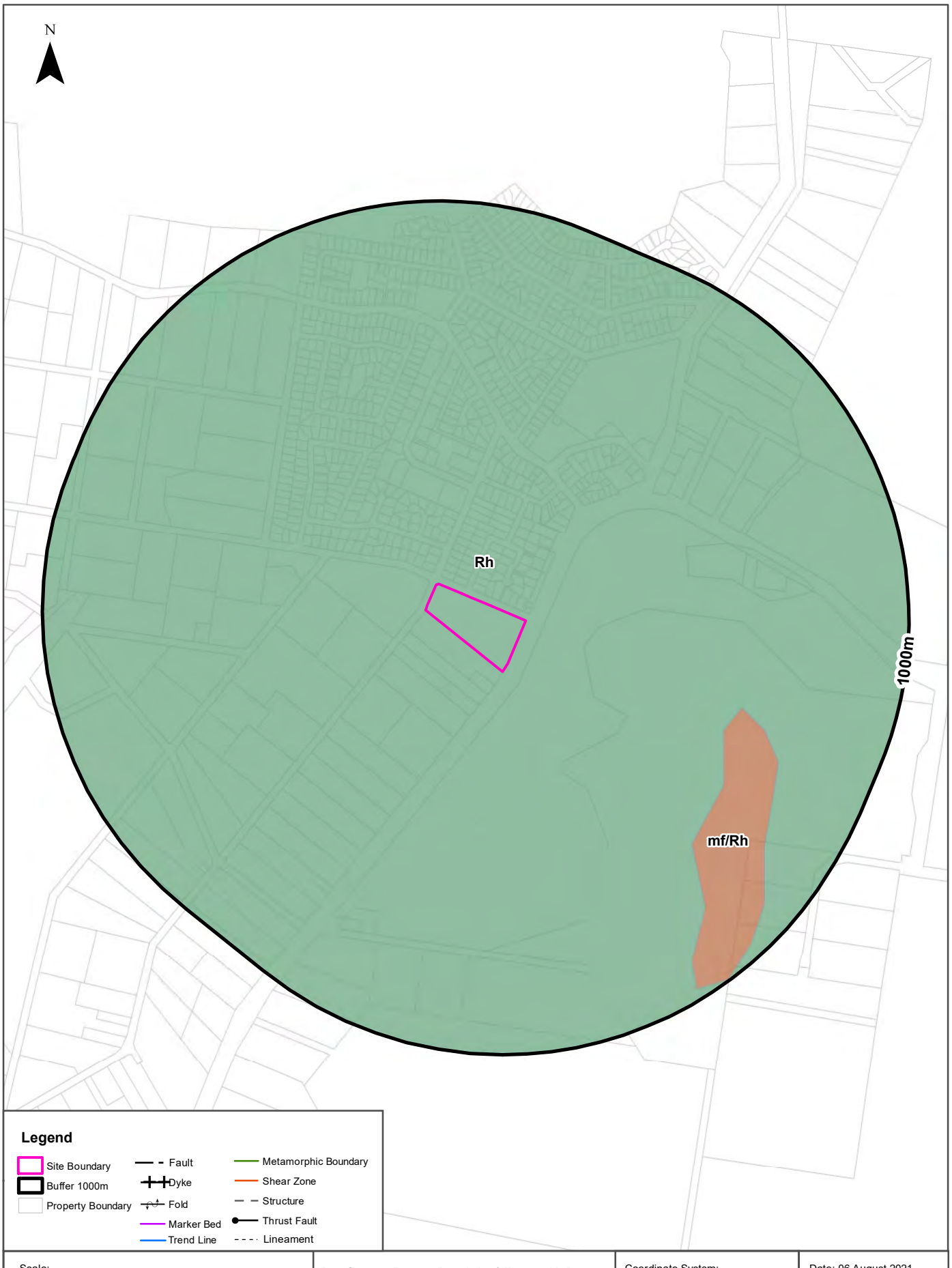
Geology

62 Myoora Road, Terrey Hills, NSW 2084



Scale: 0 100 200 400 600 Meters

Data Sources: Property Boundaries & Topographic Data: © Department Finance, Services & Innovation 2021

Coordinate System: GDA 1994 MGA Zone 56

Date: 06 August 2021

Geology

62 Myoora Road, Terrey Hills, NSW 2084

Geological Units 1:100,000

What are the Geological Units within the dataset buffer?

Symbol	Description	Unit Name	Group	Sub Group	Age	Dom Lith	Map Sheet	Dist	Dir
Rh	Medium to coarse grained quartz sandstone, very minor shale and laminate lenses				Triassic		Sydney	0m	On-site
mf/Rh							Sydney	586m	South East

Geological Structures 1:100,000

What are the Geological Structures within the dataset buffer?

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

Geological Data Source : NSW Department of Industry, Resources & Energy
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Naturally Occurring Asbestos Potential

62 Myoora Road, Terrey Hills, NSW 2084

Naturally Occurring Asbestos Potential

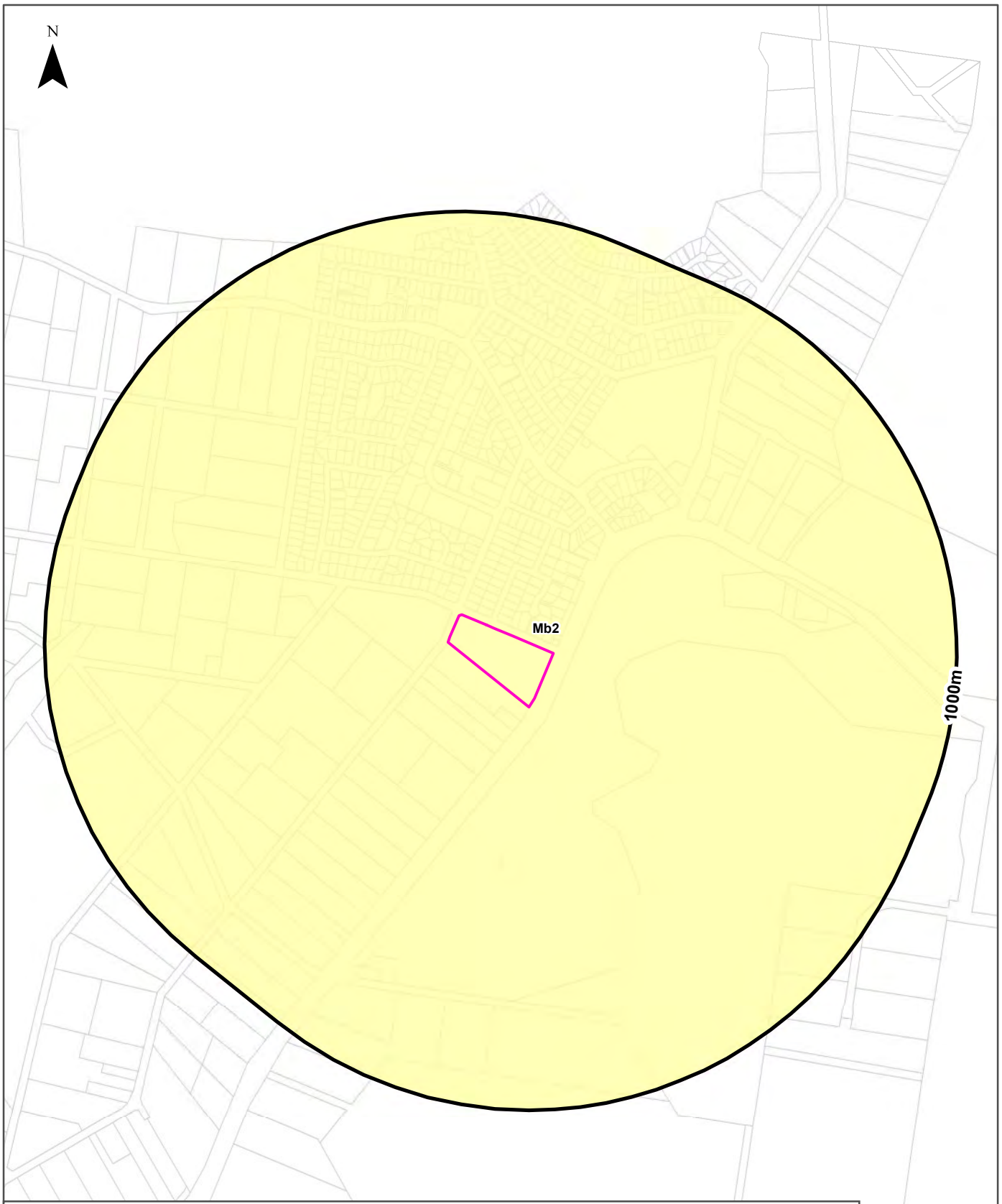
Naturally Occurring Asbestos Potential within the dataset buffer:

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

Naturally Occurring Asbestos Potential Data Source: © State of New South Wales through NSW Department of Industry, Resources & Energy

Atlas of Australian Soils

62 Myoora Road, Terrey Hills, NSW 2084



Legend

- Site Boundary
- Buffer 1000m
- Property Boundary

Australian Soil Classification Orders

Anthroposol	Dermosol	Kandosol	Podosol	Tenosol	No Data
Calcarosol	Ferrosol	Kurosol	Rudosol	Vertosol	
Chromosol	Hydrosol	Organosol	Sodosol	Lake	

Scale: 0 100 200 400 600 Meters

Data Sources: Property Boundaries & Topographic Data: © Department Finance, Services & Innovation 2021

Coordinate System: GDA 1994 MGA Zone 56

Date: 06 August 2021

Soils

62 Myoora Road, Terrey Hills, NSW 2084

Atlas of Australian Soils

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

Map Unit Code	Soil Order	Map Unit Description	Distance	Direction
Mb2	Kandosol	Dissected sandstone plateau of moderate to strong relief with sandstone pillars, ledges, and slabs-- level to undulating ridges, irregularly benched slopes, steep ridges, cliffs, canyons, narrow sandy valleys: chief soils are (i) on areas of gentle to moderate relief, acid yellow leached earths (Gn2.74) and (Gn2.34) and acid leached yellow earths (Gn2.24)- sometimes these soils contain ironstone gravel; and (ii) on, or adjacent to, areas of strong relief, siliceous sands (Uc1.2), leached sands (Uc2.12) and (Uc2.2), and shallow forms of the above (Gn2) soils. Associated are: (i) on flat to gently undulating remnants of the original plateau surface, leached sands (Uc2.3), siliceous sands (Uc1.2), sandy earths (Uc5.22), and (Gn2) soils as for (i) above (these areas are in part comparable with unit Cb29); (ii) on flat ironstone gravelly remnants of the original plateau surface, (Gn2) soils as for unit Mb5(i); (iii) on gently undulating ridges where interbedded shales are exposed, shallow, often stony (Dy3.41), (Dr2.21), and related soils similar to unit Tb35; (iv) narrow valleys of (Uc2.3) soils flanked by moderate slopes of (Dy3.41) soils; (v) escarpments of steep hills with shallow (Dy) and (Dr) soils between sandstone pillars; and (vi) shallow (Um) soils, such as (Um6.21) on steep hills of basic rocks. As mapped, minor areas of units Mg20, Mm1, and Mw8 are included. Data are limited.	0m	On-site

Atlas of Australian Soils Data Source: CSIRO
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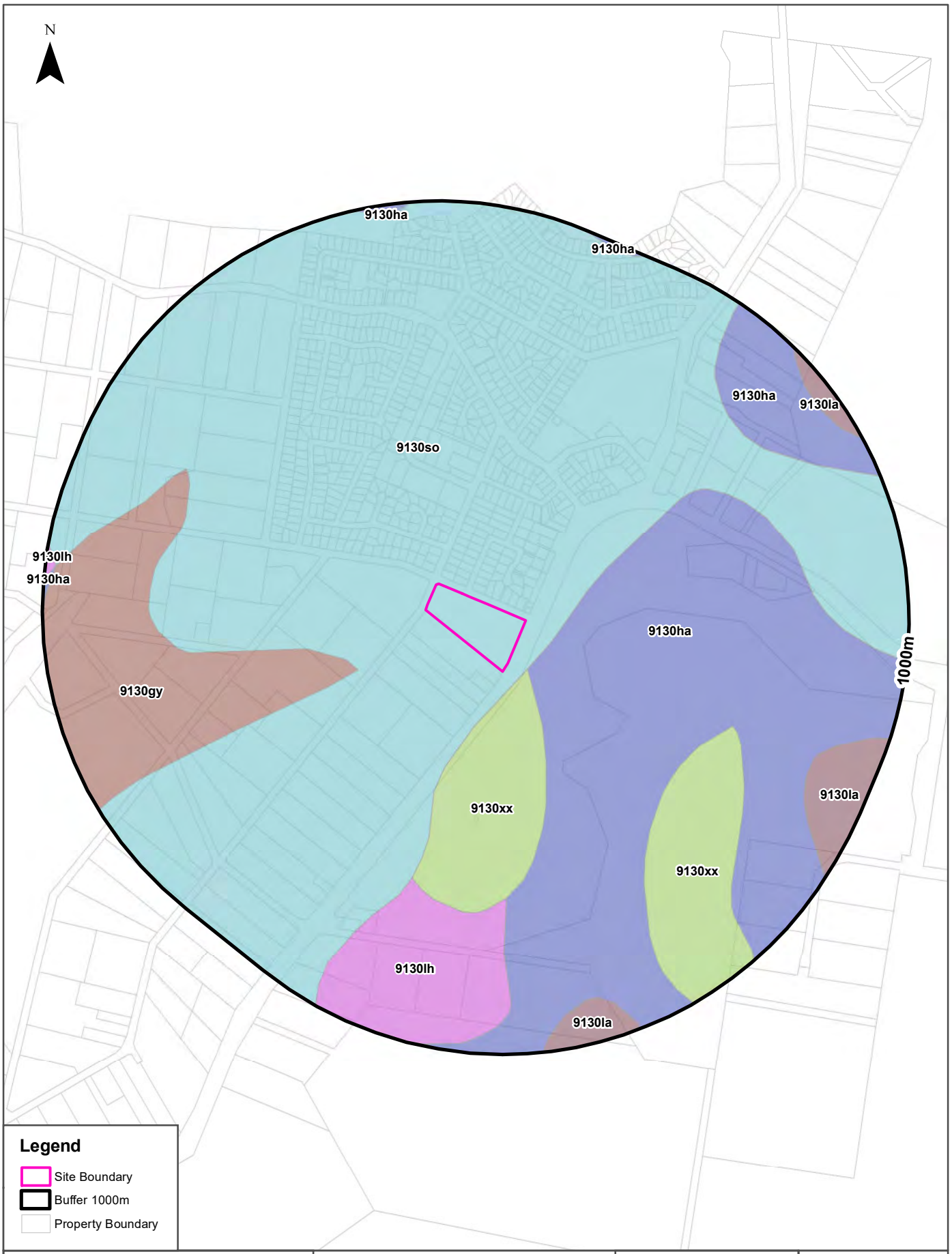
Soil Landscapes of Central and Eastern NSW

62 Myoora Road, Terrey Hills, NSW 2084



Scale: 0 100 200 400 600 Meters	Data Sources: Property Boundaries & Topographic Data: © Department Finance, Services & Innovation 2021	Coordinate System: GDA 1994 MGA Zone 56	Date: 06 August 2021

Soils

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Soil Landscapes of Central and Eastern NSW

Soil Landscapes of Central and Eastern NSW within the dataset buffer:

Soil Code	Name	Distance	Direction
9130so	Somersby	0m	On-site
9130xx	Disturbed Terrain	42m	South
9130ha	Hawkesbury	52m	South East
9130gy	Gymea	236m	West
9130lh	Lucas Heights	588m	South
9130la	Lambert	830m	South East

Soil Landscapes of Central and Eastern NSW: NSW Department of Planning, Industry and Environment
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Acid Sulfate Soils

62 Myoora Road, Terrey Hills, NSW 2084

Environmental Planning Instrument - Acid Sulfate Soils

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

Soil Class	Description	EPI Name
N/A		

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

Soil Class	Description	EPI Name	Distance	Direction
N/A				

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Atlas of Australian Acid Sulfate Soils

62 Myoora Road, Terrey Hills, NSW 2084

Legend

- Site Boundary
- Buffer 1000m
- Property Boundary

Probability of occurrence of Acid Sulfate Soils

- A. High (>70%)
- B. Low (6-70%)
- C. Extremely Low (1-5%)
- D. No Chance (0%)
- No Data

Scale: 0 100 200 400 600 Meters

Data Sources: Property Boundaries & Topographic Data: © Department Finance, Services & Innovation 2021

Coordinate System: GDA 1994 MGA Zone 56

Date: 06August 2021

Acid Sulfate Soils

62 Myoora Road, Terrey Hills, NSW 2084

Atlas of Australian Acid Sulfate Soils

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

Class	Description	Distance	Direction
C	Extremely low probability of occurrence. 1-5% chance of occurrence with occurrences in small localised areas.	0m	On-site

Atlas of Australian Acid Sulfate Soils Data Source: CSIRO
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Dryland Salinity

62 Myoora Road, Terrey Hills, NSW 2084

Dryland Salinity - National Assessment

Is there Dryland Salinity - National Assessment data onsite?

No

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

No

What Dryland Salinity assessments are given?

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

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

Mining

62 Myoora Road, Terrey Hills, NSW 2084

Mining Subsidence Districts

Mining Subsidence Districts within the dataset buffer:

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

Mining Subsidence District Data Source: © Land and Property Information (2016)
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Mining & Exploration Titles

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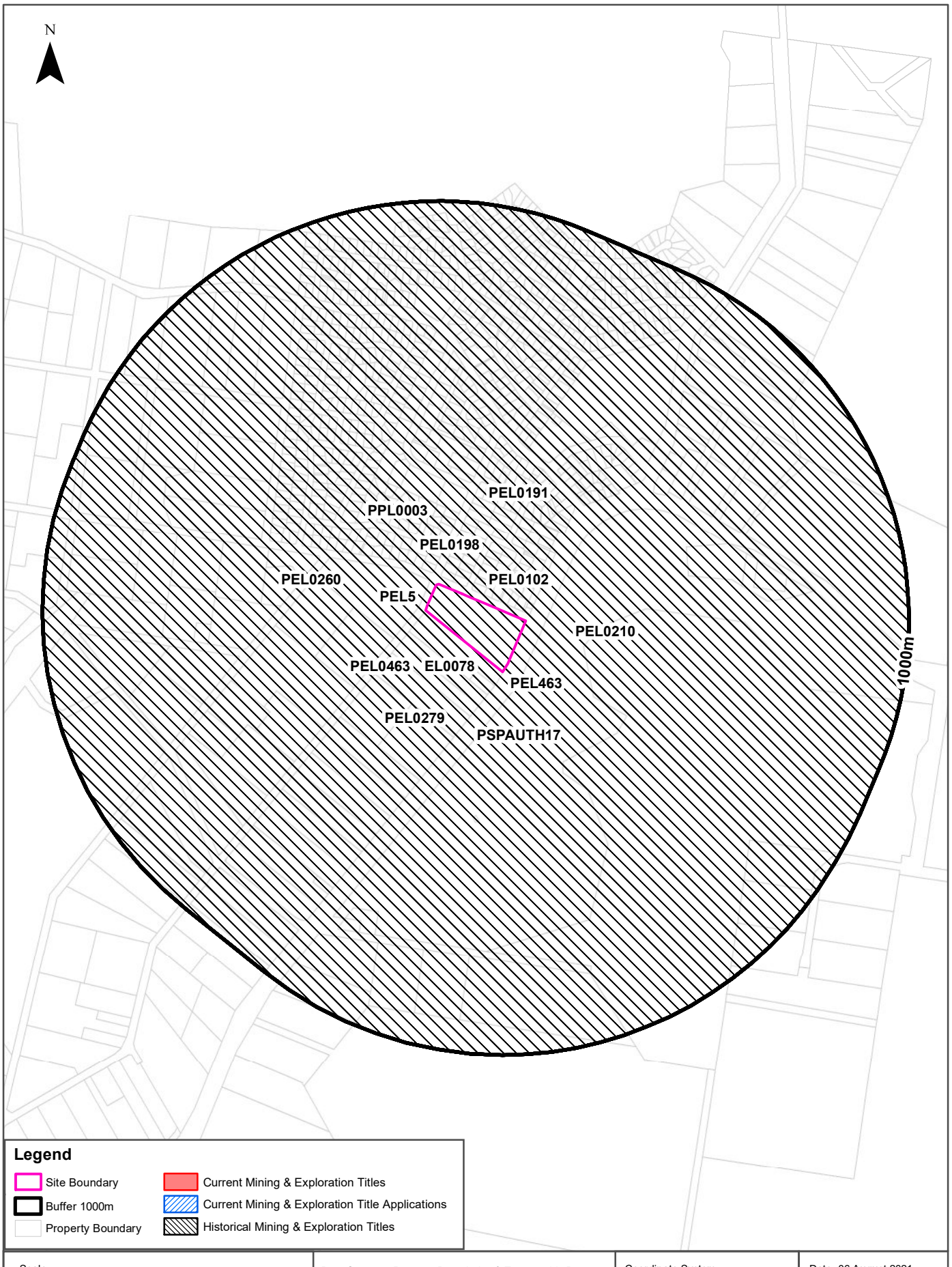

Scale: 0 100 200 400 600 Meters

Data Sources: Property Boundaries & Topographic Data: © Department Finance, Services & Innovation 2021

Coordinate System: GDA 1994 MGA Zone 56

Date: 06 August 2021

Mining

62 Myoora Road, Terrey Hills, NSW 2084

Current Mining & Exploration Titles

Current Mining & Exploration Titles within the dataset buffer:

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

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

Current Mining & Exploration Title Applications

Current Mining & Exploration Title Applications within the dataset buffer:

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

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

Mining

62 Myoora Road, Terrey Hills, NSW 2084

Historical Mining & Exploration Titles

Historical Mining & Exploration Titles within the dataset buffer:

Title Ref	Holder	Start Date	End Date	Resource	Minerals	Dist	Dir
PEL0102	AUSTRALIAN OIL AND GAS CORPORATION LTD			PETROLEUM	Petroleum	0m	On-site
EL0078	CONTINENTAL OIL CO OF AUSTRALIA LIMITED	01 Feb 1967	01 Feb 1968	MINERALS		0m	On-site
PEL463	DART ENERGY (APOLLO) PTY LTD			MINERALS		0m	On-site
PEL5	AGL UPSTREAM INVESTMENTS PTY LIMITED			MINERALS		0m	On-site
PEL0463	DART ENERGY (APOLLO) PTY LTD	22/10/2008	6/03/2015	PETROLEUM	Petroleum	0m	On-site
PPL0003	AUSTRALIAN OIL AND GAS CORPORATION LTD			PETROLEUM	Petroleum	0m	On-site
PSPAUTH17	MACQUARIE ENERGY PTY LTD	8/03/2007	7/03/2008	PETROLEUM	Petroleum	0m	On-site
PEL0191	NORTHWEST OIL AND MINERALS CO NL			PETROLEUM	Petroleum	0m	On-site
PEL0198	JOHN STREVENS (TERRIGAL) NL			PETROLEUM	Petroleum	0m	On-site
PEL0210	THE AUSTRALIAN GAS LIGHT COMPANY (AGL), NORTH BULLI COLLIERIES PTY LTD			PETROLEUM	Petroleum	0m	On-site
PEL0260	NORTH BULLI COLLIERIES PTY LTD, AGL PETROLEUM OPERATIONS PTY LTD, THE AUSTRALIAN GAS LIGHT CO.	9/09/1981	8/03/1993	PETROLEUM	Petroleum	0m	On-site
PEL0279	THE ELECTRICITY COMMISSION OF NSW (TRADING AS PACIFIC POWER)	17/04/1990	11/11/1993	PETROLEUM	Petroleum	0m	On-site

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

State Environmental Planning Policy

62 Myoora Road, Terrey Hills, NSW 2084

State Significant Precincts

What SEPP State Significant Precincts exist within the dataset buffer?

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

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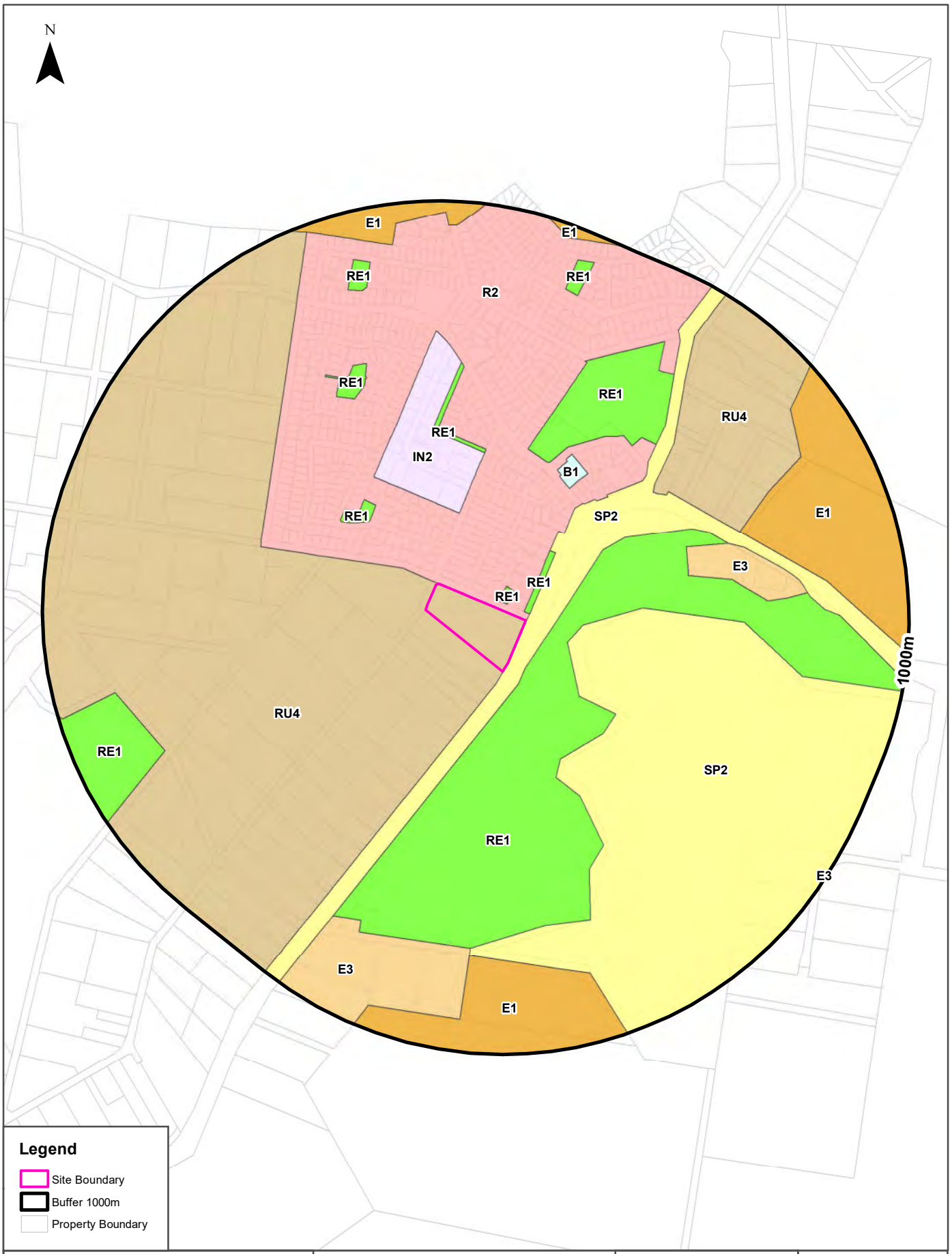
EPI Planning Zones

62 Myoora Road, Terrey Hills, NSW 2084



Scale: 0 100 200 400 600 Meters

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Planning: NSW Crown Copyright - Planning & Environment

Coordinate System: GDA 1994 MGA Zone 56

Date: 06 August 2021

Environmental Planning Instrument

62 Myoora Road, Terrey Hills, NSW 2084

Land Zoning

What EPI Land Zones exist within the dataset buffer?

Zone	Description	Purpose	EPI Name	Published Date	Commenced Date	Currency Date	Amendment	Distance	Direction
RU4	Primary Production Small Lots		Warringah Local Environmental Plan 2011	09/12/2011	09/12/2011	11/09/2020		0m	On-site
R2	Low Density Residential		Warringah Local Environmental Plan 2011	09/12/2011	09/12/2011	11/09/2020		0m	North
SP2	Infrastructure	Classified Road	Warringah Local Environmental Plan 2011	09/12/2011	09/12/2011	11/09/2020		0m	East
RE1	Public Recreation		Warringah Local Environmental Plan 2011	09/12/2011	09/12/2011	11/09/2020		20m	North East
RE1	Public Recreation		Warringah Local Environmental Plan 2011	09/12/2011	09/12/2011	11/09/2020		45m	South East
SP2	Infrastructure	W & R Management Facility	Warringah Local Environmental Plan 2011	27/06/2014	27/06/2014	11/09/2020	Amendment No 7	120m	South East
IN2	Light Industrial		Warringah Local Environmental Plan 2011	09/12/2011	09/12/2011	11/09/2020		193m	North
RE1	Public Recreation		Warringah Local Environmental Plan 2011	09/12/2011	09/12/2011	11/09/2020		243m	North West
RE1	Public Recreation		Warringah Local Environmental Plan 2011	09/12/2011	09/12/2011	11/09/2020		362m	North
B1	Neighbourhood Centre		Warringah Local Environmental Plan 2011	09/12/2011	09/12/2011	11/09/2020		363m	North East
RE1	Public Recreation		Warringah Local Environmental Plan 2011	09/12/2011	09/12/2011	11/09/2020		402m	North East
E3	Environmental Management		Warringah Local Environmental Plan 2011	09/12/2011	09/12/2011	11/09/2020		439m	East
RU4	Primary Production Small Lots		Warringah Local Environmental Plan 2011	09/12/2011	09/12/2011	11/09/2020		472m	North East
RE1	Public Recreation		Warringah Local Environmental Plan 2011	09/12/2011	09/12/2011	11/09/2020		532m	North West
E1	National Parks and Nature Reserves		Warringah Local Environmental Plan 2011	09/12/2011	09/12/2011	11/09/2020		604m	East
E3	Environmental Management		Warringah Local Environmental Plan 2011	09/12/2011	09/12/2011	11/09/2020		727m	South
E1	National Parks and Nature Reserves		Warringah Local Environmental Plan 2011	09/12/2011	09/12/2011	11/09/2020		747m	South
RE1	Public Recreation		Warringah Local Environmental Plan 2011	09/12/2011	09/12/2011	11/09/2020		774m	West
RE1	Public Recreation		Warringah Local Environmental Plan 2011	09/12/2011	09/12/2011	11/09/2020		792m	North
RE1	Public Recreation		Warringah Local Environmental Plan 2011	09/12/2011	09/12/2011	11/09/2020		835m	North
E1	National Parks and Nature Reserves		Warringah Local Environmental Plan 2011	09/12/2011	09/12/2011	11/09/2020		893m	North
E3	Environmental Management		Warringah Local Environmental Plan 2011	09/12/2011	09/12/2011	11/09/2020		993m	South East

Environmental Planning Instrument Data Source: NSW Crown Copyright - Planning & Environment
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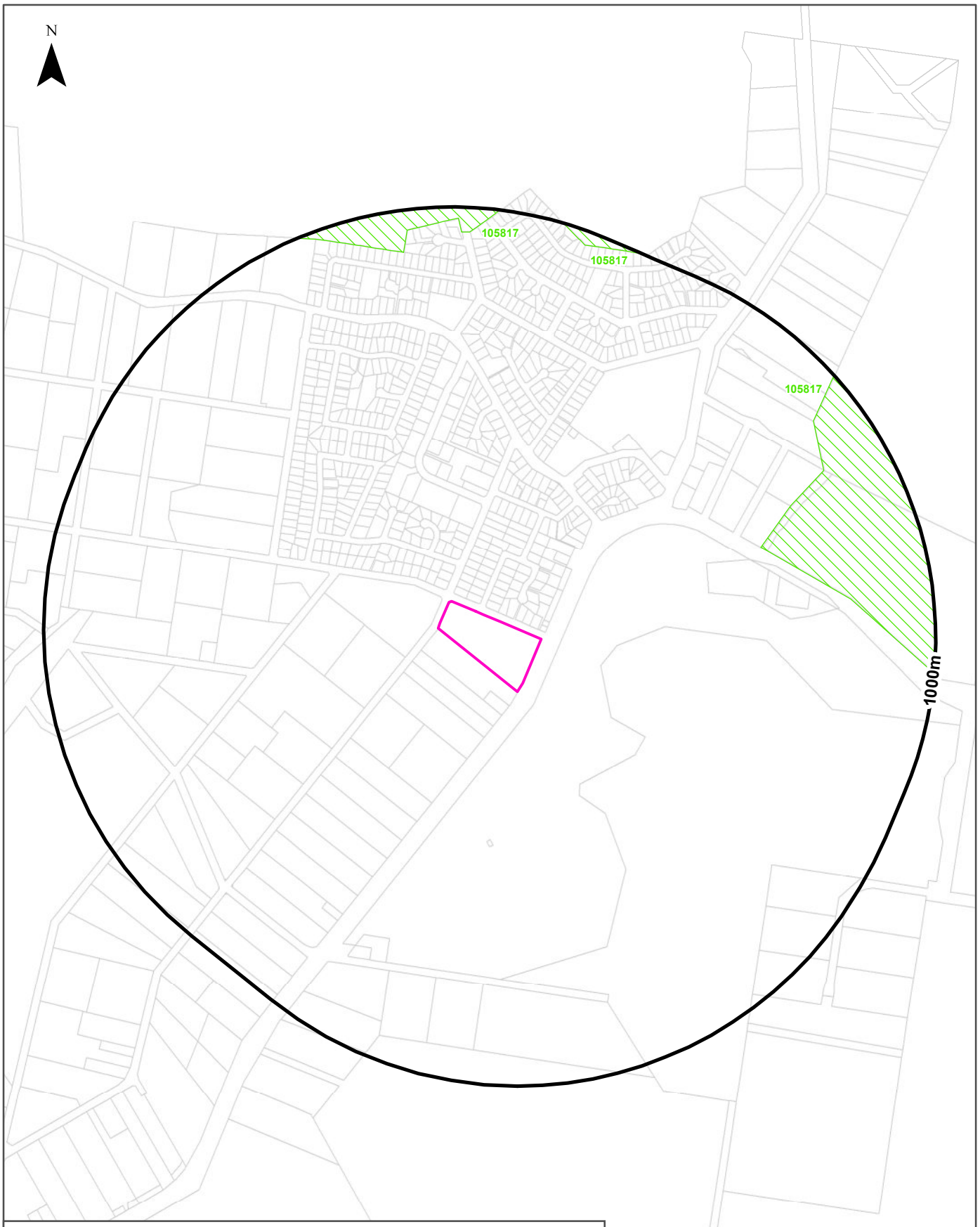
Heritage Items

62 Myoora Road, Terrey Hills, NSW 2084



Legend

- Site Boundary
- Property Boundary
- Buffer 1000m
- Commonwealth Heritage List
- National Heritage List
- State Heritage Items
- EPI Heritage Items

Scale: 0 100 200 400 600 Meters

Data Sources: Property Boundaries & Topographic Data: © Department Finance, Services & Innovation 2021
Heritage - NSW Crown Copyright - Planning & Environment

Coordinate System: GDA 1994 MGA Zone 56

Date: 06 August 2021

Heritage

62 Myoora Road, Terrey Hills, NSW 2084

Commonwealth Heritage List

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

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

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

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

Place Id	Name	Address	Place File No	Class	Status	Register Date	Distance	Direction
105817	Ku-ring-gai Chase National Park, Lion, Long and Spectacle Island Nature Reserves	Ku-ring-gai Chase Rd, Bobbin Head NSW	1/13/016/0003	Natural	Listed place	15/12/2006	604m	North East

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

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

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

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

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

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

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Natural Hazards - Bush Fire Prone Land

62 Myoora Road, Terrey Hills, NSW 2084

Scale: 0 100 200 400 600 Meters

Data Sources: Bush Fire Prone Land: © NSW Rural Fire Service 2021. Property Boundaries: © Department Finance, Services & Innovation 2021

Coordinate System: GDA 1994 MGA Zone 56

Date: 06 August 2021

Natural Hazards

62 Myoora Road, Terrey Hills, NSW 2084

Bush Fire Prone Land

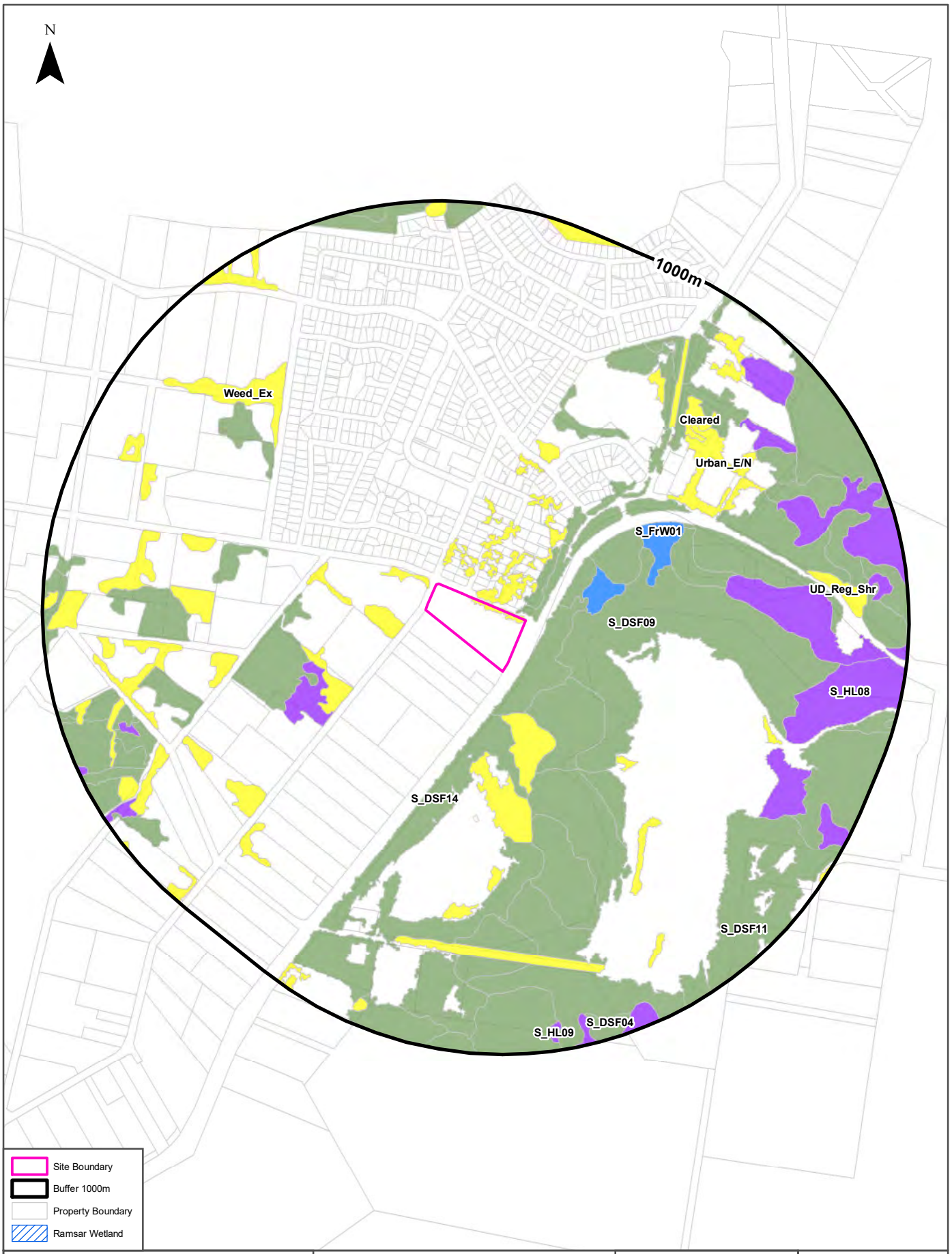
What are the nearest Bush Fire Prone Land Categories that exist within the dataset buffer?

Bush Fire Prone Land Category	Distance	Direction
Vegetation Buffer	0m	On-site
Vegetation Category 2	20m	North East
Vegetation Category 1	43m	South East

NSW Bush Fire Prone Land - © NSW Rural Fire Service under Creative Commons 4.0 International Licence

Ecological Constraints - Vegetation & Ramsar Wetlands

62 Myoora Road, Terrey Hills, NSW 2084



Scale: 0 100 200 400 600 Meters

Data Sources: Property Boundaries & Topographic Data: © Department Finance, Services & Innovation 2021

Coordinate System: GDA 1994 MGA Zone 56

Date: 06 August 2021

Ecological Constraints

62 Myoora Road, Terrey Hills, NSW 2084

Native Vegetation

What native vegetation exists within the dataset buffer?

Map ID	Map Unit Name	Threatened Ecological Community NSW	Threatened Ecological Community EPBC Act	Understorey	Disturbance	Disturbance Index	Dominant Species	Dist	Dir
Urban_E/N	Urban_E/N: Urban Exotic/Native			00: Not assessed	00: Not assessed	0: Not assessed	Urban Exotic/Native	0m	On-site
S_DSF14	S_DSF14: Sydney Ironstone Bloodwood-Silvertop Ash Forest	Duffys Forest Ecological Community		21: Ferns dominant	13: Weeds	2: Moderate	E.sieberi/C.gummifera/E.haemastoma	8m	North East
S_DSF14	S_DSF14: Sydney Ironstone Bloodwood-Silvertop Ash Forest	Duffys Forest Ecological Community		33: Weedy shrubs	13: Weeds	3: High	E.sieberi/C.gummifera/E.haemastoma	37m	North East
S_DSF14	S_DSF14: Sydney Ironstone Bloodwood-Silvertop Ash Forest	Duffys Forest Ecological Community		12: Dry xeric shrubs	13: Weeds	2: Moderate	A.costata/E.sieberi/E.capitellata/C.gummiferaE.umbra/E.haemastoma	38m	South East
S_DSF14	S_DSF14: Sydney Ironstone Bloodwood-Silvertop Ash Forest	Duffys Forest Ecological Community		12: Dry xeric shrubs	13: Weeds	2: Moderate	E.sieberi/C.gummifera/E.haemastoma	94m	East
S_DSF09	S_DSF09: Coastal Sandstone Gully Forest			11: Semi sheltered dry/mesic	13: Weeds	2: Moderate	A.costata/E.sieberi/E.piperita/C.gummiferaE.resinifera/E.umbra	105m	South East
S_DSF09	S_DSF09: Coastal Sandstone Gully Forest			11: Semi sheltered dry/mesic	13: Weeds	2: Moderate	A.costata/E.piperitaE.umbra/C.gummifera	107m	East
S_DSF14	S_DSF14: Sydney Ironstone Bloodwood-Silvertop Ash Forest	Duffys Forest Ecological Community		12: Dry xeric shrubs	13: Weeds	3: High	A.costata/E.sieberi/E.capitellata/C.gummiferaE.umbra/E.haemastoma	111m	South
Weed_Ex	Weed_Ex: Weeds and Exotics			00: Not assessed	00: Not assessed	0: Not assessed	Exotic Species >90%cover	111m	South East
S_FrW01	S_FrW01: Coastal Upland Damp Heath Swamp	Coastal Upland Swamp		18: Swampy sedges, shrubs, ferns and herbs	13: Weeds	3: High	B.ericifolia/Hakea spp/sedges	159m	East
S_DSF14	S_DSF14: Sydney Ironstone Bloodwood-Silvertop Ash Forest	Duffys Forest Ecological Community		18: Swampy sedges, shrubs, ferns and herbs	13: Weeds	3: High	E.sieberi/C.gummifera/E.haemastoma	231m	North East
S_DSF11	S_DSF11: Sydney North Exposed Sandstone Woodland			00: Not assessed	00: Not assessed	0: Not assessed	E.haemastoma/B.serrata	300m	West
S_HL08	S_HL08: Coastal Sandstone Heath-Mallee			00: Not assessed	00: Not assessed	0: Not assessed	A.distyla/B.ericifolia/Leptospermum spp/A.hispida	306m	South West
S_DSF09	S_DSF09: Coastal Sandstone Gully Forest			12: Dry xeric shrubs	99: No visible disturbance	5: No visible disturbance	A.costata/E.piperita/C.gummifera/S.glomulifera/E.resinifera	324m	South East
S_FrW01	S_FrW01: Coastal Upland Damp Heath Swamp	Coastal Upland Swamp		19: Dense heath	13: Weeds	3: High	B.ericifolia/Hakea spp/sedges	330m	North East
S_DSF09	S_DSF09: Coastal Sandstone Gully Forest			11: Semi sheltered dry/mesic	19: Clearing/Part clearing	4: Very high	A.costata/E.sieberi/E.piperita/C.gummiferaE.resinifera/E.umbra	383m	South
S_DSF11	S_DSF11: Sydney North Exposed Sandstone Woodland			19: Dense heath	99: No visible disturbance	5: No visible disturbance	C.gummifera/E.haemastoma/A.costataE.sieberi	405m	East
S_DSF14	S_DSF14: Sydney Ironstone Bloodwood-Silvertop Ash Forest	Duffys Forest Ecological Community		15: Grassy natives and exotics	13: Weeds	3: High	A.costata/E.sieberi/E.capitellata/C.gummiferaE.umbra/E.haemastoma	430m	South

Map ID	Map Unit Name	Threatened Ecological Community NSW	Threatened Ecological Community EPBC Act	Understorey	Disturbance	Disturbance Index	Dominant Species	Dist	Dir
S_DSF14	S_DSF14: Sydney Ironstone Bloodwood-Silvertop Ash Forest	Duffys Forest Ecological Community		24: Urban and hard surface	29: Urban rural landuse	3: High	E.sieberi/C.gummifera/E.haemastoma	436m	West
S_DSF14	S_DSF14: Sydney Ironstone Bloodwood-Silvertop Ash Forest	Duffys Forest Ecological Community		12: Dry xeric shrubs	11: Roads/trails	1: Low	E.sieberi/C.gummifera/E.haemastoma	465m	East
S_DSF14	S_DSF14: Sydney Ironstone Bloodwood-Silvertop Ash Forest	Duffys Forest Ecological Community		20: Weeds and exotics	13: Weeds	3: High	E.sieberi/C.gummifera/E.haemastoma	488m	North East
S_DSF14	S_DSF14: Sydney Ironstone Bloodwood-Silvertop Ash Forest	Duffys Forest Ecological Community		20: Weeds and exotics	24: Urban mixed use	4: Very high	E.sieberi/C.gummifera/E.haemastoma	502m	North East
S_DSF14	S_DSF14: Sydney Ironstone Bloodwood-Silvertop Ash Forest	Duffys Forest Ecological Community		20: Weeds and exotics	19: Clearing/Part clearing	4: Very high	E.sieberi/C.gummifera/E.haemastoma	512m	North West
S_HL08	S_HL08: Coastal Sandstone Heath-Mallee			19: Dense heath	99: No visible disturbance	5: No visible disturbance	E.luehmaniana/C.gummifera/E.haemastoma	525m	East
S_DSF09	S_DSF09: Coastal Sandstone Gully Forest			11: Semi sheltered dry/mesic	13: Weeds	1: Low	A.costata/E.sieberi/E.piperita/C.gummiferaE.resinifera/E.umbra	545m	South
S_DSF14	S_DSF14: Sydney Ironstone Bloodwood-Silvertop Ash Forest	Duffys Forest Ecological Community		13: Dry shrubs and grasses	99: No visible disturbance	5: No visible disturbance	A.costata/E.sieberi/E.capitellata/C.gummiferaE.umbra/E.haemastoma	560m	East
S_DSF11	S_DSF11: Sydney North Exposed Sandstone Woodland			19: Dense heath	13: Weeds	3: High	E.haemastoma/B.serrata	585m	North East
S_DSF11	S_DSF11: Sydney North Exposed Sandstone Woodland			19: Dense heath	22: Fire	1: Low	C.gummifera/E.haemastoma/A.costataE.sieberi	612m	West
S_DSF14	S_DSF14: Sydney Ironstone Bloodwood-Silvertop Ash Forest	Duffys Forest Ecological Community		00: Not assessed	00: Not assessed	0: Not assessed	A.costata/E.sieberi/E.capitellata/C.gummiferaE.umbra/E.haemastoma	619m	North East
Cleared	Cleared			00: Not assessed	00: Not assessed	0: Not assessed	Cleared	625m	North East
S_DSF11	S_DSF11: Sydney North Exposed Sandstone Woodland			19: Dense heath	13: Weeds	2: Moderate	C.gummifera/E.haemastoma/A.costataE.sieberi	633m	South
S_DSF14	S_DSF14: Sydney Ironstone Bloodwood-Silvertop Ash Forest	Duffys Forest Ecological Community		12: Dry xeric shrubs	15: Regrowth	2: Moderate	E.sieberi/C.gummifera/E.haemastoma	692m	North East
S_DSF11	S_DSF11: Sydney North Exposed Sandstone Woodland			19: Dense heath	14: Canopy gaps	3: High	E.haemastoma/B.serrata	696m	South East
S_DSF11	S_DSF11: Sydney North Exposed Sandstone Woodland			19: Dense heath	99: No visible disturbance	5: No visible disturbance	E.haemastoma/B.serrata	707m	East
S_HL08	S_HL08: Coastal Sandstone Heath-Mallee			19: Dense heath	15: Regrowth	2: Moderate	A.distyla/B.ericifolia/Leptospermum spp/A.hispida	714m	South East
S_HL08	S_HL08: Coastal Sandstone Heath-Mallee			19: Dense heath	99: No visible disturbance	5: No visible disturbance	A.distyla/B.ericifolia/Leptospermum spp/A.hispida	716m	East
S_DSF11	S_DSF11: Sydney North Exposed Sandstone Woodland			19: Dense heath	19: Clearing/Part clearing	3: High	C.gummifera/E.haemastoma/A.costataE.sieberi	739m	North East
UD_Reg_Shr	UD_Reg_Shr: Undifferentiated Regenerating Shrubs			00: Not assessed	00: Not assessed	0: Not assessed	Undifferentiated Regenerating Scrubs	741m	East
S_DSF11	S_DSF11: Sydney North Exposed Sandstone Woodland			22: Underscrubbed	24: Urban mixed use	4: Very high	C.gummifera/E.haemastoma/A.costataE.sieberi	749m	South
S_DSF14	S_DSF14: Sydney Ironstone Bloodwood-Silvertop Ash Forest	Duffys Forest Ecological Community		12: Dry xeric shrubs	15: Regrowth	2: Moderate	A.costata/E.sieberi/E.capitellata/C.gummiferaE.umbra/E.haemastoma	771m	South
S_DSF11	S_DSF11: Sydney North Exposed Sandstone Woodland			19: Dense heath	11: Roads/trails	1: Low	E.haemastoma/B.serrata	788m	South East

Map ID	Map Unit Name	Threatened Ecological Community NSW	Threatened Ecological Community EPBC Act	Understorey	Disturbance	Disturbance Index	Dominant Species	Dist	Dir
S_DSF09	S_DSF09: Coastal Sandstone Gully Forest			11: Semi sheltered dry/mesic	99: No visible disturbance	5: No visible disturbance	A.costata/E.piperita/C.gummifera/S.glomulifera/E.resinifera	792m	North East
S_DSF09	S_DSF09: Coastal Sandstone Gully Forest			11: Semi sheltered dry/mesic	13: Weeds	3: High	A.costata/E.piperita/C.gummifera/S.glomulifera/E.resinifera	841m	South West
S_HL08	S_HL08: Coastal Sandstone Heath-Mallee			19: Dense heath	15: Regrowth	3: High	A.distyla/B.ericifolia/Leptospermum spp/A.hispida	849m	North East
S_DSF11	S_DSF11: Sydney North Exposed Sandstone Woodland			19: Dense heath	15: Regrowth	1: Low	E.haemastoma/B.serrata	856m	East
S_DSF11	S_DSF11: Sydney North Exposed Sandstone Woodland			19: Dense heath	24: Urban mixed use	3: High	E.haemastoma/B.serrata	869m	North East
S_DSF14	S_DSF14: Sydney Ironstone Bloodwood-Silvertop Ash Forest	Duffys Forest Ecological Community		24: Urban and hard surface	24: Urban mixed use	4: Very high	E.sieberi/C.gummifera/E.haemastoma	885m	South West
S_DSF09	S_DSF09: Coastal Sandstone Gully Forest			24: Urban and hard surface	24: Urban mixed use	4: Very high	A.costata/E.sieberi/E.piperita/C.gummiferaE.resinifera/E.umbra	896m	West
S_DSF14	S_DSF14: Sydney Ironstone Bloodwood-Silvertop Ash Forest	Duffys Forest Ecological Community		11: Semi sheltered dry/mesic	13: Weeds	2: Moderate	A.costata/E.sieberi/E.capitellata/C.gummiferaE.umbra/E.haemastoma	911m	South
S_DSF09	S_DSF09: Coastal Sandstone Gully Forest			11: Semi sheltered dry/mesic	99: No visible disturbance	5: No visible disturbance	A.costata/E.piperitaE.umbra/C.gummifera	914m	South East
S_DSF11	S_DSF11: Sydney North Exposed Sandstone Woodland			12: Dry xeric shrubs	99: No visible disturbance	5: No visible disturbance	C.gummifera/E.haemastoma/A.costataE.sieberi	919m	North
S_DSF04	S_DSF04: Coastal Enriched Sandstone Dry Forest			19: Dense heath	99: No visible disturbance	5: No visible disturbance	C.gummifera/E.haemastoma/A.costataE.sieberi	919m	South
S_HL09	S_HL09: Coastal Sandstone Rock Plate Heath			19: Dense heath	11: Roads/trails	1: Low	Exposed rockplates with low heath	924m	South
S_DSF11	S_DSF11: Sydney North Exposed Sandstone Woodland			19: Dense heath	24: Urban mixed use	3: High	C.gummifera/E.haemastoma/A.costataE.sieberi	927m	North East
S_DSF11	S_DSF11: Sydney North Exposed Sandstone Woodland			19: Dense heath	13: Weeds	3: High	C.gummifera/E.haemastoma/A.costataE.sieberi	946m	West
S_DSF11	S_DSF11: Sydney North Exposed Sandstone Woodland			12: Dry xeric shrubs	13: Weeds	3: High	E.haemastoma/B.serrata	994m	North West

Native Vegetation of the Sydney Metropolitan Area : NSW Office of Environment and Heritage
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Ramsar Wetlands

What Ramsar Wetland areas exist within the dataset buffer?

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

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

Ecological Constraints

62 Myoora Road, Terrey Hills, NSW 2084

Groundwater Dependent Ecosystems Atlas

Type	GDE Potential	Geomorphology	Ecosystem Type	Aquifer Geology	Distance	Direction
N/A	No records in buffer					

Groundwater Dependent Ecosystems Atlas Data Source: The Bureau of Meteorology
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Ecological Constraints

62 Myoora Road, Terrey Hills, NSW 2084

Inflow Dependent Ecosystems Likelihood

Type	IDE Likelihood	Geomorphology	Ecosystem Type	Aquifer Geology	Distance	Direction
N/A	No records in buffer					

Inflow Dependent Ecosystems Likelihood Data Source: The Bureau of Meteorology
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Ecological Constraints

62 Myoora Road, Terrey Hills, NSW 2084

NSW BioNet Atlas

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

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Animalia	Amphibia	Heleioporus australiacus	Giant Burrowing Frog	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Amphibia	Litoria aurea	Green and Golden Bell Frog	Endangered	Not Sensitive	Vulnerable	
Animalia	Amphibia	Pseudophryne australis	Red-crowned Toadlet	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Anthochaera phrygia	Regent Honeyeater	Critically Endangered	Not Sensitive	Critically Endangered	
Animalia	Aves	Apus pacificus	Fork-tailed Swift	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Ardenna carneipes	Flesh-footed Shearwater	Vulnerable	Not Sensitive	Not Listed	ROKAMBA;JAMBA
Animalia	Aves	Ardenna grisea	Sooty Shearwater	Not Listed	Not Sensitive	Not Listed	JAMBA
Animalia	Aves	Ardenna pacifica	Wedge-tailed Shearwater	Not Listed	Not Sensitive	Not Listed	JAMBA
Animalia	Aves	Ardenna tenuirostris	Short-tailed Shearwater	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Artamus cyanopterus cyanopterus	Dusky Woodswallow	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Botaurus poiciloptilus	Australasian Bittern	Endangered	Not Sensitive	Endangered	
Animalia	Aves	Burhinus grallarius	Bush Stone-curlew	Endangered	Not Sensitive	Not Listed	
Animalia	Aves	Calidris acuminata	Sharp-tailed Sandpiper	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Calidris alba	Sanderling	Vulnerable	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Calidris ferruginea	Curlew Sandpiper	Endangered	Not Sensitive	Critically Endangered	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Calidris ruficollis	Red-necked Stint	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Calidris tenuirostris	Great Knot	Vulnerable	Not Sensitive	Critically Endangered	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Callocephalon fimbriatum	Gang-gang Cockatoo	Endangered Population, Vulnerable	Category 3	Not Listed	
Animalia	Aves	Callocephalon fimbriatum	Gang-gang Cockatoo	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Calyptorhynchus banksii banksii	Red-tailed Black-Cockatoo (coastal subspecies)	Critically Endangered	Category 2	Not Listed	
Animalia	Aves	Calyptorhynchus banksii samueli	Red-tailed Black-Cockatoo (inland subspecies)	Vulnerable	Category 2	Not Listed	
Animalia	Aves	Calyptorhynchus lathami	Glossy Black-Cockatoo	Vulnerable	Category 2	Not Listed	
Animalia	Aves	Cecropis daurica	Red-rumped Swallow	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Climacteris picumnus victoriae	Brown Treecreeper (eastern subspecies)	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Cuculus optatus	Oriental Cuckoo	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Animalia	Aves	Daphoenositta chrysoptera	Varied Sittella	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Diomedea exulans	Wandering Albatross	Endangered	Not Sensitive	Endangered	
Animalia	Aves	Esacus magnirostris	Beach Stone-curlew	Critically Endangered	Not Sensitive	Not Listed	
Animalia	Aves	Fregata ariel	Lesser Frigatebird	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Gallinago hardwickii	Latham's Snipe	Not Listed	Not Sensitive	Not Listed	ROKAMBA;JAMBA
Animalia	Aves	Glossopsitta pusilla	Little Lorikeet	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Haematopus fuliginosus	Sooty Oystercatcher	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Haematopus longirostris	Pied Oystercatcher	Endangered	Not Sensitive	Not Listed	
Animalia	Aves	Haliaeetus leucogaster	White-bellied Sea-Eagle	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Hieraaetus morphnoides	Little Eagle	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Hirundapus caudacutus	White-throated Needletail	Not Listed	Not Sensitive	Vulnerable	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Hydroprogne caspia	Caspian Tern	Not Listed	Not Sensitive	Not Listed	JAMBA
Animalia	Aves	Ixobrychus flavicollis	Black Bittern	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Lathamus discolor	Swift Parrot	Endangered	Category 3	Critically Endangered	
Animalia	Aves	Limicola falcinellus	Broad-billed Sandpiper	Vulnerable	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Limosa lapponica	Bar-tailed Godwit	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Lophoictinia isura	Square-tailed Kite	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Melithreptus gularis gularis	Black-chinned Honeyeater (eastern subspecies)	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Menura alberti	Albert's Lyrebird	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Neophema pulchella	Turquoise Parrot	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Ninox connivens	Barking Owl	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Ninox strenua	Powerful Owl	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Onychoprion fuscata	Sooty Tern	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Pachycephala olivacea	Olive Whistler	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Pandion cristatus	Eastern Osprey	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Petroica boodang	Scarlet Robin	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Philomachus pugnax	Ruff	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Pluvialis squatarola	Grey Plover	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Polytelis swainsonii	Superb Parrot	Vulnerable	Category 3	Vulnerable	
Animalia	Aves	Pomatostomus temporalis temporalis	Grey-crowned Babbler (eastern subspecies)	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Pterodroma solandri	Providence Petrel	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Ptilinopus magnificus	Wompoo Fruit-Dove	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Ptilinopus regina	Rose-crowned Fruit-Dove	Vulnerable	Not Sensitive	Not Listed	

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Animalia	Aves	Ptilinopus superbus	Superb Fruit-Dove	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Rostratula australis	Australian Painted Snipe	Endangered	Not Sensitive	Endangered	
Animalia	Aves	Sterna hirundo	Common Tern	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Stictonetta naevosa	Freckled Duck	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Thalassarche cauta	Shy Albatross	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Aves	Thalassarche chrysostoma	Grey-headed Albatross	Not Listed	Not Sensitive	Endangered	
Animalia	Aves	Thalassarche melanophris	Black-browed Albatross	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Aves	Thalasseus bergii	Crested Tern	Not Listed	Not Sensitive	Not Listed	JAMBA
Animalia	Aves	Tringa brevipes	Grey-tailed Tattler	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Tringa nebularia	Common Greenshank	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Tringa stagnatilis	Marsh Sandpiper	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Tyto novaehollandiae	Masked Owl	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Tyto tenebricosa	Sooty Owl	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Xenus cinereus	Terek Sandpiper	Vulnerable	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Mammalia	Arctocephalus pusillus doriferus	Australian Fur-seal	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Cercartetus nanus	Eastern Pygmy-possum	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Chalinolobus dwyeri	Large-eared Pied Bat	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Mammalia	Dasyurus maculatus	Spotted-tailed Quoll	Vulnerable	Not Sensitive	Endangered	
Animalia	Mammalia	Dugong dugon	Dugong	Endangered	Not Sensitive	Not Listed	
Animalia	Mammalia	Eubalaena australis	Southern Right Whale	Endangered	Not Sensitive	Endangered	
Animalia	Mammalia	Falsistrellus tasmaniensis	Eastern False Pipistrelle	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Isoodon obesulus obesulus	Southern Brown Bandicoot (eastern)	Endangered	Not Sensitive	Endangered	
Animalia	Mammalia	Macropus parma	Parma Wallaby	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Megaptera novaeangliae	Humpback Whale	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Mammalia	Micronomus norfolkensis	Eastern Coastal Free-tailed Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Miniopterus australis	Little Bent-winged Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Miniopterus orianae oceanensis	Large Bent-winged Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Myotis macropus	Southern Myotis	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Nyctophilus bifax	Eastern Long-eared Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Petaurus norfolcensis	Squirrel Glider	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Petrogale penicillata	Brush-tailed Rock-wallaby	Endangered	Not Sensitive	Vulnerable	
Animalia	Mammalia	Phascolarctos cinereus	Koala	Endangered Population, Vulnerable	Not Sensitive	Vulnerable	
Animalia	Mammalia	Phascolarctos cinereus	Koala	Vulnerable	Not Sensitive	Vulnerable	

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Animalia	Mammalia	Physeter macrocephalus	Sperm Whale	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Pseudomys novaehollandiae	New Holland Mouse	Not Listed	Not Sensitive	Vulnerable	
Animalia	Mammalia	Pteropus poliocephalus	Grey-headed Flying-fox	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Mammalia	Saccolaimus flaviventris	Yellow-bellied Sheathtail-bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Scoteanax rueppellii	Greater Broad-nosed Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Vespadelus troughtoni	Eastern Cave Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Reptilia	Aspidites ramsayi	Woma	Vulnerable	Not Sensitive	Not Listed	
Animalia	Reptilia	Cacophis harriettae	White-crowned Snake	Vulnerable	Not Sensitive	Not Listed	
Animalia	Reptilia	Caretta caretta	Loggerhead Turtle	Endangered	Not Sensitive	Endangered	
Animalia	Reptilia	Chelonia mydas	Green Turtle	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Reptilia	Dermochelys coriacea	Leatherback Turtle	Endangered	Not Sensitive	Endangered	
Animalia	Reptilia	Eretmochelys imbricata	Hawksbill Turtle	Not Listed	Not Sensitive	Vulnerable	
Animalia	Reptilia	Myuchelys bellii	Western Sawshelled Turtle, Bell's Turtle	Endangered	Not Sensitive	Vulnerable	
Animalia	Reptilia	Suta flagellum	Little Whip Snake	Vulnerable	Not Sensitive	Not Listed	
Animalia	Reptilia	Tiliqua occipitalis	Western Blue-tongued Lizard	Vulnerable	Not Sensitive	Not Listed	
Animalia	Reptilia	Uvidicolus sphyrurus	Border Thick-tailed Gecko	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Reptilia	Varanus rosenbergi	Rosenberg's Goanna	Vulnerable	Not Sensitive	Not Listed	
Plantae	Flora	Acacia bynoeana	Bynoe's Wattle	Endangered	Not Sensitive	Vulnerable	
Plantae	Flora	Acacia pubescens	Downy Wattle	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Acacia terminalis subsp. Eastern Sydney	Sunshine wattle	Endangered	Not Sensitive	Endangered	
Plantae	Flora	Caladenia tessellata	Thick Lip Spider Orchid	Endangered	Category 2	Vulnerable	
Plantae	Flora	Callistemon linearifolius	Netted Bottle Brush	Vulnerable	Category 3	Not Listed	
Plantae	Flora	Chamaesyce psammogeton	Sand Spurge	Endangered	Not Sensitive	Not Listed	
Plantae	Flora	Cryptostylis hunteriana	Leafless Tongue Orchid	Vulnerable	Category 2	Vulnerable	
Plantae	Flora	Darwinia biflora		Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Darwinia peduncularis		Vulnerable	Not Sensitive	Not Listed	
Plantae	Flora	Davidsonia jerseyana	Davidson's Plum	Endangered	Category 2	Endangered	
Plantae	Flora	Deyeuxia appressa		Endangered	Not Sensitive	Endangered	
Plantae	Flora	Diuris bracteata		Endangered	Category 2	Extinct	
Plantae	Flora	Epacris purpurascens var. purpurascens		Vulnerable	Not Sensitive	Not Listed	
Plantae	Flora	Eucalyptus camfieldii	Camfield's Stringybark	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Eucalyptus nicholii	Narrow-leaved Black Peppermint	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Eucalyptus scoparia	Wallangarra White Gum	Endangered	Not Sensitive	Vulnerable	

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Plantae	Flora	Genoplesium baueri	Bauer's Midge Orchid	Endangered	Category 2	Endangered	
Plantae	Flora	Grammitis stenophylla	Narrow-leaf Finger Fern	Endangered	Category 3	Not Listed	
Plantae	Flora	Grevillea caleyi	Caley's Grevillea	Critically Endangered	Category 3	Critically Endangered	
Plantae	Flora	Grevillea juniperina subsp. juniperina	Juniper-leaved Grevillea	Vulnerable	Not Sensitive	Not Listed	
Plantae	Flora	Grevillea shiressii		Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Haloragodendron lucasii		Endangered	Not Sensitive	Endangered	
Plantae	Flora	Hibbertia puberula		Endangered	Not Sensitive	Not Listed	
Plantae	Flora	Hibbertia superans		Endangered	Not Sensitive	Not Listed	
Plantae	Flora	Isotoma fluviatilis subsp. fluviatilis		Not Listed	Not Sensitive	Extinct	
Plantae	Flora	Kunzea rupestris		Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Lasiopetalum joyceae		Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Leptospermum deanei		Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Macadamia integrifolia	Macadamia Nut	Not Listed	Not Sensitive	Vulnerable	
Plantae	Flora	Macadamia tetraphylla	Rough-shelled Bush Nut	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Melaleuca deanei	Deane's Paperbark	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Microtis angusii	Angus's Onion Orchid	Endangered	Category 2	Endangered	
Plantae	Flora	Persoonia hirsuta	Hairy Geebung	Endangered	Category 3	Endangered	
Plantae	Flora	Persoonia laxa		Presumed Extinct	Not Sensitive	Extinct	
Plantae	Flora	Persoonia marginata	Clandulla Geebung	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Persoonia mollis subsp. maxima		Endangered	Not Sensitive	Endangered	
Plantae	Flora	Persoonia pauciflora	North Rothbury Persoonia	Critically Endangered	Category 3	Critically Endangered	
Plantae	Flora	Pimelea curviflora var. curviflora		Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Prostanthera densa	Villous Mint-bush	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Prostanthera marifolia	Seaforth Mintbush	Critically Endangered	Category 3	Critically Endangered	
Plantae	Flora	Rhodamnia rubescens	Scrub Turpentine	Critically Endangered	Not Sensitive	Not Listed	
Plantae	Flora	Syzygium paniculatum	Magenta Lilly Pilly	Endangered	Not Sensitive	Vulnerable	
Plantae	Flora	Tetratheca glandulosa		Vulnerable	Not Sensitive	Not Listed	

Data does not include NSW category 1 sensitive species.
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Location Confidences

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

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

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Land Title Records

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

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

Summary of Owners Report

Address: - 62 Myoora Road, Terrey Hills

Description: - Lot 4 D.P. 737411 (Limited to a depth of 15.24 metres)
(Current title is incorrect as it does not reflect limited in depth to 15.24 metres or 50 feet)

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
20.04.1881	Rail Reserve No. 63	Gazette Revoked 14.03.1941
27.11.1931 (1931 to 1937)	Francis Stanley McIntosh (Special Lease for the Purpose of Vegetable and Nursery Garden)	Crown Tenure Special Lease 1931/33 Metropolitan (Term to 31.12.1945)
27.01.1933	Within Crown Reserve No. 63757 for Future Public Requirements	
? 27.11.1931 (1931 tos 1972)	John Strachan Johnson	Crown Tenure Special Lease 1931/33 Metropolitan Now Crown Tenure Conditional Purchase 1937/48 Metropolitan Now Vol 6670 Fol 3
08.06.1972 (1972 to 1993)	John S. Johnson & Sons Pty Limited	Vol 6670 Fol 3 Now 4/737411
21.12.1993 (1993 to 2000)	Dawen Holdings Pty Limited	4/737411
17.11.2000 (2000 to date)	# Syesun Pty Limited	4/737411

 # Denotes current registered proprietor

Easements: - NIL

Leases, excluding premises: -

- 21.121993 (I 844981) – expired not investigated.
- 21.121993 (I 844982) – expired not investigated.
- 21.121993 (I 844983) – expired not investigated.
- 21.121993 (I 844984) – surrendered 28.04.2004.
- 02.05.2006 (AC 54440) – expired not investigated.

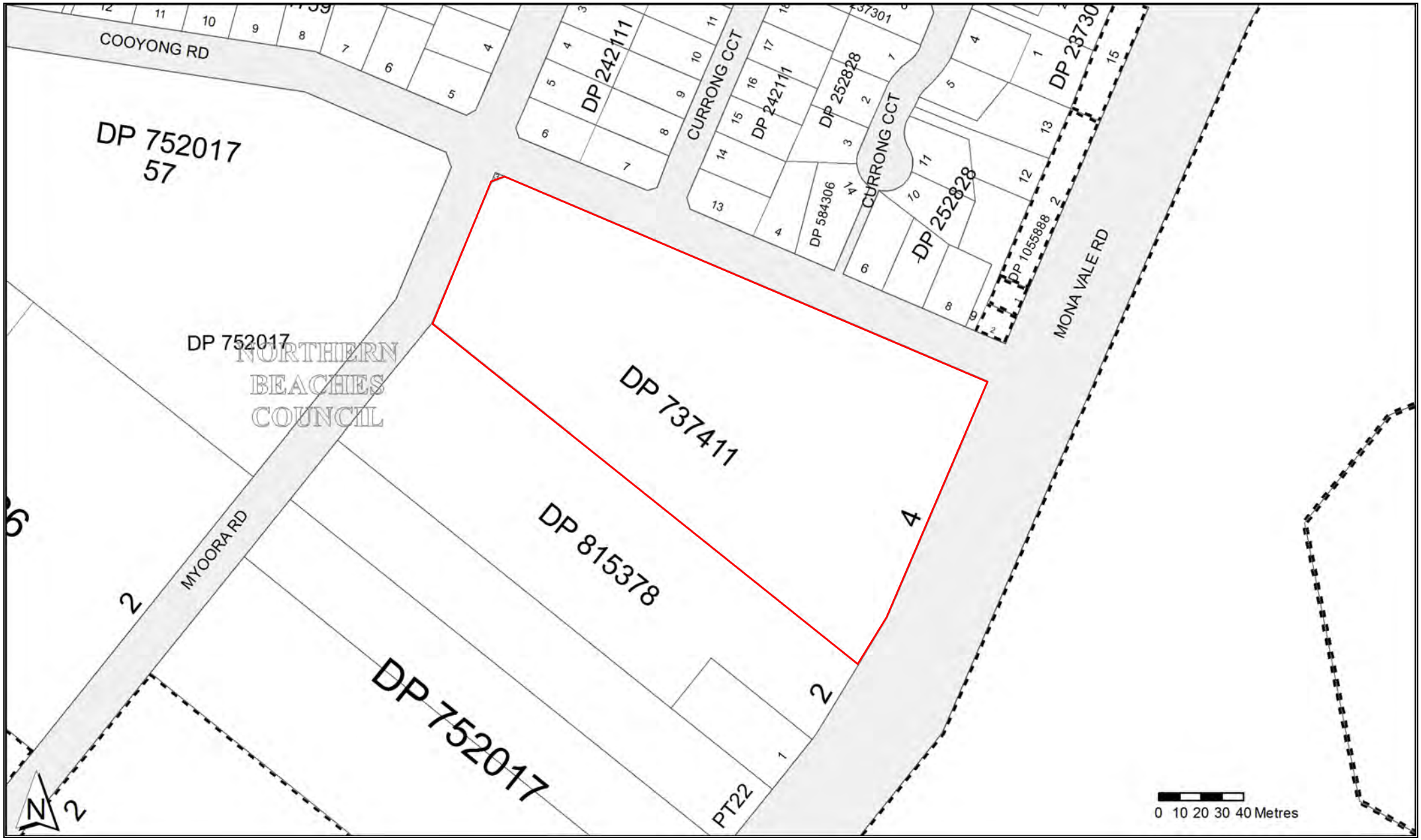
Yours Sincerely
Mark Groll
14 October 2021

Email: mark.groll@infotrack.com.au

Cadastral Records Enquiry Report : Lot 4 DP 737411

Ref : 62 Myoora Road

Locality : TERREY HILLS
Parish : BROKEN BAY
LGA : NORTHERN BEACHES
County : CUMBERLAND



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PLAN FORM 2

Plan Drawing only to appear in this space

*OFFICE USE ONLY

Signatures and seals only.

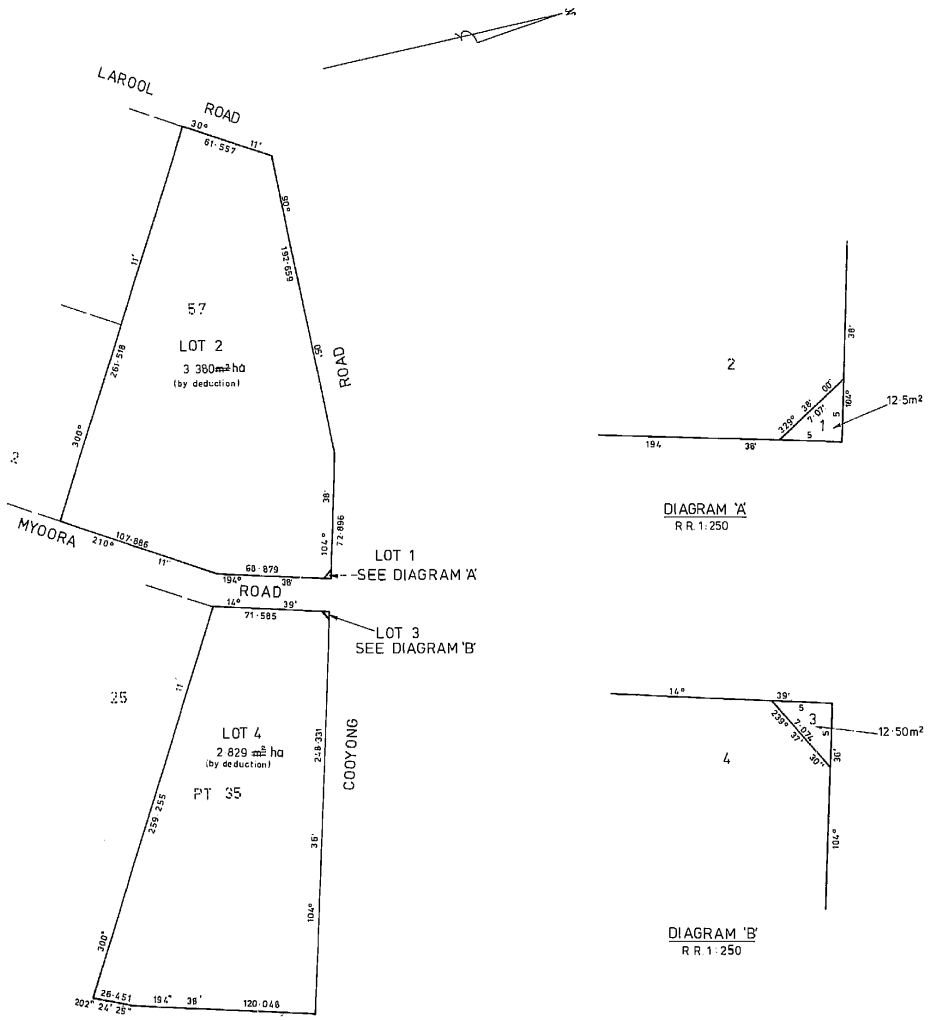

DIAGRAM 'A'
R.R. 1:250

DIAGRAM 'B'
R.R. 1:250

D P 737411 *

Registered: 23-10-1986

C.A.: No. 8880 OF 1-10-1986

Title System: TORRENS & CROWN LAND

Purpose: ACQUISITION (NOT A CURRENT PLAN AT REG'N - S.327AA L.G. ACT)

Ref. Map: U1867-4#

Last Plan: ———

N O 4 E I B

PLAN OF ACQUISITION FOR ROAD WIDENING WITHIN PORTION 57 AND PART PORTION 35

Reduction Ratio 1:
Lengths are in metres.

Mun./Shire ~~City~~ WARRINGAH

Locality: TERREY HILLS

Parish: BROKEN BAY

County: CUMBERLAND

This is sheet 1 of my plan in 1 sheets.
(Delete if inapplicable).

I, ...
of WARRINGAH SHIRE COUNCIL
a surveyor registered under the Surveyors Act, 1929, as amended, hereby certify that the survey represented in this plan .....
is accurate and has been made *(1) by me (2) under my immediate supervision in accordance with the Survey Practice Regulations, 1933, and was completed on † .....
.....
Signature .....
Surveyor registered under Surveyors Act, 1929, as amended.
Datum Line of Azimuth.
*Strike out either (1) or (2). †Insert date of survey.

Panel for use only for statements of intention to dedicate public roads or to create public reserves, drainage reserves, easements or restrictions as to user.

LOTS 1 AND 3 AS DELINEATED WILL ULTIMATELY BE ACQUIRED FOR ROAD WIDENING AND THERE WILL BE NO OBJECTION TO LOTS 1 AND 3 BEING SHOWN AS ROAD ON THE CERTIFICATES OF TITLE OF ADJOINING LAND AFTER ACQUISITION

Council Clerk's Certificate

I hereby certify that –

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

*(b) ~~the requirements of section 24B of the †Metropolitan Water, Sewerage and Drainage Act, 1924, as amended, †Hunter District Water, Sewerage, and Drainage Act, 1938, as amended.~~

have been complied with by the applicant in relation to the proposed PUBLIC ROAD (insert "new road", "subdivision" or "consolidated lot") set out herein

Subdivision No. 8880

Date 1st October 1986

(Signature) .....
Council Clerk

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

†Delete if inapplicable.

Table of mm

MPD

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SURVEYOR'S REFERENCE PF 3392/62 155/08/208

This negative is a photograph made as a permanent record of a document in the custody of the Registrar General this day.

24th October, 1986

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Req:R713981 /Doc:DP 0737411 P /Rev:25-Jun-1992 /NSW LRS /Pgs:ALL /Prt:14-Oct-2021 15:16 /Seq:1 of 1
© Office of the Registrar-General /Src:INFOTRACK /Ref:62 INFOTRACKyoora Road

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© Office of the Registrar-General /Src:INFOTRACK /Ref:62 Myoora Road

A-293

~~Within R.R. 63. Notified 20th April 1881~~ Revoked 14.3.41

Papers L.B. 31.610, 31.568. Ls. 31.18268, 31.16374

PLAN OF PORTIONS 34 & ~~35~~

Parish of Broken Bay County of Cumberland

LAND DISTRICT OF METROPOLITAN LAND BOARD DISTRICT OF SYDNEY

WARRINGAH SHIRE

Applied for under the 75th Section of the Crown Lands Consolidation Act 1913 by Grantly Aubrey Duncan (Por 34) Francis Stanley McIntosh (Por 35)

Por 34. Sp.L. 31.35. Purpose, Vegetable and Nursery garden. Term 1.10.'31 to 31.12.'45 Gaz: 27.11.31.

Por 35 Sp.L. 31.33. do do do Term 1.9.'31 to 31.12.'45. Do.

Pt Within R63757 from Sale for Future Public Requirements Notified 27.1.33

~~Por 34. CP 36.5. Grantley Aubrey Duncan~~

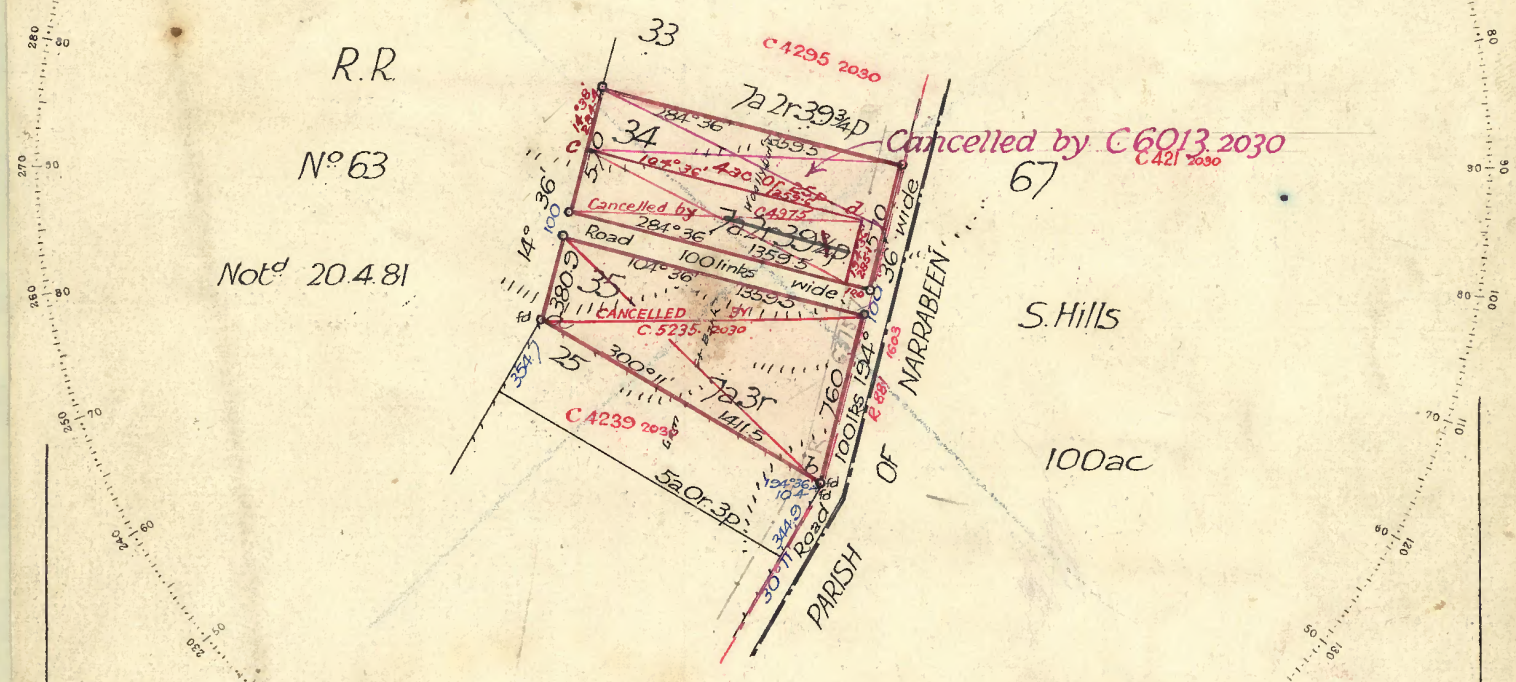
~~Por 35 C.P. 37.48 (Convn) John Strachan Johnson~~

Por 34 below a depth of 100 feet exempted fm. the provisions of Part IV of Min. Act 1906-35 - Notd Gaz 17.7.42 Revoked 13.10.44

Por 34: O.C.P. 43.11. Febuary 12th. Audrey Margaret Duncan (Convn)

PLAN MICROFILMED

NO ADDITIONS OR AMENDMENTS TO BE MADE



Por 34 approved for an area of 4ac 0r 25p.

A G Buchanan
Officer-in-Charge
17th Sept 1936

Azimuth taken from a-b Mag

Field Book 321X Pages 20

Reference to Corners

Corner	Bearing	From	Links	No on Tree
~~a~~	~~26°54'~~	~~Gum~~	~~65.5~~	~~35.25~~
~~b~~	~~170°32'~~	~~Woollybutt~~	~~67.1~~	~~35.25~~
Numbd pegs at all other corners				
c	104°36'	G.I. Pipe	5.0	
d	284°36'	do	2.27	

Reference to Traverse

Line	Bearing	Distance

I hereby certify that I in person made and on the 5th Nov 1931 completed the survey represented on this plan on which are written the bearings and lengths of the lines measured by me and I declare that the survey has been executed in accordance with the regulations published for the guidance of Licensed Surveyors and the practice of the Department of Lands.

S. B. McAdam Licensed Surveyor

Transmitted to the District Surveyor with my letter of the 5th Nov No 4

Voucher No 31.4

Calculation Book No F34 Folio 71

Checked and Charted C.E. Verrier 9th November 1931

Examined W. Brown 12th Novr 1931.

Plan approved [signature]

Officer in Charge

12th Novr 1931

Improvements

4296-2030

Standard Tracing

Prepared

Scale ~~20~~ 8 Chains to an Inch.

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

Cat No C4296 2030

Req:R714064 /Doc:CP 05235-2030 P /Rev:27-Nov-2012 /NSW LRS /Prt:14-Oct-2021 15:21 /Seq:1 of 1
© Office of the Registrar-General /Src:INFOTRACK /Ref:62 Myoora Road

A.293

Cancels pt plan C.4296 2030
~~Within R.R. 63 Notified 20th April 1881~~ Revoked 3.3.39

Papers L.B.37.754
S.38.135
at Terrey Hills.

PLAN OF PORTION 35

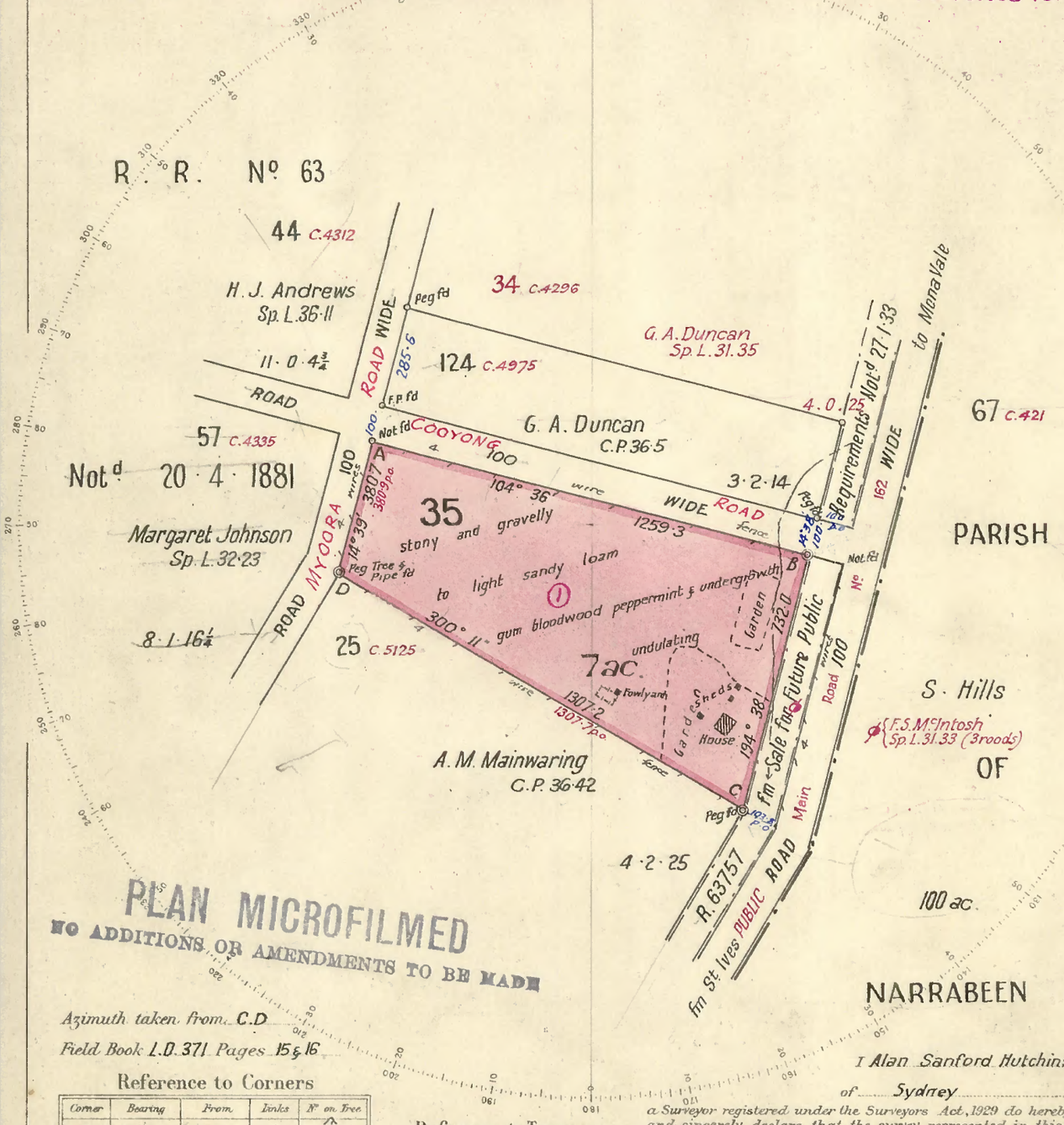
Parish of Broken Bay County of Cumberland

LAND DISTRICT OF METROPOLITAN LAND BOARD DISTRICT OF SYDNEY

WARRINGAH SHIRE

Applied for under the 190th Section of the Crown Lands Consolidation Act 1913 by John Strachan Johnson

① Por 35 { C.P. 37.48 Sept.r 2nd (Conv.n pt. Sp.L.31.33) Sale completed S.48.1138. Grant limited to surface & depth of 50ft.
Por. 35 below a depth of 100 feet exempted fm. the provisions of Part IV of Min. Act 1906-35 - Not.d Gaz. 17.7.42. Revoked 13.10.44 }



PLAN MICROFILMED
NO ADDITIONS OR AMENDMENTS TO BE MADE

Azimuth taken from C.D

Field Book L.D. 371 Pages 15 & 16

Reference to Corners

Corner	Bearing	From	Links	No on Tree
A	Numbered Peg			35
B	Numbered Peg			35
B	284° 36'	Conc. Block	2.27	
C	Numbered Peg			35.25
C	300° 11'	Pipe	2.36	
D	26° 54'	Gum	66.5	25.35
D	90° 19'	Pipe	2.63	

Reference to Traverse

Line	Bearing	Distance

Improvements

Cal. Book No H.33 Folio 4

Scale ~~20~~ 4 Chains to an Inch.

I Alan Sanford Hutchinson

of Sydney

a Surveyor registered under the Surveyors Act, 1929 do hereby solemnly and sincerely declare that the survey represented in this plan has been made by me in accordance with the Survey Practice Regulations 1933 and the special requirements of the Department of Lands was completed on the 10th March 1938, and the permanent reference * marks have been placed as shown hereon.

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

A.S. Hutchinson
Surveyor registered under the Surveyors Act 1929.

Subscribed and declared before me at Sydney
this 28th day of March 1938

S.H. Kuader J.P.
Justice of the Peace.

* Strike out when not required.
Transmitted to the District Surveyor with my letter of 28th March 1938 No 36

Checked and Charted [illegible] 27th July 1938
Examined [illegible] 27th July 1938
Plan approved [illegible] Officer-in-charge
29th July 1938

Assessed Standard Tracing
Prepared

Lithographed & Printed at the Department of Lands, Sydney, N.S.W. 33.1148

Cat No C.5235 2030

Historical Title

NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE
14/10/2021 3:16PM

FOLIO: 4/737411

First Title(s): VOL 6670 FOL 3
Prior Title(s): VOL 6670 FOL 3

Recorded	Number	Type of Instrument	C.T. Issue
27/10/1986	DP737411	DEPOSITED PLAN	LOT RECORDED FOLIO NOT CREATED
~~17/11/1987~~	~~X142959~~	~~TRANSFER~~	FOLIO CREATED EDITION 1
21/12/1993	I854979	TRANSFER	
21/12/1993	I854980	MORTGAGE	
21/12/1993	I854981	LEASE	
21/12/1993	I854982	LEASE	
21/12/1993	I854983	LEASE	EDITION 2
22/12/1993	I854984	LEASE	EDITION 3
23/8/1996	2404371	DISCHARGE OF MORTGAGE	
23/8/1996	2404372	MORTGAGE	EDITION 4
19/8/1997		AMENDMENT: LOCAL GOVT AREA	
15/5/1998	3990017	TRANSFER OF LEASE	
20/5/1998	3998609	DISCHARGE OF MORTGAGE	
20/5/1998	3998610	MORTGAGE	EDITION 5
17/5/2000	6787988	DISCHARGE OF MORTGAGE	
17/5/2000	6787989	MORTGAGE	EDITION 6
17/11/2000	7218674	DISCHARGE OF MORTGAGE	
17/11/2000	7218675	TRANSFER	
17/11/2000	7218676	MORTGAGE	
17/11/2000	7218677	MORTGAGE OF LEASE	EDITION 7
7/3/2003	9433891	CAVEAT	
3/11/2003	AA110943	WITHDRAWAL OF CAVEAT	
3/11/2003	AA110945	DISCHARGE OF MORTGAGE	
3/11/2003	AA110954	MORTGAGE	EDITION 8
28/4/2004	AA593389	SURRENDER OF LEASE	EDITION 9

END OF PAGE 1 - CONTINUED OVER

SEARCH DATE
14/10/2021 3:16PM

FOLIO: 4/737411

Recorded	Number	Type of Instrument	C.T. Issue
2/5/2006	AC54440	LEASE	EDITION 10
5/2/2018	AN43494	LEASE	EDITION 11
21/3/2018	AN202045	LEASE	EDITION 12
1/9/2018	AN678862	DEPARTMENTAL DEALING	
8/9/2018	AN695391	DEPARTMENTAL DEALING	EDITION 13 CORD ISSUED

*** END OF SEARCH ***

InfoTrack an approved NSW Information Broker hereby certifies that the information contained in this document has been provided electronically by the Registrar General in accordance with Section 96B(2) of the Real Property Act 1900.

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Received: 14/10/2021 15:16:32

Req:R713982 /Doc:DL X142959 /Rev:16-Sep-2010 /NSW LRS /Pgs:ALL /Prt:14-Oct-2021 15:16 /Seq:1 of 2
© Office of the Registrar-General /Src:INFOTRACK /Ref:62 INFOTRACKyoora Road

RP 13
1985

STAMP DUTY

[redacted]

OFFICE USE ONLY

X142959

N.S.W. STAMP DUTIES OFFICE
DULY STAMPED

TRANSFER

REAL PROPERTY ACT, 1900

T CB 1 of 2 X R1/1
$ 37

	Torrens Title Reference	If Part Only, Delete Whole and Give Details	Location
DESCRIPTION OF LAND Note (a)	VOLUME 6664 Folio 73 (Now being whole identifier 31/705618) VOLUME 12048 Folio 129 VOLUME 12048 Folio 130	~~WHOLE~~ Part being Lot 31 DP 705618 Part being lots 32,33 & 34, DP 705618. Whole.	GRANVILLE

TRANSFEROR Note (b)

ERAGON PTY LIMITED
Level 56, M L C Centre, Martin Place, Sydney.

(the abovenamed TRANSFEROR) hereby acknowledges receipt of the consideration of $1,125,000.00

ESTATE Note (c)

and transfers an estate in fee simple
in the land above described to the TRANSFEREE

TRANSFEREE Note (d)

BESTANG PTY LIMITED
of c/- 9/46-48 Restwell Street, Bankstown.

OFFICE USE ONLY
OVER

TENANCY Note (e)

as joint tenants/tenants in common

PRIOR ENCUMBRANCES Note (f)

subject to the following PRIOR ENCUMBRANCES 1. Lease T92147
2. ..... 3. .....

DATE 7th October 1987

We hereby certify this dealing to be correct for the purposes of the Real Property Act, 1900.

EXECUTION Note (g)

Signed in my presence by the transferor who is personally known to me

THE COMMON SEAL of ERAGON PTY LIMITED)
~~Signature of Witness~~)
was hereunto affixed by authority of)
~~Name of Witness (BLOCK LETTERS)~~)
the Board of Directors in the)
presence of:)
~~Address and occupation of Witness~~

ERAGON PTY. LIMITED Common Seal

Director ..... ~~Signature of Transferor~~ Secretary

Note (g)

Signed in my presence by the transferee who is personally known to me

Signature of Witness

Name of Witness (BLOCK LETTERS)

Address and occupation of Witness

Solicitor for the Transferee

Signature of Transferee's Solicitor
D. K COOPER

612

TO BE COMPLETED BY LODGING PARTY Notes (h) and (i)

LODGED BY Moray & Agnew

Delivery Box Number 610 J

LOCATION OF DOCUMENTS	CT	OTHER
Herewith.	✓	
In L.T.O. with		
Produced by		

1st Rn X142959

OFFICE USE ONLY

Checked	Passed	REGISTERED - -19
EB/1		23 NOV 1987
Signed	Extra Fee	
RA2 remainder		

Secondary Directions			
Delivery Directions			OVER.

74

RP 13
1985

INSTRUCTIONS FOR COMPLETION

This dealing should be marked by the Commissioner of Stamp Duties before lodgment by hand at the Land Titles Office.

Typewriting and handwriting should be clear, legible and in permanent dense black or dark blue non-copying ink.

Alterations are not to be made by erasure; the words rejected are to be ruled through and initialled by the parties to the dealing in the left hand margin.

If the space provided is insufficient, additional sheets of the same size and quality of paper and having the same margins as this form should be used. Each additional sheet must be identified as an annexure and signed by the parties and the attesting witnesses.

If it is intended to create easements, covenants, &c., use forms RP13A, RP13B, RP13C as appropriate.

Rule up all blanks.

The following instructions relate to the SIDE NOTES on the form.

(a) Description of land.
- (i) TORRENS TITLE REFERENCE.—For a manual reference insert the Volume and Folio (e.g., Vol. 6514 Fol. 126)—For a computer folio insert the *folio identifier* (e.g., 12/701924).
- (ii) PART/WHOLE.—If part only of the land in the folio of the Register is being transferred, delete the word "WHOLE" and insert the lot and plan number, portion, &c. See also sections 327 and 327AA of the Local Government Act, 1919.
- (iii) LOCATION.—Insert the locality shown on the Certificate of Title/Crown Grant, e.g., at Chullora. If the locality is not shown, insert the Parish and County, e.g., Pth. Lismore Co. Rous.

(b) Show the full name of the transferor(s).

(c) If the estate being transferred is a lesser estate than an estate in fee simple, delete "fee simple" and insert appropriate estate.

(d) Show the full name, address and occupation or description of the transferee(s).

(e) Delete if only one transferee. If more than one transferee, delete either "joint tenants" or "tenants in common", and, if the transferees hold as tenants in common, state the shares in which they hold.

(f) In the memorandum of prior encumbrances, state only the registered number of any mortgage, lease, charge or writ to which this dealing is subject.

(g) Execution.

GENERALLY
- (i) Should there be insufficient space for the execution of this dealing, use an annexure sheet.
- (ii) The certificate of correctness under the Real Property Act, 1900, must be signed by all parties to the transfer, each party to execute the dealing in the presence of an adult witness, not being a party to the dealing, to whom he/she is personally known.
  The solicitor for the transferee may sign the certificate on behalf of the transferee, the solicitor's name (not that of his/her firm), to be typewritten or printed adjacent to the signature. Any person falsely or negligently certifying is liable to the penalties provided by section 117 of the Real Property Act, 1900.

ATTORNEY
- (iii) If the transfer is executed by an attorney for the transferor/transferee pursuant to a registered power of attorney, the form of attestation must set out the full name of the attorney, and the form of execution must indicate the source of his/her authority, e.g., "AB by his attorney (or receiver or delegate, as the case may be) XY pursuant to power of attorney registered Book No. ."

AUTHORITY
- (iv) If the transfer is executed pursuant to an authority (other than specified in (iii)), the form of execution must indicate the statutory, judicial or other authority pursuant to which the transfer has been executed.

CORPORATION
- (v) If the transfer is executed by a corporation under seal, the form of execution should include a statement that the seal has been properly affixed, e.g., in accordance with the Articles of Association of the corporation. Each person attesting the affixing of the seal must state his/her position (e.g., director, secretary) in the corporation.

(h) Insert the name, postal address, Document Exchange reference, telephone number, and delivery box number of the lodging party.

(i) The lodging party is to complete the LOCATION OF DOCUMENTS panel. Place a tick in the appropriate box to indicate the whereabouts of the Certificate of Title. List, in an abbreviated form, other documents lodged, e.g., stat. dec. for statutory declaration, pbte for probate, L/A for letters of administration, &c.

OFFICE USE ONLY

L.O. 1341

FIRST SCHEDULE DIRECTIONS

(A) FOLIO IDENTIFIER	(B) DIRECTION	(C) NAME
12048-129	PROP	BESTANG PTY LIMITED as regards Lots 32, 33 + 34 in D.P. 705618
12048-130 31/705618	S	BESTANG PTY LIMITED.

SECOND SCHEDULE AND OTHER DIRECTIONS

(D) FOLIO IDENTIFIER	(E) DIRECTION	(F) NOTFN TYPE	(G) DEALING NUMBER	(H) DETAILS
12048-129	ON	ZZ		New Computer Folios have issued for lots 32, 33, 34 36, 37 + 38 in D.P. 705618
31/705618 ~~12048-130~~ ~~32, 33, 34/705618~~	2U			X142960.

Req:R713982 /Doc:DL X142959 /Rev:16-Sep-2010 /NSW LRS /Pgs:ALL /Prt:14-Oct-2021 15:16 /Seq:2 of 2
© Office of the Registrar-General /Src:INFOTRACK /Ref:62 INFOTRACKYoora Road

Req:R714521 /Doc:DL I854979 /Rev:13-Apr-2010 /NSW LRS /Pgs:ALL /Prt:14-Oct-2021 15:50 /Seq:1 of 1
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RP13

TRANSFER

Real Property Act, 1900

B

I

854979 C

Office of State Revenue use only

011293 3704 04 001593789/03 $2.00

D

$2

(A) **LAND TRANSFERRED**

Show no more than 20 References to Title.
If appropriate, specify the share transferred.

FOLIO IDENTIFIER 4/737411

(B) **LODGED BY**

L.T.O. Box 24J

Name, Address or DX and Telephone
COMMONWEALTH BANK OF AUSTRALIA
BRANCH LENDING SUPPORT
PHONE: 227-7618 DX 1020

REFERENCE (max. 15 characters): 2246 DAWEN

(C) **TRANSFEROR** JOHN S. JOHNSON & SONS PTY. LIMITED
ACN NO. 00077870 ϕ

OFFICE OF STATE REVENUE (N.S.W. TREASURY)

(D) acknowledges receipt of the consideration of $2,100,000.00

and as regards the land specified above transfers to the transferee an estate in fee simple

(E) subject to the following **ENCUMBRANCES** 1. ..... 2. ..... 3. .....

OFFICE USE

OFF BA

(F) **TRANSFEREE**

T

DAWEN HOLDINGS PTY. LIMITED
ACN NO. 002683472

(G) ~~as joint tenants/tenants in common~~

ϕ ACN 5/8.000 778 790 - see seal.

(H) We certify this dealing correct for the purposes of the Real Property Act, 1900. **DATE OF EXECUTION** 19th November 1993

Signed in my presence by the transferor who is personally known to me.

(i) affixed in accordance with the memorandum and articles of association

Common Seal
JOHN S. JOHNSON & SONS PTY LTD
A.C.N. 000 778 790

Signature of Witness

CHRISTOPHER PATRICK DORE
Name of Witness (BLOCK LETTERS)

26 SUNSHINE BEACH ROAD, NOOSA HEADS.
Address of Witness

Signature of Transferor

Signed in my presence by the transferee who is personally known to me.

Signature of Witness

Name of Witness (BLOCK LETTERS)

Address of Witness

Signature of Transferee's SOLICITOR
DAVID WORRALL

☞ **INSTRUCTIONS FOR FILLING OUT THIS FORM ARE AVAILABLE FROM THE LAND TITLES OFFICE**

CHECKED BY (office use only) OFF BA.

Req:R713983 /Doc:DL 7218675 /Rev:22-Nov-2000 /NSW LRS /Pgs:ALL /Prt:14-Oct-2021 15:16 /Seq:1 of 1
© Office of the Registrar-General /Src:INFOTRACK /Ref:62 INFOTRACKyoora Road

7218675Y

Form: 97-01T

Licence: LAW/0526/98

(1)

TRANSFER

New South Wales

Real Property Act 1900

Office of State Revenue use only

NEW SOUTH WALES DUTY
24-08-2000 0000397543-001
SECTION 18(2)
DUTY $ **********2.00

(A) **LAND TRANSFERRED**
If appropriate, specify the share or part transferred.

Folio Identifier 4/737411

(B) **LODGED BY**

LTO Box	Name, Address or DX and Telephone
1050C	Lecompte Davey
	REFERENCE (optional): 3/71 Syesun

(C) **TRANSFEROR** **DAWEN HOLDINGS PTY LIMITED, ACN 002 683 472**

(D) acknowledges receipt of the consideration of $3,250,000.00
and as regards the land specified above transfers to the transferee an estate in fee simple.

(E) Encumbrances (if applicable) 1. I854982 2. I854983 3. I854984

(F) **TRANSFEREE**

T TS (s713 LGA) TW (Sheriff)	**SYESUN PTY LIMITED, ACN 001 805 830**

(G) ~~TENANCY~~:

(H) We certify this dealing correct for the purposes of the Real Property Act 1900. **DATE** 13-9-2000

THE COMMON SEAL of **DAWEN HOLDINGS PTY LIMITED** (A.C.N. 002 683 472) is affixed in accordance with its Articles of Association:)

DAWEN HOLDINGS PTY LIMITED A.C.N. 002 683 472 Common Seal

Signature of authorised person

Signature of authorised person

Print Name of authorised person

Print Name of authorised person

Office held

Office held

R. BOND
SOLE DIRECTOR

ROBERT CHARLES BARNES
Solicitor for the Transferee

LAND REGISTRY SERVICES

Title Search

InfoTrack

NEW SOUTH WALES LAND REGISTRY SERVICES - TITLE SEARCH

FOLIO: 4/737411

SEARCH DATE	TIME	EDITION NO	DATE
14/10/2021	3:16 PM	13	8/9/2018

LAND

LOT 4 IN DEPOSITED PLAN 737411
AT TERREY HILLS
LOCAL GOVERNMENT AREA NORTHERN BEACHES
PARISH OF BROKEN BAY COUNTY OF CUMBERLAND
TITLE DIAGRAM DP737411

FIRST SCHEDULE

SYESUN PTY LIMITED (T 7218675)

SECOND SCHEDULE (4 NOTIFICATIONS)

1 LAND EXCLUDES MINERALS AND IS SUBJECT TO RESERVATIONS AND CONDITIONS IN FAVOUR OF THE CROWN - SEE CROWN GRANT(S)
2 AA110954 MORTGAGE TO WESTPAC BANKING CORPORATION
3 AN43494 LEASE TO JEBS INTL PTY LTD OF CAFE/RESTAURANT PREMISES KNOWN AS "SEEDS & CO CAFE", 277 MONA VALE ROAD, TERREY HILLS. EXPIRES: 2/7/2022.
4 AN202045 LEASE TO SPAJACK PTY LIMITED OF SHOP 2, 62 MYOORA ROAD, TERREY HILLS. EXPIRES: 31/12/2020.

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

* Any entries preceded by an asterisk do not appear on the current edition of the Certificate of Title. Warning: the information appearing under notations has not been formally recorded in the Register. InfoTrack an approved NSW Information Broker hereby certifies that the information contained in this document has been provided electronically by the Registrar General in accordance with Section 96B(2) of the Real Property Act 1900.

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Section 10.7 Certificates

Northern Beaches Council Planning Certificate – Part 2&5

Applicant: Eis & Jk Group
115 Wicks Road
MACQUARIE PARK NSW 2113

Reference: E34278PH
Date: 05/08/2021
Certificate No. ePLC2021/5995

Address of Property: 62 Myoora Road TERREY HILLS NSW 2084
Description of Property: Lot 4 DP 737411

Planning Certificate – Part 2

The following certificate is issued under the provisions of Section 10.7(2) of the *Environmental Planning and Assessment Act 1979* (as amended – formerly Section 149). The information applicable to the land is accurate as at the above date.

1. Relevant planning instruments and Development Control Plans

1.1 The name of each environmental planning instrument that applies to the carrying out of development on the land:

1.1a) Local Environmental Plan

Warringah Local Environmental Plan 2011

1.1b) State Environmental Planning Policies and Regional Environmental Plans

State Environmental Planning Policy 19 – Bushland in Urban Areas
State Environmental Planning Policy 21 – Caravan Parks
State Environmental Planning Policy 33 – Hazardous and Offensive Development
State Environmental Planning Policy 50 – Canal Estate Development
State Environmental Planning Policy 55 – Remediation of Land
State Environmental Planning Policy 64 – Advertising and Signage
State Environmental Planning Policy 65 – Design Quality of Residential Apartment Development
State Environmental Planning Policy No 70—Affordable Housing (Revised Schemes)
State Environmental Planning Policy (Affordable Rental Housing) 2009
State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004
State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017
State Environmental Planning Policy (Exempt and Complying Development Codes) 2008
State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004
State Environmental Planning Policy (Infrastructure) 2007

State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007
State Environmental Planning Policy (State and Regional Development) 2011
State Environmental Planning Policy (State Significant Precincts) 2005
State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017
State Environmental Planning Policy (Primary Production and Rural Development) 2019
State Environmental Planning Policy (Koala Habitat Protection) 2019
Sydney Regional Environmental Plan No 20-Hawkesbury-Nepean River (No 2-1997)
Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005
Sydney Regional Environmental Plan No 9-Extractive Industry (No 2-1995)

1.2 Draft Environmental Planning Instruments

The name of each proposed environmental planning instrument that will apply to the carrying out of development on the land and that is or has been subject of community consultation or on public exhibition under the Act (unless the Secretary has notified the Council that the making of the proposed instrument has been deferred indefinitely or has not been approved):

1.2 a) Draft State Environmental Planning Policies

Draft State Environmental Planning Policy (Environment)
Draft State Environmental Planning Policy (Short-term Rental Accommodation) 2019
Amendment to State Environmental Planning Policy (Exempt and Complying Development Codes) 2008
Draft Remediation of Land State Environmental Planning Policy (intended to replace State Environmental Planning Policy 55)

1.2 b) Draft Local Environmental Plans

Planning Proposal - Manly Warringah War Memorial State Park (Wakehurst Parkway, Allambie Heights)
Applies to: Crown Land: Lots 76 and 77 DP 504237; Lot 2 DP 710023.
Outline: Proposed amendment to WLEP 2011 to:

- Amend Land Zoning Map to change the zoning from R2 (Low Density Residential) to RE1 (Public Recreation) for Lots 76 and 77 DP 504237, Lot 2 DP 710023.
- Amend Height of Building Map and Minimum Lot Size Map to remove the residential development standards for height and minimum lot size from all of the subject lots.

Council resolution: 28 May 2019, 29 September 2020
Gateway Determination: 21 February 2021

1.3 Development Control Plans

The name of each development control plan that applies to the carrying out of development on the land:

Warringah Development Control Plan 2011

2. Zoning and land use under relevant Local Environmental Plans

For each environmental planning instrument or proposed instrument referred to in Clause 1 (other than a SEPP or proposed SEPP) that includes the land in any zone (however described):

2.1 Zoning and land use under relevant Local Environmental Plans

2.1 (a), (b), (c) & (d)

The following information identifies the purposes for which development may be carried out with or without development consent and the purposes for which the carrying out of development is prohibited, for all zones (however described) affecting the land to which the relevant Local Environmental Plan applies.

EXTRACT FROM WARRINGAH LOCAL ENVIRONMENTAL PLAN 2011

Zone RU4 Primary Production Small Lots

1 Objectives of zone

• To enable sustainable primary industry and other compatible land uses.

• To encourage and promote diversity and employment opportunities in relation to primary industry enterprises, particularly those that require smaller lots or that are more intensive in nature.

• To minimise conflict between land uses within this zone and land uses within adjoining zones.

• To minimise the impact of development on long distance views of the area and on views to and from adjacent national parks and bushland.

• To maintain and enhance the natural landscape including landform and vegetation.

• To ensure low intensity of land use other than land uses that are primary industry enterprises.

• To maintain the rural and scenic character of the land.

2 Permitted without consent

Home-based child care; Home occupations

3 Permitted with consent

Animal boarding or training establishments; Aquaculture; Bed and breakfast accommodation; Building identification signs; Business identification signs; Centre-based child care facilities; Community facilities; Dwelling houses; Environmental protection works; Extensive agriculture; Farm buildings; Home businesses; Home industries; Intensive plant agriculture; Landscaping material supplies; Plant nurseries; Recreation areas; Respite day care centres; Roads; Roadside stalls; Rural supplies; Veterinary hospitals

4 Prohibited

Any development not specified in item 2 or 3

Additional permitted uses

Additional permitted uses, if any, for which development is permissible with development consent pursuant to Clause 2.5 and Schedule 1 of the relevant Local Environmental Plan:

Schedule 1 Additional permitted uses

(Clause 2.5)

1 Use of certain land at 8 Aperta Place, Beacon Hill

(1) This clause applies to land at 8 Aperta Place, Beacon Hill, being Lot 7, DP 236335, shown as “Area 1” on the Additional Permitted Uses Map.

(2) Development for the purposes of 1 dwelling house is permitted with consent (provided that the design and construction of the development has regard to the topography, potential slip and sensitive visual character of the land as well as potential loss of views to adjoining or nearby properties).

2 Use of certain land at 5 Hews Parade, Belrose

(1) This clause applies to land at 5 Hews Parade, Belrose, being Lot 6, DP 834036, shown as "Area 2" on the Additional Permitted Uses Map.

(2) Development for the purposes of pubs is permitted with consent.

3 Use of certain land at corner of Mona Vale Road and Forest Way, Belrose

(1) This clause applies to land at the corner of Mona Vale Road and Forest Way, Belrose, shown as "Area 3" on the Additional Permitted Uses Map.

(2) Development for the purposes of bulky goods premises, business premises (with a gross floor area not exceeding 2,500m^2), function centres, hotel or motel accommodation, pubs and shops (with a gross floor area not exceeding 2,500m^2) is permitted with consent.

(3) Hotel or motel accommodation and pubs referred to in subclause (2) must include at least one room for the holding of conferences, functions and similar events.

4 Use of certain land in the vicinity of Ashworth and Haigh Avenues, Belrose and McBrien Place, Davidson and John Oxley Drive, Frenchs Forest

(1) This clause applies to land in the vicinity of Ashworth and Haigh Avenues, Belrose and McBrien Place, Davidson and John Oxley Drive, Frenchs Forest, shown as "Area 4A", "Area 4B" or "Area 4C" on the Additional Permitted Uses Map.

(2) Development for the purposes of 1 dwelling house on each lot is permitted with consent (provided that each dwelling is constructed having regard to the constraints, potential instability and visual sensitivity of the land and any impact on the water quality of Middle Harbour).

5 Use of certain land in the vicinity of Pittwater Road and Roger Street, Brookvale

(1) This clause applies to land in the vicinity of Pittwater Road and Roger Street, Brookvale, shown as "Area 5" on the Additional Permitted Uses Map.

(2) Development for the following purposes is permitted with consent:

(a) office premises,

(b) retail premises,

(c) shop top housing.

(3) Consent must not be granted under this clause to development for the purposes of shop top housing unless the consent authority is satisfied that the development will not have a significant adverse impact on any adjoining land in Zone IN1 General Industrial.

6 Use of certain land at Cottage Point

(1) This clause applies to land at Cottage Point, being Lot 1, DP 930591, Lot 1, DP 922754, Lot 3, DP 929708 and Lot 4, DP 929708, shown as "Area 6" on the Additional Permitted Uses Map.

(2) Development for the purposes of kiosks, marinas, neighbourhood shops and registered clubs is permitted with consent.

7 Use of certain land at 2 Anderson Place, Cottage Point

(1) This clause applies to land at 2 Anderson Place, Cottage Point, being Lot 23, DP 819003, shown as “Area 7” on the Additional Permitted Uses Map.

(2) Development for the purposes of restaurants or cafes is permitted with consent.

8 Use of certain land at 30 Campbell Avenue, Cromer

(1) This clause applies to land at 30 Campbell Avenue, Cromer, being Lot 1, DP 227969, shown as “Area 8” on the Additional Permitted Uses Map.

(2) Development for the purposes of pubs is permitted with consent.

9 Use of certain land at Pittwater Road, Dee Why

(1) This clause applies to land at Pittwater Road, Dee Why, being Lot 1, DP 706230, shown as “Area 9” on the Additional Permitted Uses Map.

(2) Development for the purposes of recreational facilities (indoor) (provided that the facility operates in conjunction with a registered club) and registered clubs is permitted with consent.

10 Use of certain land at Melwood Avenue, Forestville

(1) This clause applies to land at Melwood Avenue, Forestville, being Lot 2589, DP 752038 and Lot 31, DP 366454, shown as “Area 10” on the Additional Permitted Uses Map.

(2) Development for the purposes of registered clubs is permitted with consent.

11 Use of certain land at corner of Warringah Road and Cook Street, Forestville and land on Pittwater Road, North Manly

(1) This clause applies to land at corner of Warringah Road and Cook Street, Forestville and land on Pittwater Road, North Manly, shown as “Area 11A” or “Area 11B” on the Additional Permitted Uses Map.

(2) Development for the purposes of industrial retail outlets, service stations, hardware and building supplies, vehicle body repair workshops, vehicle repair stations and wholesale supplies is permitted with consent.

12 Use of certain land at 39 Frenchs Forest Road East, Frenchs Forest

(1) This clause applies to land at 39 Frenchs Forest Road East, Frenchs Forest, being Lot X, DP 405206, shown as “Area 12” on the Additional Permitted Uses Map.

(2) Development for the purposes of pubs is permitted with consent.

13 Use of certain land at Lumsdaine Drive, Freshwater

(1) This clause applies to land at Lumsdaine Drive, Freshwater, being Lot 100, DP 1136132 and Lot 2, DP 579837, shown as “Area 13” on the Additional Permitted Uses Map.

(2) Development for the purposes of recreation facilities (indoor), recreation facilities (outdoor) (but only if the facility, whether indoor or outdoor, operates in conjunction with a registered club) and registered clubs is permitted with consent.

14 Use of certain land at 29 Moore Road, Freshwater

(1) This clause applies to land at 29 Moore Road, Freshwater, being Lots 1-5, Section 1, DP

7022 and Lot 13, Section 1, DP 7022, shown as “Area 14” on the Additional Permitted Uses Map.

(2) Development for the purposes of pubs is permitted with consent.

15 Use of certain land at 80 Undercliff Road, Freshwater

(1) This clause applies to land at 80 Undercliff Road, Freshwater, being Lot B, DP 329073, shown as “Area 15” on the Additional Permitted Uses Map.

(2) Development for the purposes of restaurants or cafes is permitted with consent.

16 Use of certain land at 1260 Pittwater Road, Narrabeen

(1) This clause applies to land at 1260 Pittwater Road, Narrabeen, being Lots 1 and 2, DP 1094308, shown as “Area 16” on the Additional Permitted Uses Map.

(2) Development for the purposes of hotel or motel accommodation is permitted with consent.

17 Use of certain land at 2 Aumuna Road, Terrey Hills

(1) This clause applies to land at 2 Aumuna Road, Terrey Hills, being Lot 6, DP 739456, shown as “Area 17” on the Additional Permitted Uses Map.

(2) Development for the purposes of educational establishments, garden centres, hospitals, hotel or motel accommodation, places of public worship, pubs, recreation areas, recreation facilities (indoor), recreation facilities (outdoor), registered clubs and restaurants or cafes is permitted with consent.

18 Use of certain land in the vicinity of Mona Vale and Myoora Roads, Terrey Hills

(1) This clause applies to land in the vicinity of Mona Vale and Myoora Roads, Terrey Hills, shown as “Area 18” on the Additional Permitted Uses Map.

(2) Development for the purposes of educational establishments, garden centres, hospitals, hotel or motel accommodation, places of public worship, recreation areas, recreation facilities (indoor), recreation facilities (outdoor), registered clubs and restaurants or cafes is permitted with consent.

19 Use of certain land in Zone RE1

(1) This clause applies to the following land:

(a) land at Collaroy, known as Long Reef Golf Club, being Lot 1, DP 1144187, shown as “Area 19A” on the Additional Permitted Uses Map,

(b) land at Manly Vale, known as Manly Vale Bowling Club, being part of Lot 2743, DP 752038, shown as “Area 19B” on that map,

(c) land at North Balgowlah, known as Wakehurst Golf Club, being Lot 2730, DP 752038, shown as “Area 19C” on that map,

(d) land at North Manly, known as North Manly Bowling Club, being part of Lot 2743, DP 752038, shown as “Area 19D” on that map.

(2) Development for the purposes of registered clubs is permitted with consent if the registered club is incidental or ancillary to a recreation facility (indoor), recreation facility (major) or recreation facility (outdoor).

20 Use of certain land at Bundaleer Street, Belrose

(1) This clause applies to land at Bundaleer Street, Belrose, being Lot 2, DP 1144741, shown as "Area 20" on the Additional Permitted Uses Map.

(2) Development for the purposes of recreation facilities (outdoor) is permitted with consent.

21 Use of certain land at 184 Wyndora Avenue, Freshwater

(1) This clause applies to land at 184 Wyndora Avenue, Freshwater, being Lots 1, 2, 33, 34 and 35, DP 7912, shown as "Area 21" on the Additional Permitted Uses Map.

(2) Subdivision of the land and development for the purposes of attached dwellings is permitted with consent.

(3) Development consent may only be granted under this clause to a single development application that provides for:

(a) the subdivision of the land to create not more than 14 lots, and

(b) the erection of not more than 14 attached dwellings.

(4) Consent must not be granted under this clause to development for the purposes of an attached dwelling unless the consent authority is satisfied that the proposed development includes a single basement car park providing parking spaces for each of the dwellings erected on the land to which this clause applies.

22 22 Use of certain land at 632 and 634 Warringah Road, Forestville

(1) This clause applies to land at 632 and 634 Warringah Road, Forestville, being Lots 9 and 8, DP 25052, shown as "Area 22" on the Additional Permitted Uses Map.

(2) Development for the purposes of:

(a) a service station, and

(b) a neighbourhood shop (with a retail floor area not exceeding 240m2),is permitted with consent if the land is used for both purposes, concurrently.

23 23 Use of certain land at 729-731 Pittwater Road, Dee Why

(1) This clause applies to land at 729-731 Pittwater Road, Dee Why, being

Lot CP, SP 13436, shown as "Area 23" on the Additional Permitted Uses Map.

(2) Development for the purposes of medical centres and office premises is permitted with consent.

(e) Minimum land dimensions

The *Warringah Local Environmental Plan 2011* contains no development standard that fixes minimum land dimensions for the erection of a dwelling house on the land.

(f) Critical habitat

The land does not include or comprise critical habitat.

(g) Conservation areas

The land is not in a heritage conservation area.

(h) Item of environmental heritage

The land does not contain an item of environmental heritage.

2.2 Draft Local Environmental Plan - if any

For any proposed changes to zoning and land use, see Part 1.2 b)
Please contact Council's Strategic and Place Planning unit with enquiries on 1300 434 434.

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

The *State Environmental Planning Policy (Sydney Region Growth Centres) 2006* does not apply to the land.

3. Complying Development

The extent to which the land is land on which complying development may or may not 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) and (4), 1.18 (1) (c3) and 1.19 of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*.

a) Housing Code

Complying Development under the Housing Code may be carried out on all of the land.

b) Rural Housing Code

Complying Development under the Rural Housing Code may be carried out on all of the land.

c) Low Rise Housing Diversity Code

Complying Development under the Low Rise Housing Diversity Code may be carried out on all of the land.

d) Greenfield Housing Code

Complying Development under the Greenfield Housing Code may not be carried out on all of the land.

e) Housing Alterations Code

Complying Development under the Housing Alterations Code may be carried out on all of the land.

f) General Development Code

Complying Development under the General Development Code may be carried out on all of the land.

g) Commercial and Industrial Alterations Code

Complying Development under the Commercial and Industrial Alterations Code may be carried out on all of the land.

h) Commercial and Industrial (New Buildings and Additions) Code

Complying Development under the Commercial and Industrial (New Buildings and Additions) Code may be carried out on all of the land.

i) Container Recycling Facilities Code

Complying Development under the Container Recycling Facilities Code may be carried out on all of the land.

j) Subdivisions Code

Complying Development under the Subdivisions Code may be carried out on all of the land.

k) Demolition Code

Complying Development under the Demolition Code may be carried out on all of the land.

l) Fire Safety Code

Complying Development under the Fire Safety Code may be carried out on all of the land.

m) Inland Code

Complying Development under the Inland Code does not apply to the land.

Note: Pursuant to clause 3D.1 of the *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*, the Inland Code only applies to 'inland local government areas'. Northern Beaches local government area is not defined as an 'inland local government area' by *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*.

4, 4A (Repealed)

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

The owner of the land (or any previous owner) has not 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).

5. Mine Subsidence

The land has not been proclaimed to be a mine Subsidence (Mine Subsidence) district within the meaning of section 15 of the *Mine Subsidence (Mine Subsidence) Compensation Act, 1961*.

6. Road widening and road realignment

(a) The land is not affected by a road widening or re-alignment proposal under Division 2 of Part 3 of the *Roads Act 1993*.

(b) The land is not affected by a road widening or re-alignment proposal under an environmental planning instrument.

(c) The land is not affected by a road widening or re-alignment proposal under a resolution of Council.

7. Council and other public authority policies on hazard risk restriction

(a) Council has adopted a number of policies with regard to various hazards or risks which may restrict development on this land. The identified hazard or risk and the respective Council policies which affect the property, if any, are listed below (other than flooding – see 7A):

Nil

(b) The following information applies to any policy as adopted by any other public authority and notified to the Council for the express purpose of its adoption by that authority being referred to in a planning certificate issued by the Council. The identified hazard or risk and the respective Policy which affect the property, if any, are listed below:

Bush Fire Prone Land
This land is identified on a Bush Fire Prone Land map certified by the Commissioner of the NSW Rural Fire Service as being bush fire prone land. The requirements of the NSW Rural Fire Service document Planning for Bush Fire Protection apply to this land. For further information please contact the Northern Beaches District NSW Rural Fire Service.

7A. Flood related development control Information

(1) The land is not within the flood planning area and subject to flood related development controls.

(2) The land or part of the land is not between the flood planning area and the probable maximum flood and subject to flood related development controls.

(3) In this clause—

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.

8. Land reserved for acquisition

Environmental planning instrument referred to in Clause 1 does not make provision in relation to the acquisition of the land by a public authority, as referred to in section 3.15 of the Act.

9. Contribution plans

The following applies to the land:

Northern Beaches Section 7.12 Contributions Plan 2019

9A. Biodiversity certified land

The land is not biodiversity certified land under Part 8 of the *Biodiversity Conservation Act 2016* (includes land certified under Part 7AA of the repealed *Threatened Species Conservation Act 1995*).

10. Biodiversity Stewardship Sites

The Council has not been notified by the Chief Executive of the Office of Environment and Heritage that the land is a biodiversity stewardship site under a biodiversity stewardship agreement under Part 5 of the *Biodiversity Conservation Act 2016* (includes land to which a biobanking agreement under Part 7A of the repealed *Threatened Species Conservation Act 1995* relates).

10A. Native vegetation clearing set asides

Council has not been notified by Local Land Services of the existence of a set aside area under section 60ZC of the *Local Land Services Act 2013*.

11. Bush fire prone land

Bush Fire Prone Land
Some of the land is bush fire prone land.

12. Property vegetation plans

The Council has not been notified that the land is land to which a vegetation plan under the *Native Vegetation Act 2003* applies.

13. Orders under Trees (Disputes Between Neighbours) Act 2006

Council has not been notified of the existence of an order made under the *Trees (Disputes Between Neighbours) Act 2006* to carry out work in relation to a tree on the land.

14. Directions under Part 3A

There is not a direction by the Minister in force under section 75P(2) (c1) of the Act that a provision of an environmental planning instrument prohibiting or restricting the carrying out of a project or a stage of a project on the land under Part 4 of the Act does not have effect.

15. Site compatibility certificates and conditions for seniors housing

(a) There is not a current site compatibility certificate (seniors housing), of which the council is aware, in respect of proposed development on the land.

(b) No condition of consent applies to the property that limits the kind of people who may occupy the premises/ development. This refers only to consents granted after 11 October 2007 with conditions made in accordance with clause 18(2) of *State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004*.

16. Site compatibility certificates for infrastructure, schools or TAFE establishments

There is not a valid site compatibility certificate (infrastructure) or site compatibility certificate (schools or TAFE establishments), of which the council is aware, in respect of proposed development on the land.

17. Site compatibility certificate and conditions for affordable rental housing

(a) There is not a current site compatibility certificate (affordable rental housing), of which the council is aware, in respect of proposed development on the land.

(b) There are not terms of a kind referred to in clause 17 (1) or 38 (1) of *State Environmental Planning Policy (Affordable Rental Housing) 2009* that have been imposed as a condition of consent to a development application in respect of the land.

18. Paper subdivision information

There is no current paper subdivision, of which council is aware, in respect of this land according to Part 16C of the *Environmental Planning and Assessment Regulation 2000*.

19. Site verification certificates

There is no current site verification certificate, of which council is aware, in respect of the land according to Part 4AA of the *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007*.

20. Loose-fill asbestos insulation

The residential dwelling erected on this land has not been identified in the Loose-Fill Asbestos Insulation Register as containing loose-fill asbestos ceiling insulation.

This clause applies to residential premises (within the meaning of Division 1A of part 8 of the Home Building Act 1989) that are listed in the register that is required to be maintained under that Division.

Contact NSW Fair Trading for more information.

21 Affected building notices and building product rectification orders

1) There is not an affected building notice of which the council is aware that is in force in respect of the land.
2) There is not a 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, and
3) There is not a 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.

In this clause:

> ***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*.

Additional matters under the Contaminated Land Management Act 1997

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:

(a) the land to which the certificate relates is not significantly contaminated land within the meaning of that Act

(b) the land to which the certificate relates is not subject to a management order within the meaning of that Act

(c) the land to which the certificate relates is not the subject of an approved voluntary management proposal within the meaning of that Act

(d) the land to which the certificate relates is not subject to an ongoing maintenance order within the meaning of that Act

(e) the land to which the certificate relates is not the subject of a site audit statement

If contamination is identified above please contact the Environmental Protection Authority (EPA) for further information.

Planning Certificate – Part 5

ePLC2021/5995

The following is information provided in good faith under the provisions of Section 10.7(5) of the *Environmental Planning and Assessment Act 1979* (as amended – formerly Section 149) and lists relevant matters affecting the land of which Council is aware. The Council shall not incur any liability in respect of any such advice.

Persons relying on this certificate should read the environmental planning instruments referred to in this certificate.

Company Title Subdivision

Clause 4.1 of the *Pittwater Local Environmental Plan 2014*, *Warringah Local Environmental Plan 2011* or *Manly Local Environmental Plan 2013* provides that land may not be subdivided except with the consent of the Council. This includes subdivision by way of company title schemes. Persons considering purchasing property in the Northern Beaches local government area the subject of a company title scheme are advised to check that the land has been subdivided with the consent of the Council.

District Planning

Under the Greater Sydney Regional Plan – A Metropolis of Three Cities 2018, the Greater Sydney Commission sets a planning framework for a metropolis of three cities across Greater Sydney which reach across five Districts. Northern Beaches is located within the 'Eastern Harbour City' area and is in the North District which forms a large part of the Eastern Harbour City. The North District Plan sets out planning priorities and actions for the growth of the North District, including Northern Beaches. Northern Beaches Council's Local Strategic Planning Statement gives effect to the District Plan based on local characteristics and opportunities and Council's own priorities in the community. The Local Strategic Planning Statement came into effect on 26 March 2020.

Council Resolution To Amend Environmental Planning Instrument

The following instrument or resolution of Council proposes to vary the provisions of an environmental planning instrument, other than as referred to in the Planning Certificate – Part 2:

Planning Proposal - rezone deferred land within the Oxford Falls Valley & Belrose North area
Applies to land: Land within the B2 Oxford Falls Valley and C8 Belrose North localities of WLEP 2000 and land zoned E4 Environmental Living under WLEP 2011 at Cottage Point (Boundaries identified within the Planning Proposal)
Outline: Amends WLEP 2000 and WLEP 2011 to:

- Transfer the planning controls for land within the B2 Oxford Falls Valley and C8 Belrose North localities of WLEP 2000 into the best fit zones and land use controls under WLEP 2011
- Rezone the majority of the subject land to E3 Environmental Management under WLEP 2011
- Rezone smaller parcels of land to E4 Environmental Living, RU4 Primary Production Small Lots, SP2 Infrastructure, SP1 Special Activities, R5 Large Lot Residential and R2 Low Density Residential under WLEP 2011
- Include various parcels of land as having additional permitted uses under Schedule 1 of WLEP 2011

Council resolution: 24 February 2015

Planning Proposal - Pittwater Road and Albert Street, Narrabeen
Applies to: 1294 - 1300 Pittwater Road and 2 - 4 Albert Street, Narrabeen
Outline: Amends WLEP 2011 to:

- Amend Height of Building Map to increase height from 8.5m to 11m (excluding lot 1 DP613544 and part lot 8C DP200030.
- Amend Schedule 1 to allow "shop top housing" on the site.
- To seek an affordable housing contribution in conjunction with future redevelopment of the land.

Council resolution: 28 May 2019

Additional Information Applying To The Land

Additional information, if any, relating to the land the subject of this certificate:

Nil

General Information

Threatened Species

Many threatened species identified under the *Biodiversity Conservation Act 2016* (NSW) and Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth) are found within the former Local Government Area of Warringah (now part of Northern Beaches). Council's Natural Environment unit can be contacted to determine whether any site specific information is available for this property. Records of threatened flora and fauna are also available from the NSW Office of Environment and Heritage's Atlas of NSW Wildlife database: <http://www.bionet.nsw.gov.au>

Potential threatened species could include:

(a) threatened species as described in the final determination of the scientific committee to list endangered and vulnerable species under Schedule 1 of the *Biodiversity Conservation Act 2016*, and/or

(b) one or more of the following threatened ecological communities as described in the final determination of the scientific committee to list the ecological communities under Schedule 2 of the *Biodiversity Conservation Act 2016*:

- Duffys Forest Ecological Community in the Sydney Basin Bioregion
- Swamp Sclerophyll Forest on Coastal Floodplain
- Coastal Saltmarsh of the Sydney Basin Bioregion
- Swamp Oak Floodplain Forest
- Bangalay Sand Forest of the Sydney Basin Bioregion
- Themeda grasslands on Seacliffs and Coastal Headlands
- Sydney Freshwater Wetlands in the Sydney Basin Bioregion
- Coastal Upland Swamp in the Sydney Basin Bioregion
- River-Flat Eucalypt Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions

Bush fire

Certain development may require further consideration under section 79BA or section 91 of the Environmental Planning and Assessment Act 1979, and section 100B of the Rural Fires Act, 1997 with respect to bush fire matters. Contact NSW Rural Fire Service.

Aboriginal Heritage

Many Aboriginal objects are found within the Local Government Area. It is prudent for the purchaser of land to make an enquiry with the Office of Environment and Heritage as to whether any known Aboriginal objects are located on the subject land or whether the land has been declared as an Aboriginal place under the *National Parks and Wildlife Act 1974* (NSW). The carrying out of works may be prevented on land which is likely to significantly affect an Aboriginal object or Aboriginal place. For information relating to Aboriginal sites and objects across NSW, contact: Aboriginal Heritage Information Management System (AHIMS) on (02) 9585 6345 or email **AHIMS@environment.nsw.gov.au**. Alternatively visit http://www.environment.nsw.gov.au/licences/AboriginalHeritageInformationManagementSystem.htm.

Coastal Erosion

Information available to Council indicates coastal erosion may affect a greater number of properties and may present an increased risk to properties than that shown on published hazard maps of the Warringah coastline. Council's Natural Environment Unit can be contacted for further information.

Ray Brownlee PSM
Chief Executive Officer
05/08/2021

Council Development Records

The Council of the Shire of Warringah [illegible]

[illegible]

[illegible] which may be shown [illegible]

[illegible]

Workmen during building operations.

Date of Approval _____ Shire Clerk

_____ Bldg. Insp.

SPECIAL CONDITIONS OF APPROVAL

(1) [illegible]

(2) [illegible]

(3) The accommodation being used for 'rural works' employed on property @ 5'x2' [illegible] over [illegible] shed

Bldg. Inspector JMC

SHIRE OF WARRINGAH

A426/64

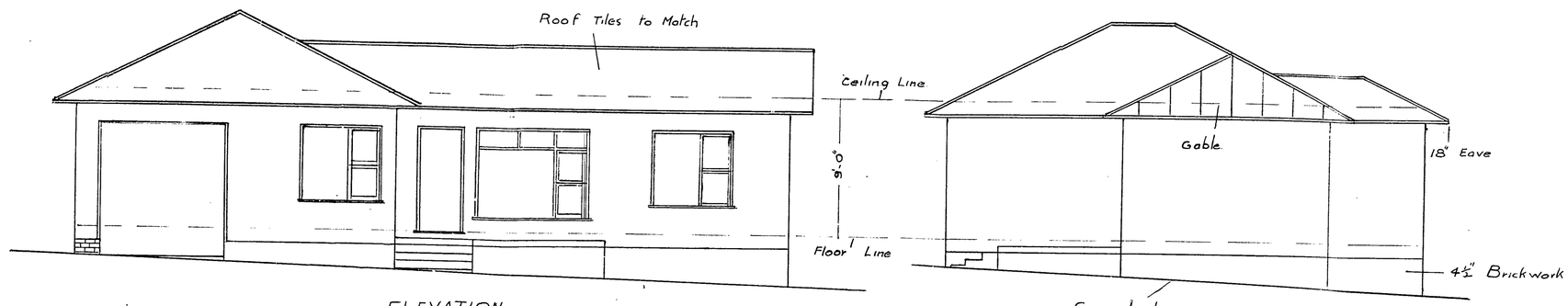
2-6-1964

J Morgan Shire Clerk

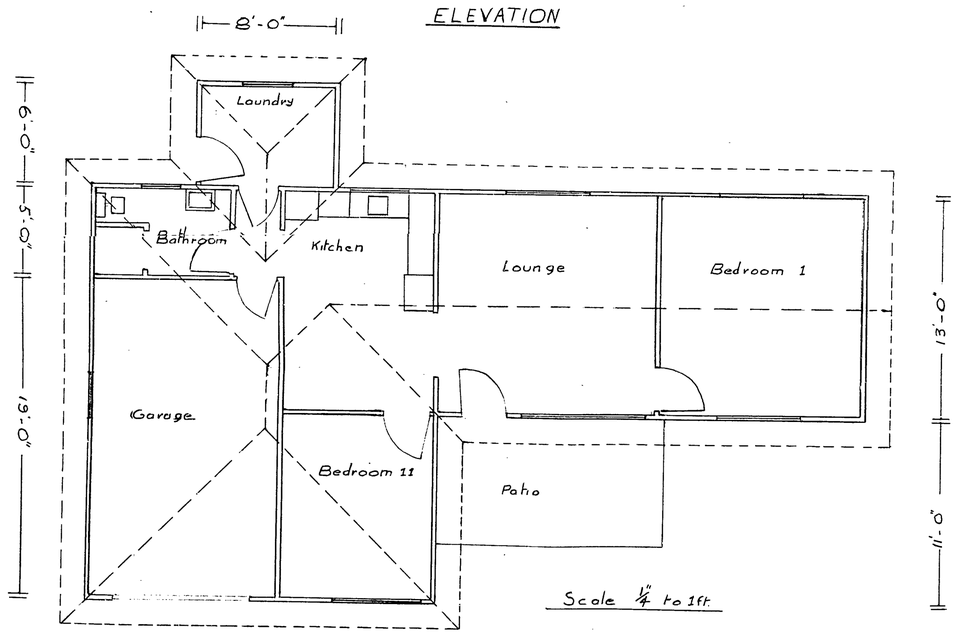
for JMCrosswell Bldg. Insp.

A 426/64

PROPOSED new Fibro Residence (alteration and addition) and new Tractor Shed for J. S. Johnson, Myoora Road, Terrey Hills. Lot: 35.

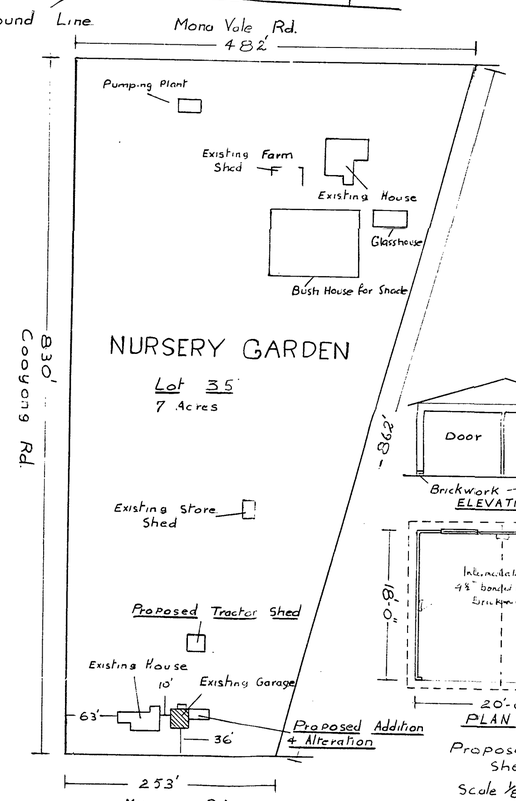


ELEVATION

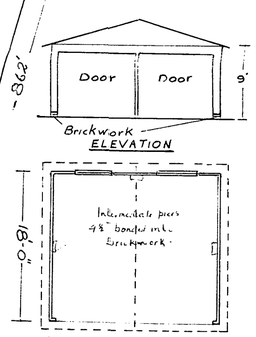


Scale ¼" to 1ft.

PLAN



Site Plan ⅛" to 10ft.



ELEVATION

PLAN

Proposed Tractor Shed

Scale ⅛" to 1ft.

WARRINGAH SHIRE COUNCIL

BUILDING APPLICATION

Local Government Act Ordinance 71

RIDING

APP No.

ASS No

PLANS AND SPECIFICATIONS. Plans and Specifications shall hereby be drawn and written in ink on opaque paper and be submitted in duplicate. A General Plan, drawn to a scale of 1 in. to 1 ft., shall show all floor plans, elevations, sections, figured dimensions of all rooms and the heights of ceilings, and a drainage diagram showing the proposed treatment of household wastes and roof water. A Site Plan, drawn to a scale of 1 in. to 40 ft., shall show the relation of the proposed building and any existing buildings to all boundaries of the allotment and the street to which it fronts and or is bounded. Indicate on block plan the position of any drainage easement or natural water course.

PLEASE ADD A LOCATION SKETCH ON THE BACK HEREOF
OR STATE NEAREST CROSS STREET

The Shire Clerk,
Warringah Shire Council,
BROOKVALE.

YOUR PHONE No

Sir,—

I, the undersigned, hereby make application to Council for the approval of Plans and Specifications of a building, which I propose to erect and complete within TWELVE MONTHS from the date of approval

Particulars as under.

CLASS OF BUILDING
(Here state dwelling, flats, shop and dwelling combined, garage, additions, alterations, as the case may be.)

ESTIMATED COST OF BUILDING, £ 1200

TYPE OF CONSTRUCTION
(State whether brick, brick veneer, etc.)

FULL PARTICULARS ARE ESSENTIAL

LOT No. 35 SEC No D.P. Nos., etc. HOUSE NAME No.

FRONTAGE 25.3'

STREET LOCALITY DEPTH 23

Where full particulars are not available, locality sketch should be submitted

FULL NAME OF OWNER (BLOCK LETTERS) NAME OF BUILDER (BLOCK LETTERS)

PERMANENT ADDRESS ADDRESS

MATERIALS OF ROOF TYPE OF ROOF (Hip, Gable, Flat)

DESCRIPTION OF FENCES FRONTING PUBLIC PLACES.

HEIGHT MATERIALS

I undertake to comply with the provisions of the Local Government Act 1919 and Ordinances Nos. 71, 30, 39 and 44 and all amendments thereto, and the Rules and Conditions of the Council of the Shire of Warringah

Date

Signature of Applicant

State whether applicant is owner, builder or architect

OFFICE USE ONLY

BUILDING FEES

Cost up to £1,000—½ of 1% of cost

Cost £1,000 to £50,000—½ of 1% for first £1,000 plus ¼th of 1% for remainder.

Cost exceeding £50,000—½ of 1% for first £1,000 plus ¼th of 1% for next £49,000, plus 1.20th of 1% above £50,000.

Minimum—10/-; Maximum—£100

'Cost' means contract price or, failing this, cost as determined by Council

	£	s	d	Rect No	Date
BLDR'S SAN FEE					
BUILDING FEE					
DEPOSIT covering likely damage to paving, kerb and guttering, etc					
TOTAL					

ZONING
RES. DIST.
BRICK AREA
SEC. 55 PUBLIC HEALTH ACT

25.—LAND UNFIT FOR BUILDING.

Where land is low-lying or drainage easements exist and otherwise is not fit to be used for building purposes, it shall be the legal obligation of owners to satisfy themselves as to any Public Health Proclamation thereon as provided by Section 55 Public Health Act of the provisions of Ordinance 71 Clause 60, Local Government Act.

26.—COMPLIANCE WITH ORDINANCES AND RULES.

Notwithstanding anything contained in the approved plans and specifications or where any matter is inconsistent with the Local Government Ordinances and these rules it SHALL BE CLEARLY UNDERSTOOD, that these rules shall prevail, and I hereby undertake to erect the building referred to on plan No. on Lot No. 35

Street Yyecca Road in accordance with Local Government Ordinances and the above rules.

Signed

State whether Owner, Builder, Architect or Structural Engineer

Address

Date 20th March 1964.

WARRINGAH SHIRE COUNCIL

RULES, SPECIFICATIONS AND CONDITIONS GOVERNING APPROVAL FOR THE ERECTION OF DWELLINGS, ALTERATION OR ADDITION

GENERAL

The specifications and standards indicated are the minimum permitted. Amounts in excess shall be provided where required. Building Applications may be lodged at the Shire Hall at any time during office hours 9 a.m. to 4 p.m. Monday to Friday. District Health and Building Inspectors are available for interview at the Shire Hall from 9 a.m. to 10 30 a.m. weekdays which will prevent delay and inconvenience and expedite approval of plans and specifications. Applicants are advised to avail themselves of technical advice.

A STAMPED COPY OF APPROVED PLANS must be kept on the job at all times during which building operations are proceeding.

Except as varied expressly provided, the provisions of Ordinance 71 of the Local Government Act shall be adhered to as a minimum.

Builders are responsible to provide a sanitary service and a satisfactory structure and regular on-site bin seat during building operations from the commencement to the completion of the job. A penalty not exceeding Fifty pounds (£50) is provided by Local Government Ordinance for non-compliance with the requirement.

Builders are responsible for removing from the site all waste building materials. The site and surrounds must be clean and adequately identified.

1.—FOOTINGS:

(i) Brick Buildings.

(a) Brick footings under 9ins. and 11ins. cavity walls are to be minimum of one 22in. [illegible] courses, one 14in. course. Footings under 4½ins. and 9ins. walls are [illegible] one course, two 14in. courses and one 9in. course.

(b) Where solid rock foundations exist, the rock is to be wabbled to provide level bottoms of footings of weak concrete mix as prescribed herein.

(c) Concrete footings under 9ins. and 11ins. brick walls shall be a minimum of 22ins. x 9ins. and under 4½ins. and 9ins. walls 14ins. x 9ins.

(ii) Brick Veneer Construction.

(a) Brick footings two courses of 18ins. and one course of 14ins.

(b) Concrete footings 18ins. wide x 9ins. deep. Veneer ground wave to be built into brickwork at floor level.

(iii) Timber Framed Buildings.

(a) Brick footings under 42ins. wide up to 5ft. high two courses of 9ins. Over 5ft. high one course of 14ins. and two courses of 9ins. Maintain regular offsets beyond faces of walls exceeding 42ins. in thickness.

(b) Concrete footings under 44in. walls up to 5ft. high to be 9ins. wide and 6ins. deep and where over 5ft. high 14ins. wide and 9ins. deep. For each additional 44ins. thickness of walls add 6ins. to the width of the footing.

(c) All timber framed buildings shall have brick stone or concrete foundation walls throughout the front of the building with returns on the sides of at least 6ft.

(iv) Generally.

Concrete footings are to be composed of four (4) parts of three-quarter blue metal two (2) parts clean well graded sand and one (1) part Portland cement, or alternatively minimum 2 5ins. plain steel rods, end of to be reinforced in accordance with the following scale, unless otherwise permitted e.g. Fresh mesh or other tensile steel rods with 1½ins. top bottom cover.

REINFORCING SCALE

Footing Dimensions	Reinforcing Steel	Footing Dimensions	Steel Reinforcing
22ins x 10ins	6 x [illegible] rods or 10 x [illegible] rods	[illegible] x 8ins	4 x [illegible] rods or 6 x [illegible] rods
[illegible] x 6ins	4 x [illegible] rods	[illegible] x 10ins	4 x [illegible] M.S. rods or [illegible] M.S. rods [illegible] M.S. [illegible] centres or [illegible] No. [illegible] (SAA A84 No. [illegible]) with [illegible] M.S. stirrups at 5ft. centres

Pier and beam and deep beam footings [illegible] Structural Engineer's details as required by By-law 52.

Bearers are to rest on engaged piers.

Sleeper piers to be [illegible] for the top 5ft. of the pier, the additional lower portion to be 14ins x 14ins.

Stone footings are to consist of all through stone 24ins wide under 9ins and 11in. cavity walls and 18ins wide under 4½in. walls, and are to have a minimum depth of 9ins. Foundation walling is to consist of not less than 25 per cent through stones and is to be at least 18ins thick under 9ins and 11in. cavity walls and 12ins thick under 4½in. walls. All stonework is to be built in composition consisting of one part cement, one and a half (1½) parts lime and [illegible] parts sand.

2.—BUILT IN CEMENT MORTAR.

The following are to be built in cement mortar: [illegible] dampcourse level, or 3ft above finished ground level, all dwarf walls, fender walls, [illegible] sills, [illegible] arches, fences, four (4) courses over all openings, chimneys and fireplaces.

3.—MORTAR.

Lime mortar is to consist of [illegible] part of [illegible] parts [illegible].

Cement mortar is to consist of one (1) part approved Portland cement [illegible] of well graded clean sand and [illegible] part hydrated lime.

4.—DAMPCOURSE.

Must be of approved [illegible] laid to the full width of brickwork in all walls at least 6ins above the [illegible] under floor plates and [illegible] piers and foundation walls. Weep holes to be left in external walls at bottom of cavity. When solid floors [illegible] or intersect walls, [illegible] dampcourse is to be laid not more than one course above floor level. In the case of timber framed buildings 24 gauge galvanised iron ant caps may be permitted on sleeper piers.

5.—OPENINGS INTERNAL EXTERNAL—BRICK.

Openings in brick walls shall be supported by [illegible] angles [illegible] bearing each end [illegible] with the following scale:

Spans	External Walls	Internal Walls
Up to 4ft. 0ins	One 3in. x ⅜in. bar	One 3in. x ⅜in. bar
4ft. 1in. to 5ft. 6ins	One [illegible] x 3in. x ⅜in. angle	One 3in. x 2in. x ⅜in. angle
5ft. 7in. to 8ft. 0ins	One 4in. x 3in. x ⅜in. angle	Two 2½in. x 2in. x ⅜in. angles
8ft. 1in. to 10ft. 0ins	One [illegible] x 3in. x ⅜in. angle	Two 3in. x 2in. x ⅜in. angles

All steel or wrought iron is to be protected [illegible] or corbels [illegible] approved [illegible] forced or pre-stressed concrete [illegible] will be permitted.

6.—OPENINGS—TIMBER FRAME.

Openings in timber framed buildings shall have the following minimum heads:

over openings up to 3ft. wide — 4ins x 2ins
over openings up to 4ft. wide — 4ins x 3ins
over wider openings 2ins thick x 1in. deep
[illegible] for each foot of opening or [illegible]

Purpose	Timber (Tolerance of 1 in 16 Minimum Sizes of Finished Allowed) Hardwood	Oregon, Cypress or other "D" Grade Timbers	Other Requirements
Ceiling and wall battens	[illegible] or 2ins x [illegible]	[illegible] x 1½ins or 2ins x 1½ins cypress or [illegible] or 2ins x [illegible] other "D" grade timbers	Spacings of [illegible] shall not exceed [illegible] centres each way. The larger dimension in each grade of timber shall be [illegible] where the spacing of joists and studs exceeds 18ins. Double battens shall be used at joints in fibrous plaster sheets where [illegible] are scrimmed and set.

[illegible] For the purposes of [illegible] "span" shall mean the distance between the [illegible] of a structural member and "spacing" shall mean the distance apart at which structural members are set.

Roof strutting will not be permitted on ceiling joists.

Timber framed buildings shall be lined with approved materials and to Council's requirements. External [illegible] to be [illegible] at place of assembly.

RAFTERS FOR SKILLION TYPE ROOFS IN EXCESS OF 10FT. SPANS

SPAN	HARDWOOD	D GRADE TIMBER
Up to 12ft	6 x 2	7 x 2
14ft	7 x 2	8 x 2
16ft	8 x 2	9 x 2
18ft	9 x 2	10 x 2

[illegible] restraint required

19—FIBROUS PLASTER.

[illegible] All [illegible] to be backed by studs or bridging [illegible] in bathrooms below 5ft [illegible] flooring [illegible] sink, draining boards and cooking stoves.

20.—CORRUGATED GALVANISED IRON—RESTRICTION ON USE.

The use of corrugated galvanised iron as a building material is permitted only in areas zoned as [illegible] where its use is further restricted to outbuildings and roofing subject to the material being properly screwed down with screws and washers, sides and laps being painted before fixing and the finished roof being painted to the satisfaction of Council.

21.—SECOND-HAND MATERIALS.

Unless [illegible] inspected and approved by the Health and Building Inspector shall [illegible].

22.—ALIGNMENTS.

[illegible] the building alignment is 20ft. [illegible] in the case of main roads and [illegible] streets, the distance is greater. No building may be erected between the building alignment and the front boundary of the property without special approval of the Council.

23.—CLOSETS.

Where [illegible] is available, premises shall be connected thereto. In all other cases except where Council expressly permits otherwise, septic sewerage shall be provided. [illegible] W.C. apartments [illegible] 3ft. wide [illegible] earth closet 3ft. 6ins x 4ft. 6ins internally, and 7ft. from the floor to [illegible] plate. Builders are responsible to provide a sanitary service and a satisfactory [illegible] from the commencement [illegible] the completion of the job.

24.—SEPTIC TANKS.

Separate application must be made as prescribed by Ordinance 44 of the Local Government Act and approval obtained before any work on such installations is commenced. It is required that the septic tank applications be submitted with all building applications for new buildings [illegible].

TIMBER CONSTRUCTION

Clause 18 (a) (i) The minimum finished thickness of timber used for the purposes of flooring boards shall be 15/16 inch and timber used for other purposes in the construction of buildings shall comply with the requirements of the following table—

Purpose	Minimum Sizes of Finished Timber (Tolerance of 1 in 16 Allowed) Hardwood	Oregon, Cypress or other "D" Grade Timbers	Other Requirements
Floor joists in— (a) A one-storey building or the lower storey of a two-storey building	3in. x 2in. or 4in. x 2in	4ins. x 2ins	Spacing shall not exceed 16in. centres. Hardwood joists of 3ins in depth shall have bearers at not more than 4ft. centres and if 4ins in depth at 6ft. centres. Where bearers are spaced at centres exceeding 6ft in the case of hardwood or exceeding 8ft in the case of "D" grade timbers or where bearers are not used floor joists shall comply with the requirements of paragraph (b) of this portion. Spacing shall not exceed 16in. centres.
(b) The upper storey of a two-storey building where the unsupported span does not exceed—			An unsupported span shall not exceed 20ft and an unsupported span exceeding 9ft shall have one row of 1½ins x 1½ins herringbone strutting
6 feet	4in. x 2ins	5ins. x 2ins	
8 "	5ins x 2ins	6ins. x 2ins	
10 "	6ins. x 2ins	7ins x 2ins	
12 "	7ins x 2ins	8ins x 2ins	
14 "	9ins x 2ins	10ins x 2ins	
16 "	10ins x 2ins	11ins x 2ins	
18 "	11ins x 2ins	12ins x 2ins	
20 "	12ins x 2ins	12ins x 3ins	
Floor plates	4ins. x 2ins	4ins x 2ins	Depths shall be increased by 1in. for each additional 2ft. or portion thereof by which the span exceeds 6ft and an additional 2ft or portion thereof by which the span exceeds 6ft
Floor bearers	4ins x 3ins	5ins x 2ins	
Sole plate	Width of stud x 1½ins thick	Width of stud x 2ins thick cypress or width of stud x 1½ins thick other "D" grade timbers	Width of stud x 2ins thick cypress or width of stud x 1½ins thick other "D" grade timbers
Studs for— (a) (b) A one-storey building or the upper storey of a two-storey building in which the unsupported length of the studs is— (i) not more than 10ft	3ins x 2ins or 4ins x 1½ins 4ins x 2ins	3ins x 2ins or 4ins x 1½ins 4ins x 2ins	Spacing not to exceed 2ft centres
(ii) more than 10ft but not more than 14ft, or	5ins x 2ins	5ins x 2ins	
(iii) more than 14ft, or (c) The lower storey of a two-storey building in which the unsupported length of the studs is— (i) not more than 14ft, or	4ins x 2ins 5ins x 2ins	4ins x 2ins 5ins x 3ins	
(ii) more than 14ft	Width of stud x 1in thick 2ins x 4ins	Width of stud x 1in thick 3ins x 4ins	Nogging: Intermediate cross bracing galvanised hoop iron not less than 1in. wide and not less than 16 gauge may be used
Nogging			
Braces			
Top plates (and plates) for (a) buildings of brick construction or (b) buildings of timber frame construction	3ins x 1½ins Width of stud x 1½ins thick	3ins x 2ins Width of stud x 2ins thick	Spacing shall not exceed 20ft. centres
Ceiling joists	4ins x 1½ins	4ins x 2ins cypress or 4ins x 1½ins other "D" grade timbers	Ceiling joists shall be coupled to joists in adjacent bays and spaced not more than 2ft centres. For every 6ft of length exceeding 14ft the depth of beams shall be increased by half an inch. Spacing shall not exceed 3ft. centres. Weights shall be placed on ceiling joists of 2ins when the span of joists exceeds 10ft by an additional 2ins for each additional 2ft or portion thereof by which the unsupported length of the joists exceeds 10ft
Hanging beams		7ins x 2ins	
Roof rafters supporting (a) galvanised corrugated iron sheeting or other iron sheetbent sheeting, or	3in. x 1½ins or 3ins x 2ins	3ins x 2ins	

Purpose	Minimum Sizes of Finished Lumber (Tolerance of 1 in 16 Allowed)		Other Requirements
	Hardwood	Oregon, Cypress or other "D" Grade Timbers	

7.—GROUND FLOOR timbers.

8.—CONCRETE FLOORS FOR BATHROOM, LAUNDRY, ETC.

9.—PLUMBING AND DRAINAGE.

10.—ROAD OPENINGS AND CROSSINGS, ETC.

11.—ERECTION OF FENCES OR BUILDINGS ADJACENT TO STREET ALIGNMENTS.

12.—SIZE OF WINDOWS.

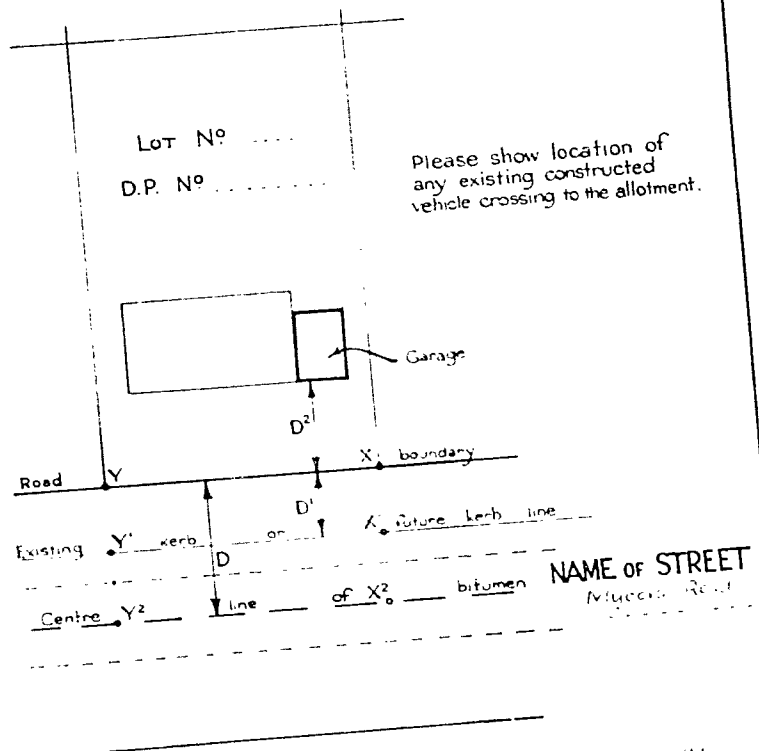
13.—VERANDAHS.

14.—VENTILATION.

15.—STATUTORY NOTICES TO COUNCIL.

16.—ELECTRICAL INSTALLATIONS.

17.—FRAMING.



INFORMATION REQUIRED - To accompany each Building Application

DISTANCE "D" 33 FT Centre of bitumen to boundary OR DISTANCE "D¹" FT Kerb to boundary

DISTANCE "D²" 36 FT Boundary to garage

HEIGHT ... FT ... IN of X above or below X¹ or X²

HEIGHT ... FT ... IN of Y above or below Y¹ or Y²

HEIGHT ... FT 6 IN of FLOOR OF GARAGE above or below X or Y

WARRINGAH SHIRE COUNCIL	PLAN NO.
VEHICLE ACCESS PARTICULARS TO BE SUBMITTED WITH BUILDING APPLICATION	

Our Cooyong & Mycora Rd,
Terry Hills
16th April 1964

The Shire Clerk
Dear Sir,

Please find herewith Plans I wish to submit for Council's approval in respect of:

1 New Fibro residence
2 New Tractor shed for storage of Rotary Hoes.

By way of explanation I find now that our three bedroom home is too large for my Wife and I and no longer commensurate with our needs and so we wish to vacate same and move into smaller cottage referred to in plan.

The cottage we vacate will be an inconvenient in obtaining more permanent labour for the Nursery and Market garden as at present apart from our permanent employee only casual labour at weekends is available.

I am, yours faithfully
J. S. Johnson

Form No. 1[illegible].

[illegible]1st May, 19[illegible]4.

[illegible] HEALTH AND BUILDING INSPECTOR.

[illegible] - ADDITIONAL RURAL WORKER'S DWELLING.
[illegible] 3[illegible], [illegible] VALE, [illegible] WYOCHA [illegible], TERSEY [illegible].
[illegible]

Council considered this matter, ~~xxxxx~~ per TPDC [illegible]/[illegible]64, Min ~~xxxx~~ 8[illegible], and resolved as follows:-

"That the application be approved, subject to:-

(a) The accommodation being used only by a Rural Worker employed on the property.

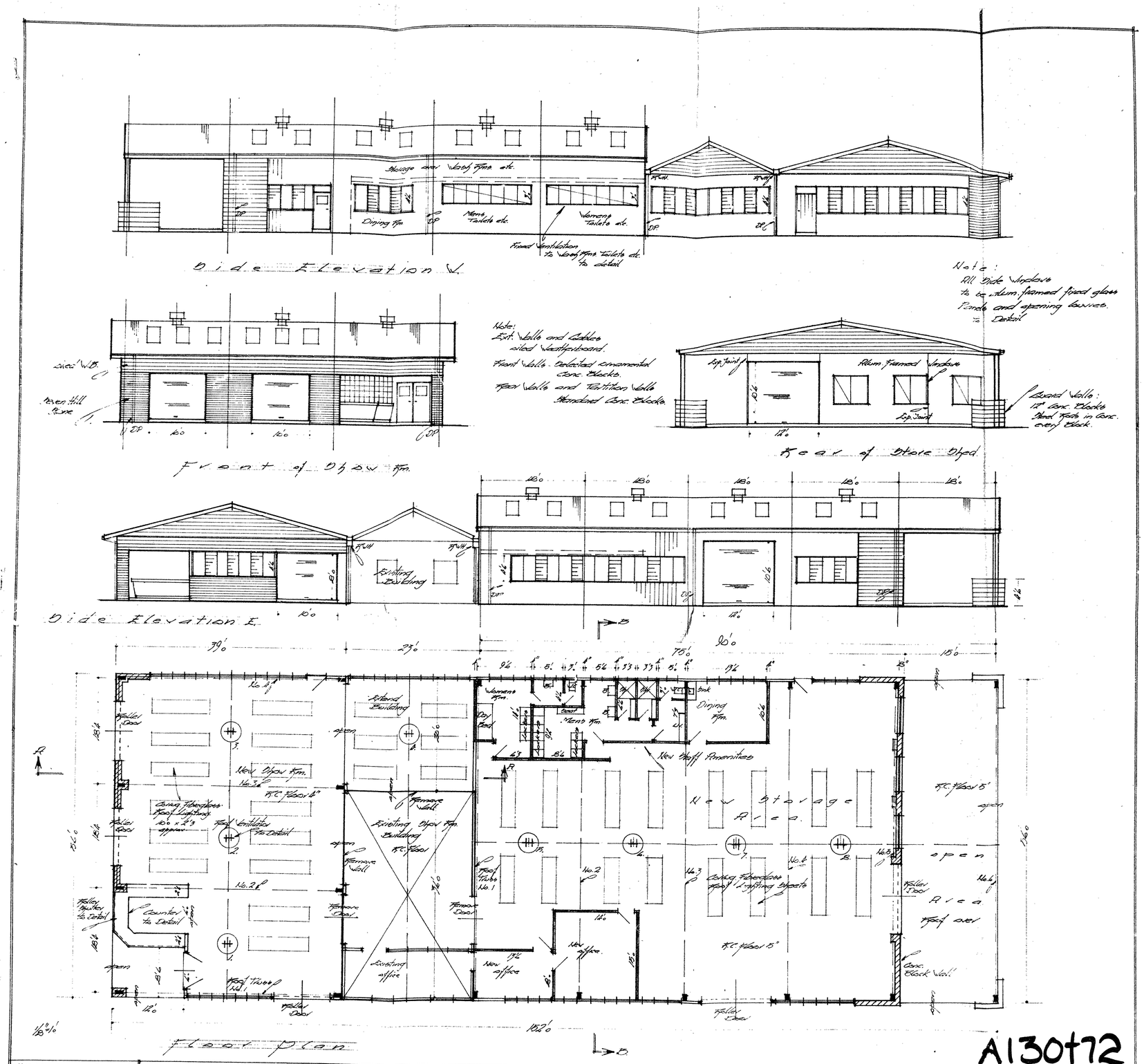
(b) Compliance with all Health and Building Department requirements."

Please find attached Land Use Consent No. [illegible]4/74 and building application, referred to you for necessary action.

Would you please ensure that the Land Use Consent is despatched with the approved building plan, and, as applicable, apply the Town Planning Consent approval to the Building approval.

[signature]

~~xxxxxx~~ [illegible] PLANNER.



H.E. Merriman & Associates
M.I.D. Aust.
Designers
Phone 98-4021

EXTENSION OF EXISTING RURAL BUILDINGS
FOR WARRINGAH GARDEN CENTRE - MONA VALE ROAD - TERREY HILLS

Sheet 1 of 3

Date 20.11.71
H.E.M.

EBCO – Sydney (02) 439-2055

NGAH SHIRE COUNCIL
DING APPLICATION

Government Act, Ordinance 71.

OFFICE
RIDING
APP. No. A130/72
ASS. No. E, M83(2), 31, 71

NS: Plans and Specifications shall both be drawn and written in ink on opaque paper and be submitted drawn to a scale of ¼ in to 1 ft., shall show all floor plans, elevations, sections, figured dimensions of all ed a drainage diagram showing the proposed treatment of household wastes and roof water. A Site Plan, shall show the relation of the proposed building and any existing buildings to all boundaries of the allotment nts and/or is bounded. Indicate on block plan the position of any drainage easement or natural water course.

Provide location sketch on back hereof

SHOW NEAREST CROSS STREET

Your Phone No. 98-4021

3.—The Shire Clerk,
Warringah Shire Council,
BROOKVALE

Sir,—
I, the undersigned, hereby make application to Council for the approval of Plans and Specifications of a building, which I propose to erect and complete within TWELVE MONTHS from the date of approval.

Particulars as under: Extensions of Rural Buildings.

CLASS OF BUILDING (Here state dwelling, flats, shop and dwelling combined, garage, additions.)

ESTIMATED COST OF BUILDING $ 30.000

TYPE OF CONSTRUCTION Steel Frames
(State whether brick, brick veneer, w/board, fibro, etc.)

4.— FULL PARTICULARS ARE ESSENTIAL

LOT No. 35 ~~SEC. No.~~ Cat. No. C5935 D.P. No. Vol. 6670 Folio 3

HOUSE NAME/No.

FRONTAGE 450.

STREET Mona Vale Rd LOCALITY Terrey Hills DEPTH

NOTE: Details of Car parking, driveways and garden plots to be indicated on plans of Commercial Buildings

ZONING—T.P. CONSENT No.

5.—FULL NAME OF OWNER Mr. G.S. Johnson (BLOCK LETTERS)

NAME OF BUILDER H.E. Merriman (BLOCK LETTERS)

ADDRESS 7 Orlando Rd. Dee Why

PRESENT ADDRESS as above

6.—MATERIALS OF ROOF Corrug. Fibro TYPE OF ROOF Gables (Hip, Gable, Flat, etc.)

7.—DESCRIPTION OF FENCES FRONTING PUBLIC PLACES:

HEIGHT Existing MATERIALS —

8.—I undertake to comply with the provisions of the Local Government Act 1919 and Ordinances Nos. 71, 30, 39 and 44 and all amendments thereto, and the Rules and Conditions of the Council of the Shire of Warringah.

State whether applicant is owner/builder/architect/structural engineer or Managing Director/Manager/Secretary thereof. Builder

Signature of Applicant H.E. Merriman

Date 6/12/71

9.—BUILDING FEES.

New Applications.

(a) Cost up to $2,000 — 0.5 of 1% (=50c/$100 or $5/$1,000) of 'cost'.

(b) Cost $2,000 to $100,000 — 0.5 of 1% (see (a)) for first $2,000 plus 0.2 of 1% (=20c/$100 or $2/$1,000) for remainder.

(c) Cost exceeding $100,000 — 0.5 of 1% (see (a)) for first $2,000 plus 0.2 for 1% for next $98,000 (see (b)) plus 0.065 of 1% (=65c $1,000) above $100,000.

(d) Minimum — $1; Maximum — $2,000.

Building Permit Renewal: — $4.

Amended Plans: — 25% of fees as per New Applications.

'Cost': Means contract price or, failing this, cost as determined by Council.

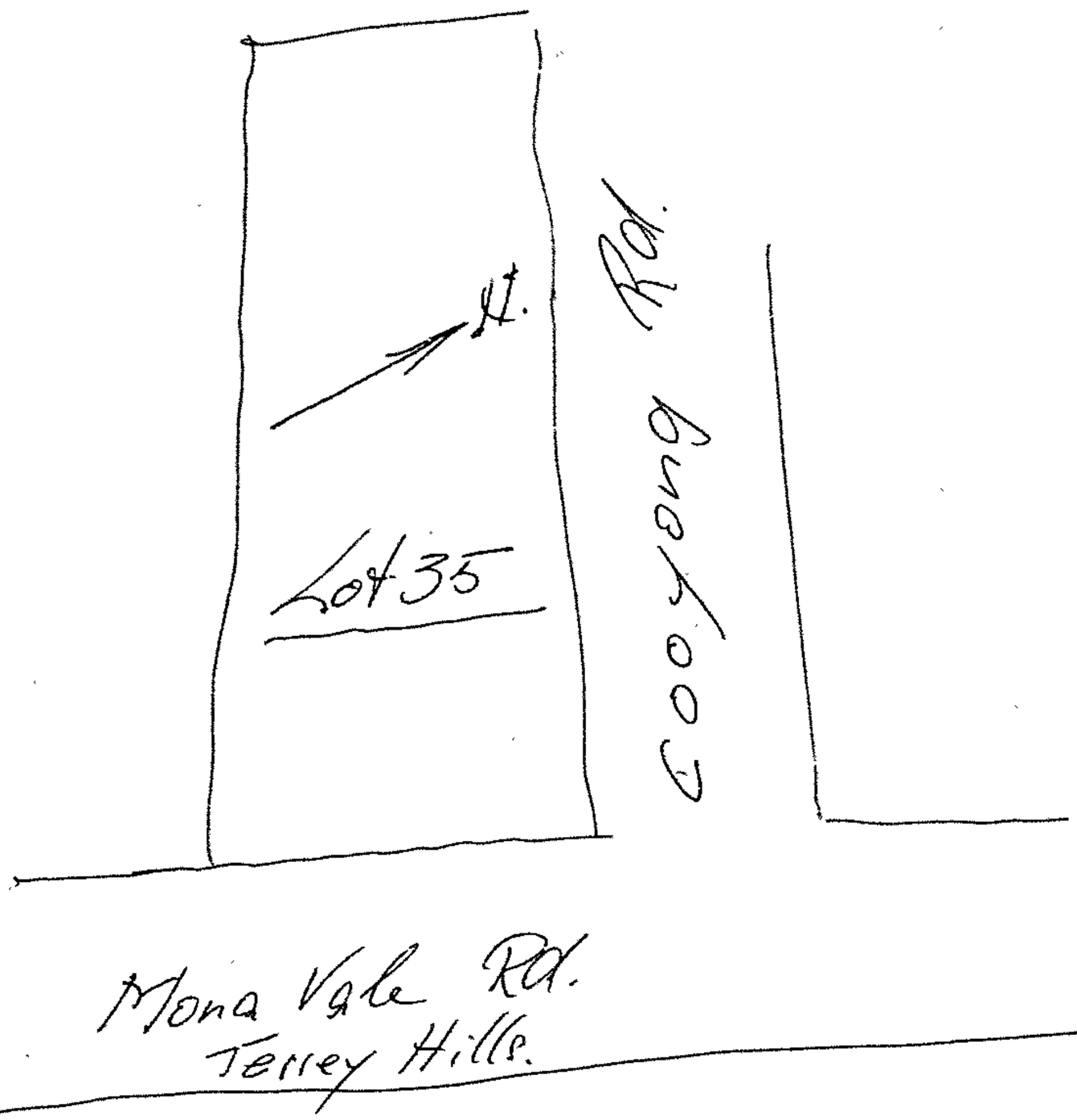
OFFICE USE ONLY WP

FEES	$ c	RECEIPT No.	DATE
BUILDING	66—00	108726	6/12/71
ADD. PLANS			
BUILDERS S/S			
ROAD OPENING			
K & G			
TOTAL	66—00		

T.P.O 17/12/71

S.C. Location zoning

H&B Hold Objection subject to min 100 BL from the new DMRD alignment 21/12/71


N.
Lot 35
Coorong Rd.
Mona Vale Rd.
Terrey Hills.

25.—LAND UNFIT FOR BUILDING.

Where land is low-lying or drainage easements exist and otherwise is, or likely to be, unfit for building purposes, it shall be the legal obligation of owners to satisfy themselves as to any Public Health Proclamation thereon as provided by Section 55, Public Health Act, or the provisions of Ordinance 71 Clause (6) Local Government Act.

26.—NOISE NUISANCE FROM BUILDING OPERATIONS.

That in exercise of its powers under Section 289(d) of the Local Government Act 1919 (as amended) the Council of the Shire of Warringah hereby controls and regulates noises in or near any public place within the said Shire as follows:—

1 The demolition of any building on any land in or near any public place (which includes a public road) is restricted to the hours of 7 a.m. to 5 p.m., Mondays to Fridays inclusive and 7 a.m. to 1 p.m. on Saturdays and is prohibited on Sundays, public holidays, Christmas Day and Good Friday.

2 The use on land in or near any public place (which includes a public road) of the following specified items of plant, namely compressors, bulldozers, power-operated woodworking machines, all excavators and/or loaders, jackhammers and Ramset guns, concrete mixers and or concrete delivery wagons, hoists, winches and welding and rivetting plant is restricted to the hours of 7 a.m. to 5 p.m., Mondays to Fridays inclusive and 7 a.m. to 1 p.m. on Saturdays and is prohibited on Sundays, public holidays, Christmas Day and Good Friday.

27.—TREE PRESERVATION.

Warringah Shire Council made a General Tree Preservation Order on 24th March, 1969, which was notified in Government Gazette No. 48 — page 1472 — 18/4/1969, which states:—

"Notice is hereby given that under the provisions of clause 44 (as amended) of the Shire of Warringah Town Planning Ordinance, Warringah Shire Council has, by resolution dated 24th March, 1969, made a General Tree Preservation Order to apply to all lands within the boundaries of the Shire of Warringah. This order prohibits the ringbarking, cutting down, topping, lopping, removing, injuring or wilful destruction of any tree or trees specified in such order except with the consent of the responsible authority and any such consent may be given subject to such conditions as the responsible authority may think fit. The responsible authority is the Council of the Shire of Warringah."

The Council has defined a "Tree" as:—

"All indigenous species of trees having a height of more than 12 feet or a branch spread exceeding 10 feet in diameter and does not include exotic trees."

(Permits are not required for lopping or topping of trees, but care should be exercised to ensure that trees are not thereby destroyed.)

28.—COMPLIANCE WITH ORDINANCES AND RULES.

Notwithstanding anything contained in the approved plans and specification, or where any matter is inconsistent with the Local Government Ordinances and these rules it SHALL BE CLEARLY UNDERSTOOD, that these rules shall prevail, and I hereby undertake to erect the building on Lot No. 35 Street Cromer Vale Rd. Terrey Hills in accordance with Local Government Ordinances and the above rules.

Signed H. E. Merriman

State whether Owner, Builder, Architect or Structural Engineer. Builder.

Address 7 Orlando Rd. Dee Why

Date 6/12/71

WARRINGAH SHIRE COUNCIL

RULES, SPECIFICATIONS AND CONDITIONS GOVERNING APPROVAL FOR THE ERECTION OF DWELLINGS, ALTERATION OR ADDITION

GENERAL

The specifications and standards indicated are the minimum permitted. Amounts in excess shall be provided where required. Building Applications may be lodged at the Shire Hall at any time during office hours 9 a.m. to 4 p.m. Monday to Friday. District Health and Building Inspectors are available for interview at the Shire Hall from 9 a.m. to 10.30 a.m. weekdays (other times by appointment). Applicants are advised to avail themselves of technical advice which will prevent delay and inconvenience and expedite approval of plans and specifications.

A STAMPED COPY OF APPROVED PLANS must be kept on the job at all times during which building operations are proceeding.

Except as herein expressly provided, the provisions of Ordinance 71 of the Local Government Act shall be adhered to as a minimum.

Builders are responsible to provide a sanitary service and a satisfactory structure and regulation fly-proof box seat during building operations from the commencement to the completion of the job. A penalty not exceeding Two hundred dollars ($200) is provided by Local Government Act for non-compliance with the requirement.

Builders are responsible for removing from the site all waste building materials. The site and boundaries thereof must be clearly and adequately identified.

1.—FOOTINGS:

(i) Brick Buildings.

(a) Brick footings under 9ins. and 11in. cavity walls are to be minimum of one 22in. course, two 18ins. courses, one 14in. course. Footings under 4½ins. and 3ins. walls are to be one 18in. course, two 14in. courses, and one 9in. course.

(b) Where solid rock foundations exist, the rock is to be scabbled to provide level bottoms, or formed with concrete mix as prescribed herein.

(c) Concrete footings under 9ins. and 11ins. brick walls shall be a minimum of 22ins. x 10ins. and under 4½ins. and 3in. walls, 14ins. x 9ins.

(ii) Brick Veneer Construction.

(a) Brick footings two courses of 18ins. and one course of 14ins.

(b) Concrete footings 18ins. wide x 10ins. deep. Vermin-proof wire to be built into brickwork at floor level.

(iii) Timber Framed Buildings.

(a) Brick footings under 4½in. walls up to 5ft. high two courses of 9ins. Over 5ft. high one course of 14ins. and two courses of 9ins. Maintain similar offsets beyond faces of walls exceeding 4½ins. in thickness.

(b) Concrete footings under 4½in. walls up to 5ft. high to be 9ins. wide and 6ins. deep and where over 5ft. high 14ins. wide and 9ins. deep. For each additional 4½ins. thickness of walls add 6ins. to the width of the footing.

(c) All timber framed buildings shall have brick stone or concrete foundation walls throughout the front of the building with returns on the sides of at least 6ft.

(iv) Generally.

Concrete footings are to be composed of four (4) parts of three-quarter blue metal two (2) parts clean well graded sand and one (1) part Portland cement, or alternatively minimum 2,500 p.s.i. ready mixed, and are to be reinforced in accordance with the following scale, unless otherwise permitted, e.g. Trench mesh or other tensile steel rods with 1½ins. top/bottom cover.

REINFORCING SCALE

Footing Dimensions	Reinforcing Steel	Footing Dimensions	Steel Reinforcing
22ins. x 10ins.	6 x ½in. rods or 10 x ⅜in. rods	14ins. x 8ins.	4 x ⅜in. rods or 6 x ⅜in. rods
9ins. x 6ins.	4 x ⅜in. rods	18ins. x 10ins.	4 x ½in. M/S rods or 6 x ½in. M/S rods and ⅜in. diam. M/S stirrups at 3ft. centres or 2 layers No. 7 mesh (SAA A84 No. 307) with ⅜in. diam. M/S stirrups at 5ft. centres.

Pier and beam and deep beam footings where used shall be subject to Structural Engineer's details as required by By-law 54.

Sleeper piers to be 9ins. x 9ins. for the top 5ft. of the pier, the additional lower portion to be 14ins. x 14ins.

Stone footings are to consist of all through stone 24ins. wide under 9ins. and 11in. cavity walls, and 18ins. wide under 4½in. walls, and are to have a minimum depth of 9ins. Foundation walling is to consist of not less than 25 per cent. through stones, and is to be at least 18ins. thick under 9ins. and 11in. cavity walls, and 12ins. thick under 4½in. walls. All stonework is to be built in composition, consisting of one (1) part cement, one and a half (1½) parts lime, and six (6) parts sand.

2.—MORTARS.

(a) "Cement mortar" to consist of one (1) part of Portland cement to four (4) parts of well graded clean sand and 1/10 part hydrated lime

(b) "Cement-lime (compo) mortar" to consist of one (1) part of Portland cement, two (2) parts of hydrated lime to nine (9) parts of well graded clean sand.

3.—USE OF DIFFERENT MORTARS.

(a) The following are to be built in cement mortar — all brickwork up to dampcourse level or 3 ft above finished ground level; all dwarf walls, fender walls, copings, sills, verandah piers, steps, arches, fences, four (4) courses over all openings, chimneys, fire places and 3 in. "brick on edge" walls

(b) Build in compo. mortar:

(i) all other brickwork,

(ii) all concrete masonry blockwork or alternatively other mortars may be used in accordance with AS A123.

4.—DAMPCOURSE.

Must be of approved material laid to the full width of brickwork in all walls at least 6ins. above the bottom of wall cavity under floor plates and on top of all piers and foundation walls, under ant-capping. Weep holes to be left in external walls at bottom of cavity. When solid floors adjoin or intersect walls an additional dampcourse is to be laid not more than one course above floor level

5.—OPENINGS INTERNAL/EXTERNAL—BRICK.

Opening in brick walls shall be supported by bars or angles with at least 4½in. bearings at each end in accordance with the following scale:

Spans	External Walls	Internal Walls
Up to 4ft. 0ins.	One 3in. x ⅜in. bar	One 3in. x ⅜in. bar
4ft. 1in. to 5ft. 0ins	One 3in. x ⅜in. x ⅜in. angle	One 3in. x 2in. x ⅜in. angle
5ft. 1in. to 8ft. 0ins.	One 4in. x ⅜in. x ⅜in. angle	Two 2½in. x 2in. x ⅜in. angles
8ft. 1in. to 10ft. 0ins.	One 6in. x 3½in. x ⅜in. angle	Two 3½in. x 2½in. x ⅜in. angles

All steel or wrought iron is to be protected against corrosion and where exposed to sea air conditions to be galvanised or treated with approved alternative; properly designed reinforced or pre-stressed concrete lintels will be permitted.

6.—OPENINGS—TIMBER FRAME.

Openings in timber framed buildings shall have the following minimum heads:

over openings up to 3ft. wide — 4ins. x 2ins.
over openings up to 4ft. wide — 4ins. x 3ins.
over wider openings 2ins. thick x 1in. deep set on edge for each foot of opening, or approved alternative.

Purpose	Timber (Tolerance of 1 in 16 Minimum Sizes of Finished Allowed) Hardwood	Oregon, Cypress or other "D" Grade Timbers.	Other Requirements
Ceiling and wall battens	1½ins. x 1in. or 2ins x 1in.	1½ins. x 1½ins. or 2ins. x 1½ins. cypress or 1½ins. x 1in. or 2ins. x 1 in. other "D" grade timbers.	Spacings of battens shall not exceed 2ft. centres each way. The larger dimension in each grade of timber shall be used where the spacing of joists and studs exceeds 18ins. Double battens shall be used at the joints in fibrous plaster sheets where such joints are scrimmed and set.

(ii) For the purposes of this subclause "span" shall mean the distance between the supports of a structural member and "spacing" shall mean the distance apart at which structural members are set.

Roof strutting will not be permitted on ceiling/joists.

Timber framed buildings shall be lined with approved materials and to Council's requirements. External joinery to be primecoated at place of assembly.

RAFTERS FOR SKILLION TYPE ROOFS IN EXCESS OF 10FT. SPANS

SPAN	HARDWOOD	D GRADE TIMBERS
Up to 12ft.	6 x 2	7 x 2
14ft.	7 x 2	8 x 2
16ft.	8 x 2	9 x 2*
18ft.	9 x 2	10 x 2*

*Lateral restraint required

19—FIBROUS PLASTER.

Shall be dry and a minimum thickness of ⅜in. All joins to be backed by studs or bridging. Fibrous plaster will not be permitted in laundries, or rooms below 5ft. above flooring or at back of sink or mining boards and cooking stoves.

20.—CORRUGATED GALVANISED IRON—RESTRICTION ON USE.

The use of corrugated galvanised iron as a building material is permitted only in areas zoned as non-urban where its use is further restricted to outbuildings and roofing subject to the material being properly screwed down with screws and washers, sides and laps being painted before fixing, and the finished roof being painted to the satisfaction of Council.

21.—SECOND-HAND MATERIALS.

Unless previously inspected and approved by the Health and Building Inspector shall be prohibited.

22.—ALIGNMENTS.

(a) Front Alignments: General throughout the Shire, the building alignment is 20ft., but in the case of main roads and some other streets, the distance is greater. No building may be erected between the building alignment and the front boundary of the property without specific approval of the Council.

(b) Side Alignments: External walls of a dwelling must be at least 3ft from side boundaries. No eaves, overhang, structure or attachment likely to obstruct the access of light and air may encroach more than one-fourth on the above distance

23.—CLOSETS.

Where public sewerage is available, premises shall be connected thereto. In all other cases, except where Council expressly permits otherwise, septic sewerage shall be provided. The minimum dimensions of W.C. apartments shall be 3ft. wide and 13½ sq ft. in floor area; and of earth closets, 3ft. 6ins. x 4ft. 6ins. internally, and 7ft. from the floor to the roof plate. Builders are responsible to provide a sanitary service and a satisfactory structure and regulation fly-proof box seat during building operations from the commencement to the completion of the job.

24.—SEPTIC TANKS.

Separate application must be made as prescribed by Ordinance 44 of the Local Government Act and approval obtained before any work on such installations is commenced. It is required that the septic tank applications be submitted with all building applications for new buildings in unsewered areas.

TIMBER CONSTRUCTION

Clause 18 (a) (i) The minimum finished thickness of timber used for the purposes of flooring boards shall be 13/16 inch and timber used for other purposes in the construction of buildings shall comply with the requirements of the following table:—

Purpose	Minimum Sizes of Finished Timber (Tolerance of 1 in 16 Allowed)		Other Requirements
	Hardwood	Oregon, Cypress or other "D" Grade Timbers	
Floor joists in—			
(a) A one-storey building or the lower storey of a two-storey building	3in. x 2in. or 4in. x 2in.	4ins. x 2ins.	Spacing shall not exceed 18in. centres Hardwood joists if 3ins. in depth shall have bearers at not more than 4ft. centres and if 4ins. in depth shall have bearers at not more than 6ft. centres. Where bearers are spaced at centres exceeding 6-feet in the case of hardwood or exceeding 5ft. in the case of "D" grade timbers or where bearers are not used floor joists shall comply with the requirements of paragraph (b) of this portion. Spacing shall not exceed 18in. centres
(b) The upper storey of a two-storey building where the unsupported span does not exceed—			
6 feet	4in. x 2in.	5ins. x 2ins.	
8 "	5ins. x 2ins.	6ins. x 2ins.	
10 "	6ins. x 2ins.	7ins. x 2ins.	
12 "	7ins. x 2ins.	8ins. x 2ins.	
14 "	9ins. x 2ins.	10ins. x 2ins.	
16 "	10ins. x 2ins.	11ins. x 2ins.	
18 "	11ins. x 2ins.	12ins. x 2ins.	
20 "	12ins. x 2½ins.	12ins. x 3ins.	
Floor plates	4ins. x 2ins.	4ins. x 2ins.	
Floor bearers	4ins. x 3ins.	4ins. x 3ins. 5ins. x 3ins.	Bearers: Depths shall be increased by 1in. for each additional 2ft. or portion thereof by which the span exceeds 6ft. and similarly by 1in. for each additional 2ft. or portion thereof by which the spacing exceeds 6ft
			Widths shall be increased to a minimum of 4ins. where either span or spacing exceeds 10ft. Spans of 4[illegible] x 3ins. bearers of "D" grade timber shall not exceed 4ft. 6ins.
Vermin plate	Width of stud x 1½ins. thick	Width of stud x 2ins. thick cyprus or width of stud x 1½ins. thick other "D" grade timbers.	
Studs for—			
(a)			
(b) A one-storey building or the upper storey of a two-storey building in which the unsupported length of the studs is—			Spacing not to exceed 2ft. centres.
(i) not more than 10ft.	3ins. x 2ins. or 4ins. x 1½ins.	3ins. x 2ins. or 4ins. x 1½ins.	
(ii) more than 10ft. but not more than 14ft; or	4ins. x 2ins.	4ins. x 2ins.	
(iii) more than 14ft.; or	5ins x 2ins.	5ins. x 2ins.	
(c) The lower storey of a two-storey building in which the unsupported length of the studs is—			Spacing not to exceed 2ft. centres.
(i) not more than 14ft.; or	4ins. x 2ins.	4ins. x 2ins.	
(ii) more than 14ft.	5ins. x 2ins.	5ins. x 3ins.	
Nogging	Width of stud x 1in. thick.	Width of stud x 1in. thick.	
Braces	2ins. x ⅞ins.	3ins. x ⅞ins.	Alternatively cross bracing in galvanised hoop iron not less than 1in. wide and not less than 16 gauge may be used.
Top plates (wall plates) for—			
(a) buildings of brick construction; or	3ins. x 1½ins.	3ins. x 2ins.	
(b) buildings of timber frame construction.	Width of stud x 1½ins. thick.	Width of stud x 2ins. thick.	
Ceiling joists	4ins. x 1½ins.	4ins. x 2ins. cypress or 4ins. x 1½-ins. other "D" grade timbers.	Spacing shall not exceed 2ft. centres.
Hanging beams	7ins. x 1½ins.	7ins. x 2ins.	Ceiling joists shall be equipped with hanging beams secured to joists in an approved manner and spaced not more than 7ft. centres. For every foot of length exceeding 14ft. the depth of beams shall be increased by half an inch.
Roof rafters supporting—			
(a) galvanised corrugated iron sheeting or other non-absorbent sheeting; or	4ins. x 1½ins. or 3ins. x 2ins.	4ins. x 2ins.	Spacing shall not exceed 3ft. centres Widths shall be increased to a minimum of 2ins. where the unsupported length of rafters exceeds 7ft. and depths shall be increased by 1in. for each additional 2ft. or portion thereof by which the unsupported length of rafters exceeds 7ft. Unsupported length of rafters shall not exceed 11ft.

Purpose	Minimum Sizes of Finished Timber (Tolerance of 1 in 16 Allowed)		Other Requirements
	Hardwood	Oregan, Cypress or other "D" Grade Timbers	
(b) tiles, slate or asbestos cement.	4ins. x 1½ins. or 3ins. x 2ins.	4ins. x 2ins.	Spacing shall not exceed 2ft. centres. Widths shall be increased to a minimum of 2ins. where the unsupported length of rafters exceeds 7ft. and depth shall be increased by 1in. for each additional 2ft. or portion thereof by which the unsupported length of rafters exceeds 7ft. Unsupported length of rafters shall not exceed 11ft.
Roof battens supporting—			
(a) galvanised corrugated iron sheeting or asbestos cement or any other sheeting; or	2ins. x 1½ins. or 3ins. x 1½ins.	3ins. x 1½ins. cypress or 2ins. x 1½ins. or 3ins. x 1½ins. other "D" grade timbers.	The larger dimension in each grade of timber shall be used where the spacing of the rafters exceeds 2ft.
(b) tiles or slate where—			
(i) the spacing of rafters is 18in. centres; or	1½ins. x 1in.	1½ins. x 1½ins. cypress or 1½ins. x 1in other "D" grade timbers.	
(ii) the spacing of rafters is 2ft. centres.	2ins. x 1ins. or 1½ins. x 1½ins.	2ins. x 1½ins. cypress or 2ins. x 1in. or 1½in. x 1½ins. other "D" grade timbers.	
Purlins—			
(a) supporting rafters	4ins. x 2ins.	4ins. x 3ins.	Spacing shall not exceed 7ft. centres. Struts spaced not more than 7ft. centres shall be attached.
(b) supporting corrugated iron, asbestos cement or similar sheet roofing.	3ins. x 2ins.	4ins. x 2ins.	Depths shall be increased by 1in. for each additional 2ft. or portion thereof by which the spans exceed 6ft. centres. Widths shall be increased to a minimum of— (i) 2½ins. where spans exceed 11ft. but do not exceed 14 feet centres; or (ii) 3ins. where spans exceed 14ft. centres.
Struts—			
(a) Not exceeding 7ft. in length; or	3ins. x 2ins.	3ins. x 3ins.	
(b) Exceeding 7ft. in length	3ins. x 3ins.	4ins. x 3ins.	
Collar ties	3ins. x 2ins.	4ins. x 2ins.	Collar ties shall be secured to every alternate pair of rafters. Depths shall be increased by 1in. where spans exceed 14ft.
Ridges and Hips	6ins. x 1in.	6ins. x 1in.	
Valleys	6ins. x 1½ins.	6ins. x 1½ins.	

7.—GROUND FLOOR TIMBERS.

Not to be built below dampcourse level or built into brickwork unless at least 6ft. above ground level.

8.—CONCRETE FLOORS FOR BATHROOM, LAUNDRY ETC.

Surfaces especially otherwise approved, shall in all cases be not less than 4ins. thick and supported on a 3in. corbel course or walling. Concrete is to be as per clause 1 (iv) herein, and in all cases where more than 12ins. above original ground level is to be suspended and reinforced with ¼in. diameter mild steel bars of 9in. mesh, tied at intersections, or approved alternative.

9.—PLUMBING AND DRAINAGE.

(a) Sanitary plumbing and drainage shall be in accordance with the By-Laws of the Metropolitan Water, Sewerage and Drainage Board and be carried out only by persons licensed in that regard. A certificate from the Water Board relative to the inspection and approval of internal sanitary plumbing and draining must be produced to Council before occupancy of the building. In unsewered areas clarification pits and disposal trenches shall be located and constructed to the Health and Building Inspector's direction and Council's specifications.

(b) All roof waters must be carried out to the street table drain (or other Council's drain with the Shire Engineer's permission) by means of stoneware drainpipes and where this is not practicable on account of falls, to be carried clear of all footings to Council's satisfaction.

10.—ROAD OPENINGS AND CROSSINGS, ETC.

No road openings, footpath crossings, hoardings, or use of roadway for storage of materials shall be made without a written permit of the Shire Engineer and pre-payment of the prescribed fees therefor.

11.—ERECTION OF FENCES OR BUILDINGS ADJACENT TO STREET ALIGNMENTS.

All walls and fences shall be clearly shown on plans and their dimensions and materials clearly specified. The correct street levels shall be ascertained from the Shire Engineer or where appropriate, the Department of Main Roads, before the erection of any structure, such as garages, fences, entrances, etc., adjacent to street boundaries, and these levels shall be strictly observed. All fences on street alignments, especially on corner allotments, shall be of a design to the satisfaction of Council, and so constructed as not to impair views, or present danger to traffic. Builders and owners should consult the District Health and Building Inspector before commencing any work in connection with such fences.

12.—SIZE OF WINDOWS.

Minimum window areas to be as follows:—ROOMS—one-tenth of floor area—but not less than—KITCHEN—10 sq. ft., BATHROOM—3½ sq. feet; ENCLOSED LAUNDRY—6 sq. feet; PRIVY CLOSET—not less than 2 sq. feet, (in accordance with the provisions of Ordinance 71 of the Local Government Act).

13.—VERANDAHS.

Verandahs shall where completely enclosed, comply with the standard for habitable rooms and where partially enclosed shall comply with the requirements of Clause 33 of Ordinance 71.

14.—VENTILATION OF ROOMS.

One 9 in. x 6 in. ventilator required near ceiling level for bathrooms, shower rooms, privy-closets and the like. Additional special provision of ventilation required at floor level where gasfittings are installed.

15.—STATUTORY NOTICES TO COUNCIL.

Forty-eight (48) hours' notice must be given prior to covering in (a) trenches, before footings are laid and with steel in position where required (b) footings, before trenches are filled in; (c) drains and (d) roof timbers. Before permitting any person to use or occupy any uncompleted building and forthwith upon completion of any building, the person by or in consequence of whose order the building is being erected shall give notice to the Council, and the building shall not be occupied until it has been completed in accordance with the approved plan and specification.

16.—ELECTRICAL INSTALLATIONS:

All electrical installations shall be carried out in compliance with the Australian Standard Rules (published by the Standards Association of Australia) and the appropriate electricity undertaking. Attention is especially directed to the conditions of approval of the plan.

17.—FRAMING.

The minimum specifications of structural timbers shall be as prescribed under Ordinance 71 of the Local Government Act, as hereunder:

HEALTH & BUILDING DEPT.

Inspector

Date / / /

Owners Name Lot Sec. D.P.

Street No. Locality

Subject

REFERRED TO:

Memo

McGowning & Morrison v Johnson

Plan No. condition A 130/72

or those in amended plan

Why returned so?

Please file

[illegible] 2/6/73

B/M 83 (2) 29/73

W

Silenuts plans for
Mormon Museum Plan.

6/6/72

BOORALIE
RD.
YILONG
RD.
BINDOOK
RD.
WANARI
CURRONG CIRT
COOYONG
RD.
MONA VALE
RD.
HILLS
RESERVE FOR PUBLIC RECREATION & PUBLIC HALL
POR. 420
RESERVE FOR
POR. 44
POR. 124
POR. 35
POR. 25
POR. 22
POR. 70
POR. 75
POR. 20
POR. 136
POR. 329
POR. 332
POR. 334
POR. 337
POR. 339
POR. 341
POR. 343
POR. 345
POR. 347
POR. 348
POR. 350
POR. 351
POR. 353
POR. 354
POR. 362
POR. 364
POR. 365
POR. 367
POR. 166
POR. 331
POR. 340
A MPS
B (RR)
C 164870
Park
Hills Public School
(M.R. 1621)
Scale: 4chns to 1 inch.
Zoning: Non Urban 1(a)

WP.EB
B/M83(2)31/71

4th January, 1972.

Mr. T.S. Johnson,
Warringah Garden Centre,
Mona Vale Road,
TERREY HILLS. 2084.

Dear Sir,

Re: Lot 35, Mona Vale Road, Terrey Hills
Proposed extensions to rural building.

With reference to the above proposal, you are advised that this application is refused by Council because the proposed structure is not 100 feet from the new Department of Main Roads alignment as required by Council's Town Planning Department.

One set of plans is returned herewith, the other set being retained for record purposes.

Yours faithfully,

(J. Morgan)
Shire Clerk

Inspector Piper 9 to 10.30am Monday to Friday.

WARRINGAH SHIRE COUNCIL

B/M83/31/71 B 628

Date

Report by Health Inspector

TO SHIRE HEALTH/BUILDING SURVEYOR

SUBJECT COMPLAINANT

OWNER MR. T. S. JOHNSON

HOUSE No. or NAME

OCCUPIER SEC. No.

STREET WOOD VIEW RD LOT No. 35

LOCALITY TERRY HILLS D.P. No.

Proposed extension to wood building

(1) T.P.O. approval no objection subject to minimum 100 ft B.L. from new main road alignment.

(2) In my opinion this extension due building plan is not satisfactory since I do not know what the new main road will be & the plan shows the proposed extension 55 ft from the front alignment.

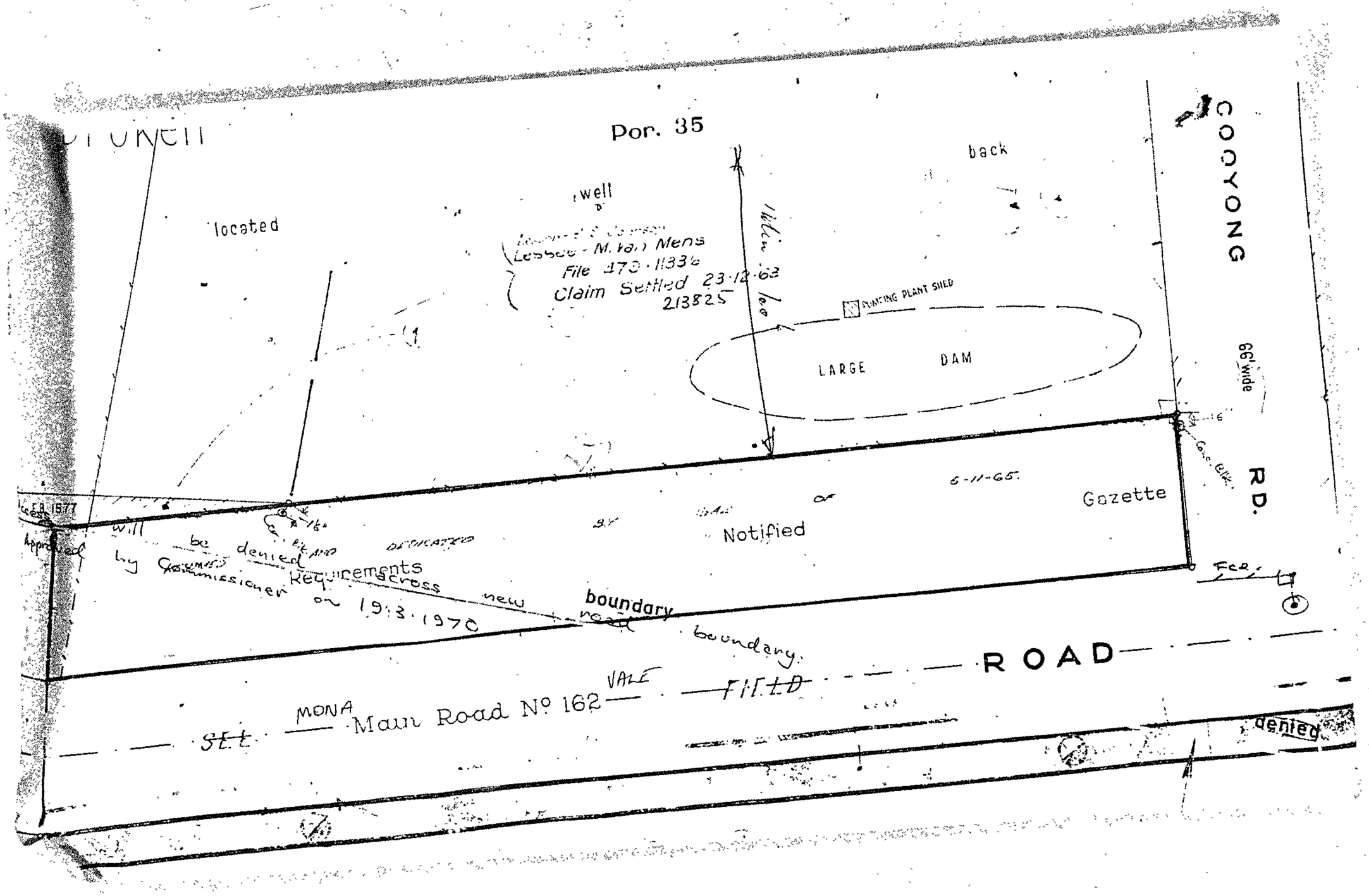
(3) I consider that T.P.O. should dictate whether the plan is ok or not in regard to the position on site.

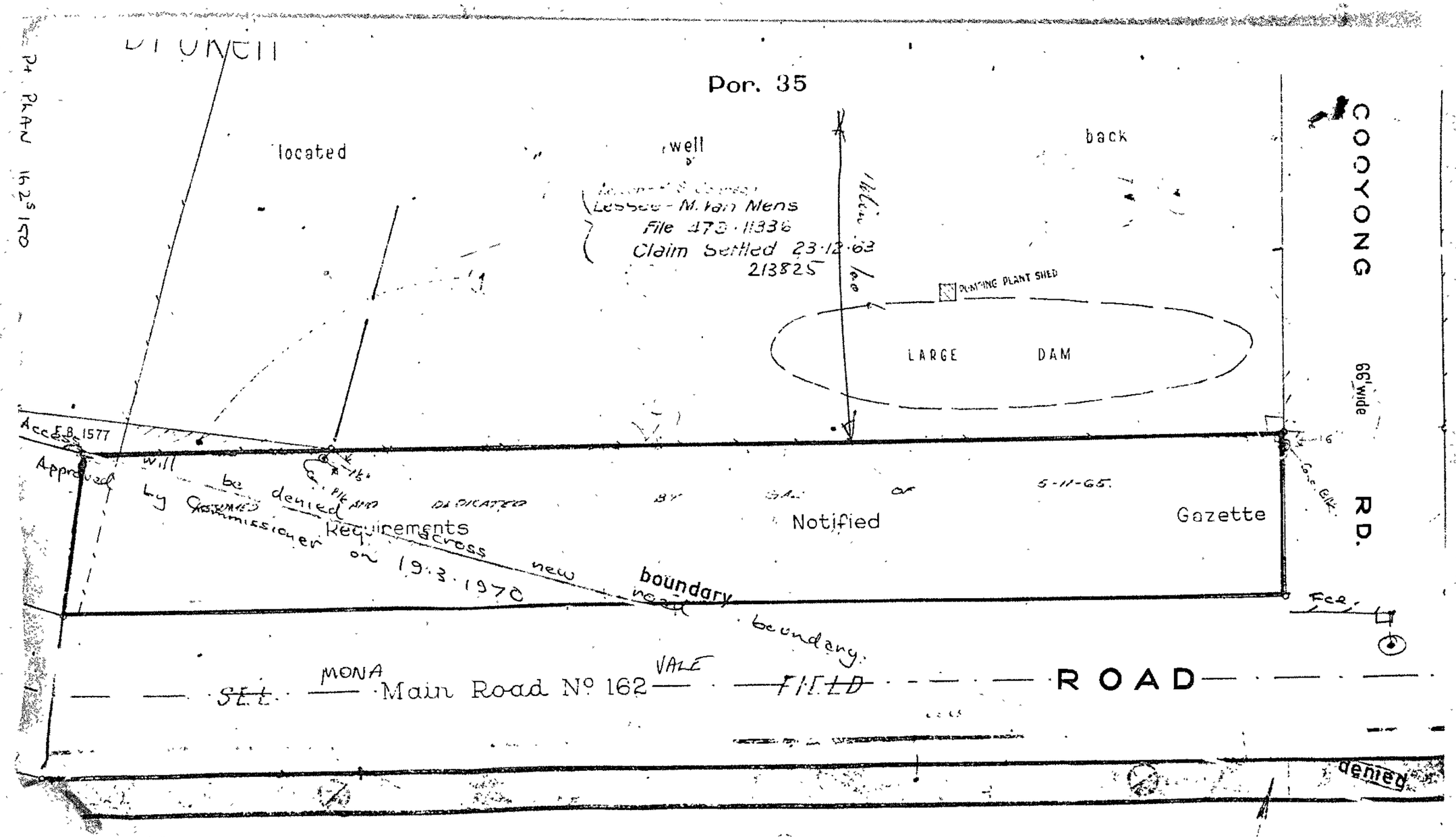
(4) Recommend where the applicant is returned plans (Dept.) because the proposed structure is not 100 ft from the new P.M.R. alignment as required by executive Town Planning Dept.

23/12/71

Left as see

31.12.71


Por. 35
located
well
back
Lessee - M. Van Mens
File 473-11336
Claim Settled 23-12-63
213825
PUMPING PLANT SHED
LARGE DAM
COOYONG
66' wide
RD.
5-11-65
Gazette
Notified
Requirements
will be denied
Approved by Commissioner on 19.3.1970
across new boundary
boundary
ROAD
MONA
Main Road No 162
VALE
denied

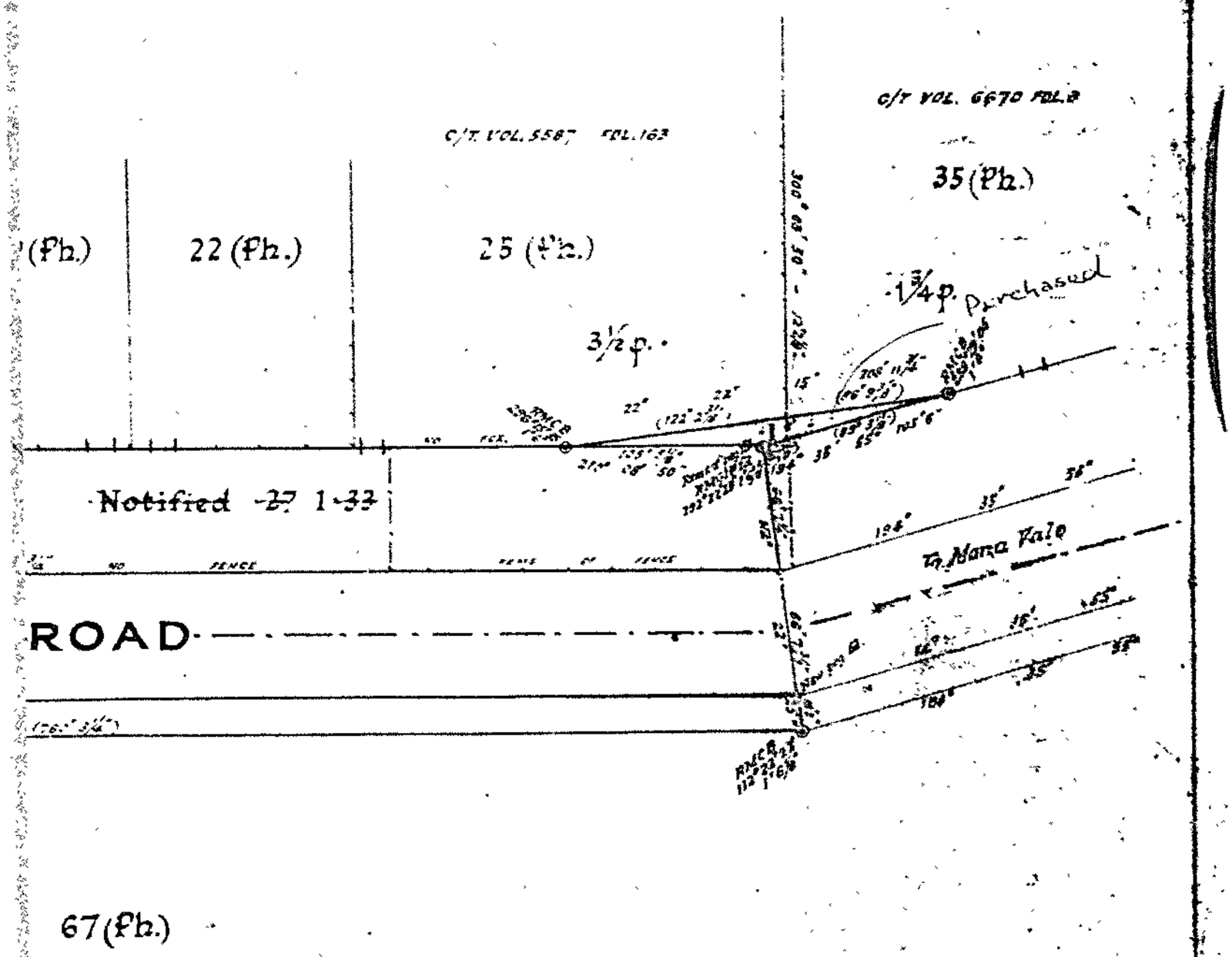


Por. 35
located
well
back
Lessee - M. Van Mens
File 473-11336
Claim Settled 23-12-63
213825
PUMPING PLANT SHED
LARGE DAM
COOYONG
66' wide
RD.
Access
E.B. 1577
Approved
will be denied
by Commissioner on 19.3.1970
Requirements
across new
boundary
Notified
Gazette
5-11-65
Fce.
MONA
Main Road No 162
VALE
FIELD
ROAD
denied

10

D.P. 213825

S. & P. COPY



Victor Thomas Brown of the Department of Main Roads Sydney a surveyor registered under the Surveyors Act 1929 as amended hereby certify that the survey represented in this plan is accurate and has been made by me in accordance with the Survey Practice Regulations 1933 and that the Survey was completed on 12th May 1959

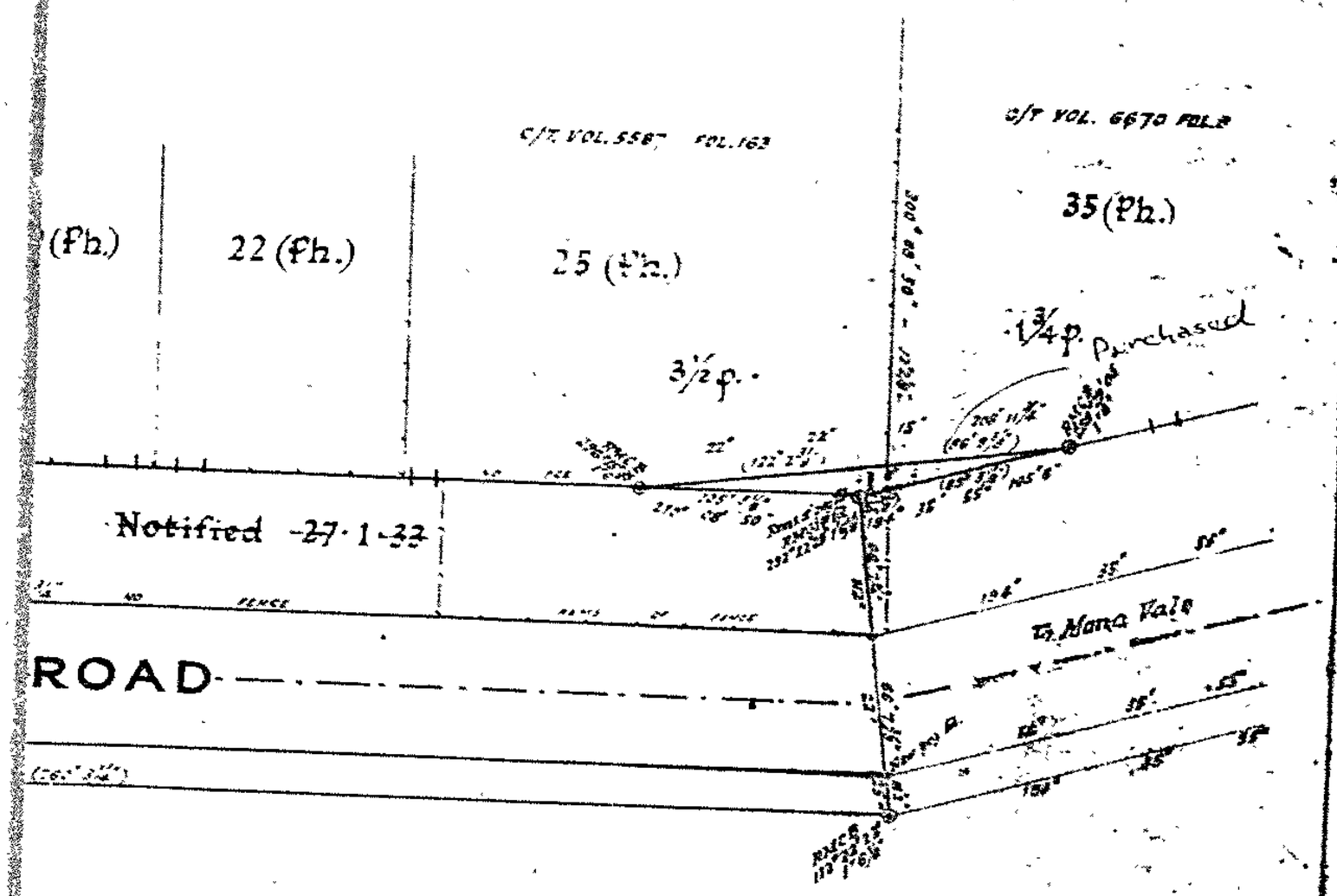
V. T. Brown 2 . 12 . 60

Surveyor registered under the Surveyors Act 1929 as amended.

10

D.P. 213825

S. & P. COPY



67 (Ph.)

Victor Thomas Brown of the Department of Main Roads, Sydney a surveyor registered under the Surveyors Act 1929 as amended hereby certify that the survey represented in this plan is accurate and has been made by me in accordance with the Survey Practice Regulations 1933 and that the survey was completed on 12th May 1959

V. T. Brown 2 : 12 : 60

Surveyor registered under the Surveyors Act 1929 as amended.

H & B

HEALTH & BUILDING DEPT.

Inspector Dennett
Date 2-2-72

Owners Name JOHNSON
Street MONA VALE RD. No.
Lot 35 Sec. D.P.
Area TERREY HILLS
Subject B/A – Additions to nursery buildings

REFERRED TO:
D/AS+ISI
(MR GUY)

Proposed additions to existing garden nursery buildings in the form of
1 Steel framed brick + weatherboard showroom + storage area with staff amenities
2 Steel framed AC sheeted workshop
3 Concrete block toilet building
4 Glasshouses

Recommend approval subject to:–
1 Provision of septic sewerage – separate application to be submitted in this respect
2 Submission of structural engineers details in respect of concrete footings, slab + all structural stickwork prior to commencement of building
3 No building or structure to stand within the 100' building alignment
4 This approval does not grant or perpetuate right of access to Mona Vale Road.

2/2

Approved as rec. Renewal
[signature] 7.2.72

WARRINGAH SHIRE COUNCIL

...../...../..... B 651

Report by Health Inspector ..... Date .....

TO SHIRE HEALTH/BUILDING SURVEYOR

SUBJECT ..... COMPLAINANT .....

OWNER MR. T. S. JOHNSON

OCCUPIER ..... HOUSE No. or NAME .....

STREET MONA VALE RD LOT No. 35 SEC. No. .....

LOCALITY TERRY HILLS D.P. No. .....

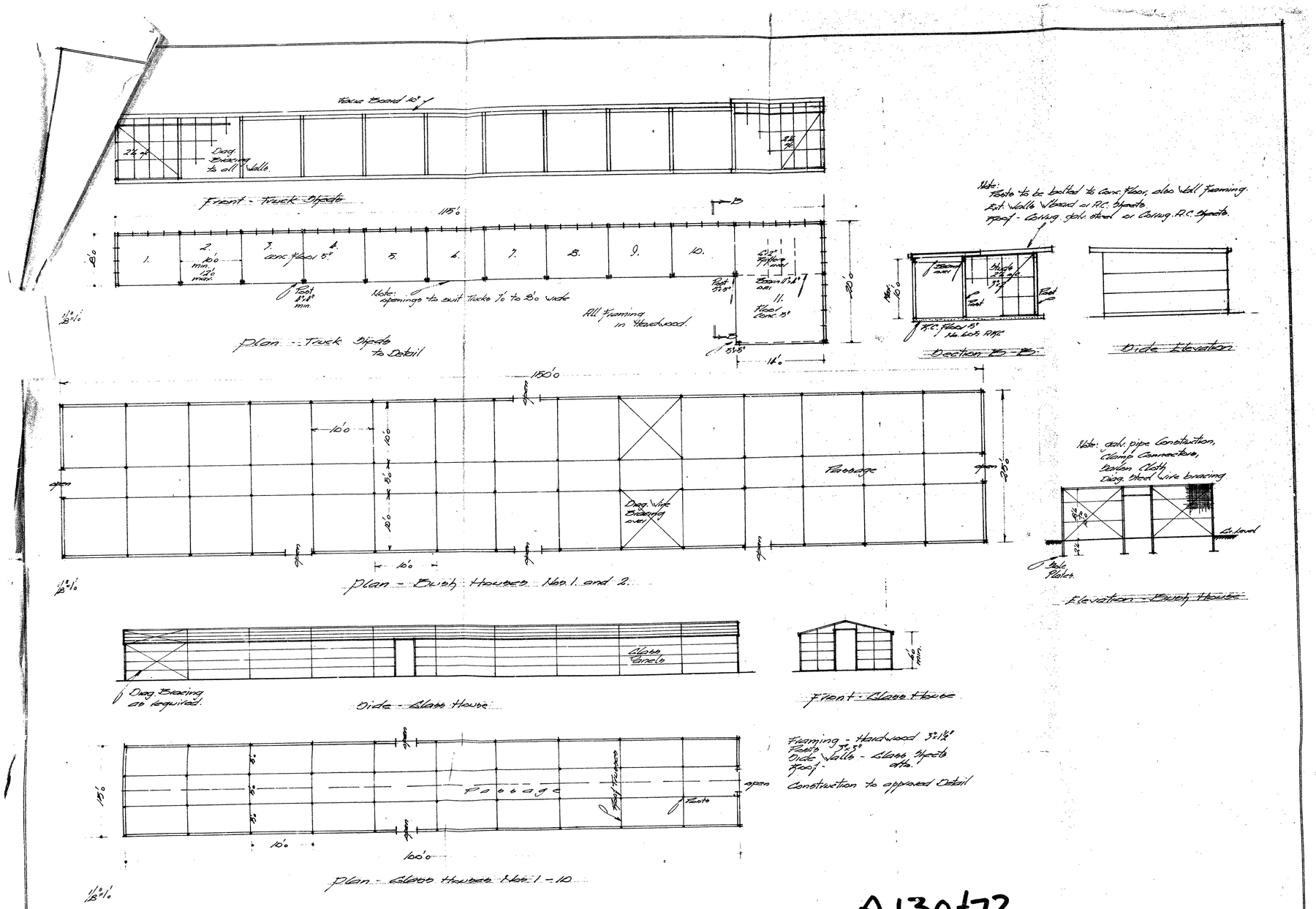
T.P.O.

Before the plans can be released it will be necessary to have a survey to be executed before the structure is to be erected. See attached plan of proposed sewer main road.

25/1/72

Sewer to be re-aligned as shown in red on the DMR Plan

27/1/72



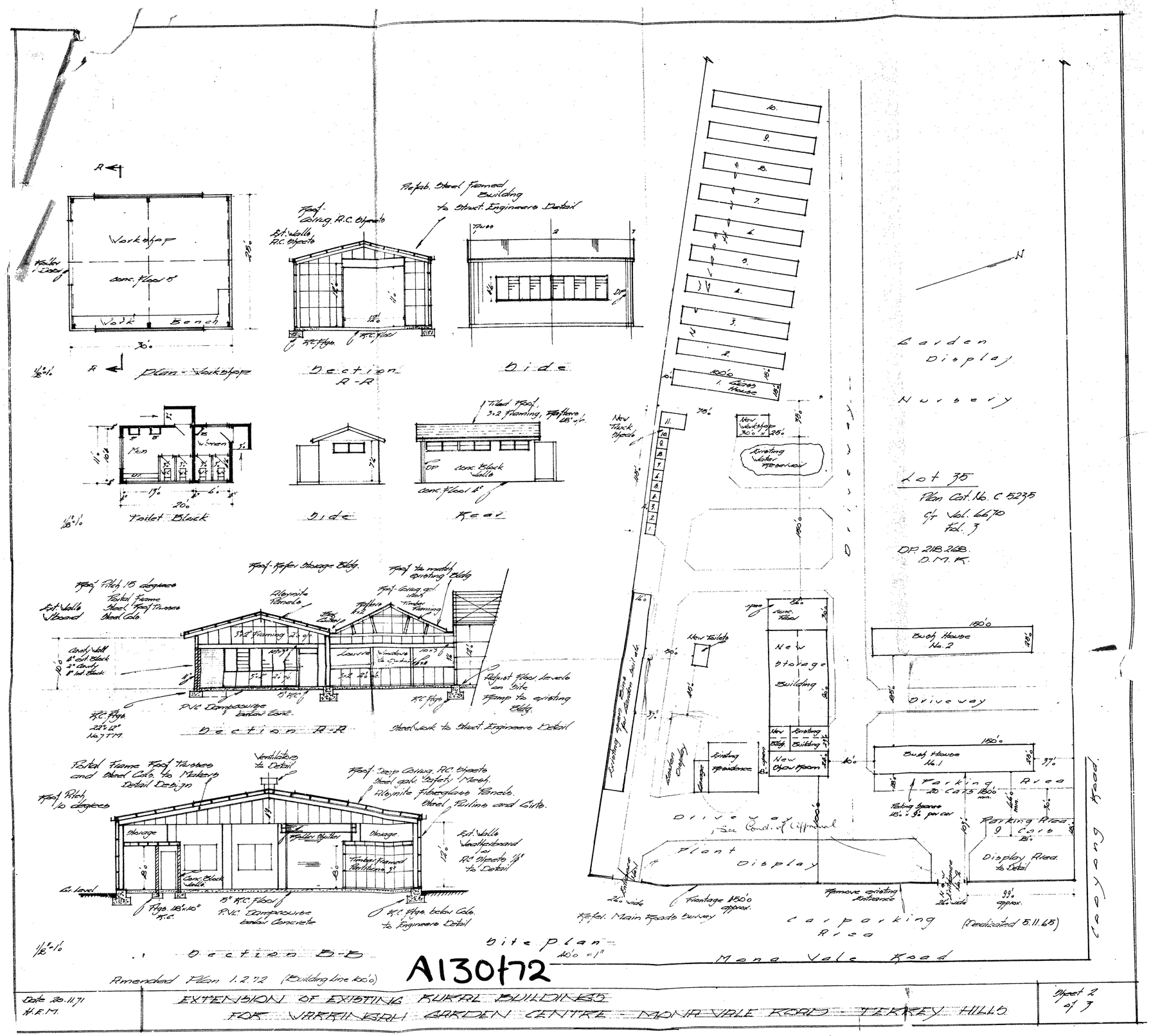
A130/72

EXTENSION OF EXISTING RURAL BUILDINGS
FOR WERRINGRAH GARDEN CENTRE - MONA VALE ROAD TERREY HILLS

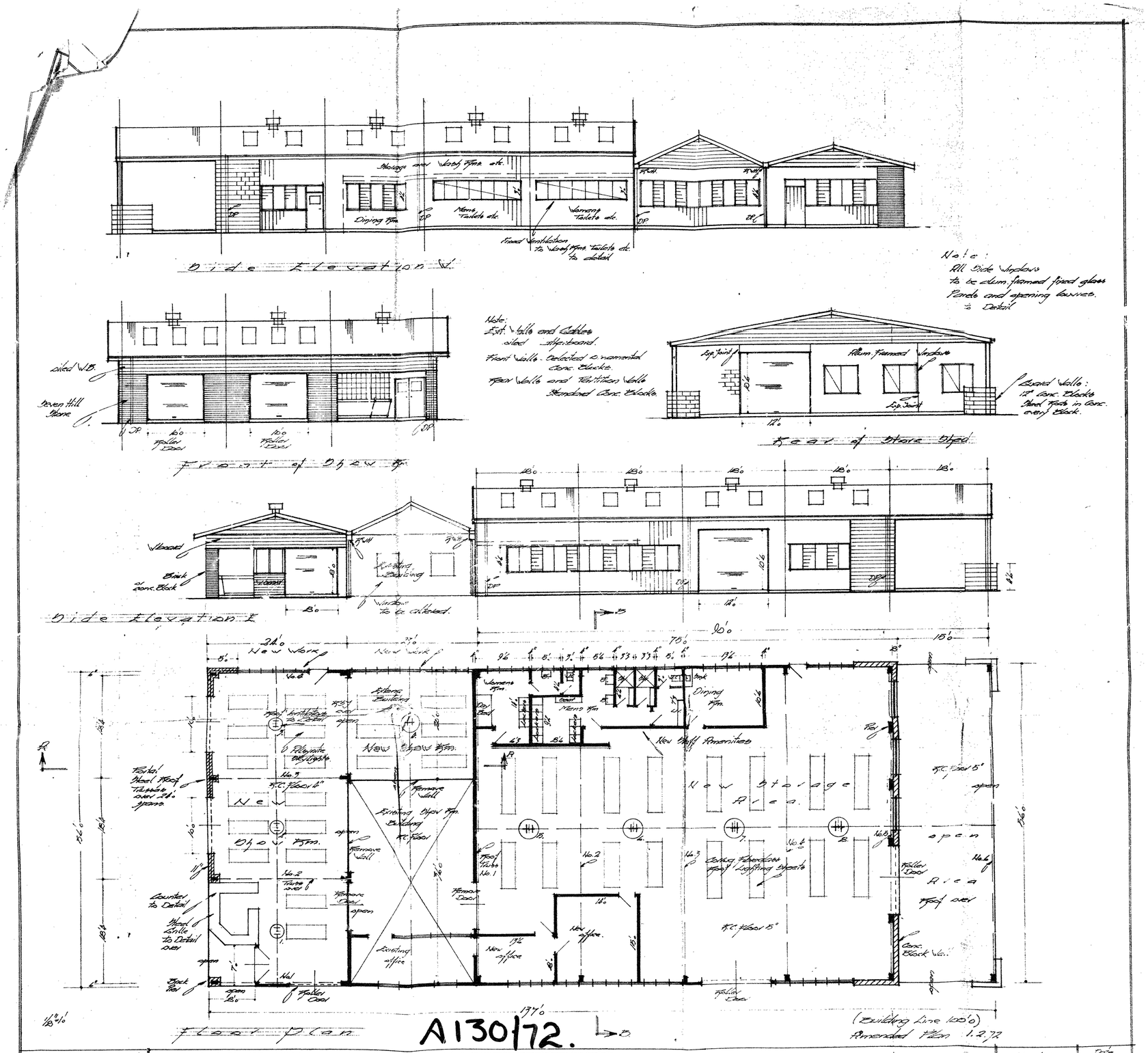
Sheet 3 of 3

Date 20.11.71
H.E.M.

EBCO – Sydney (02) 439-2055



EBCO – Sydney (02) 439-2055



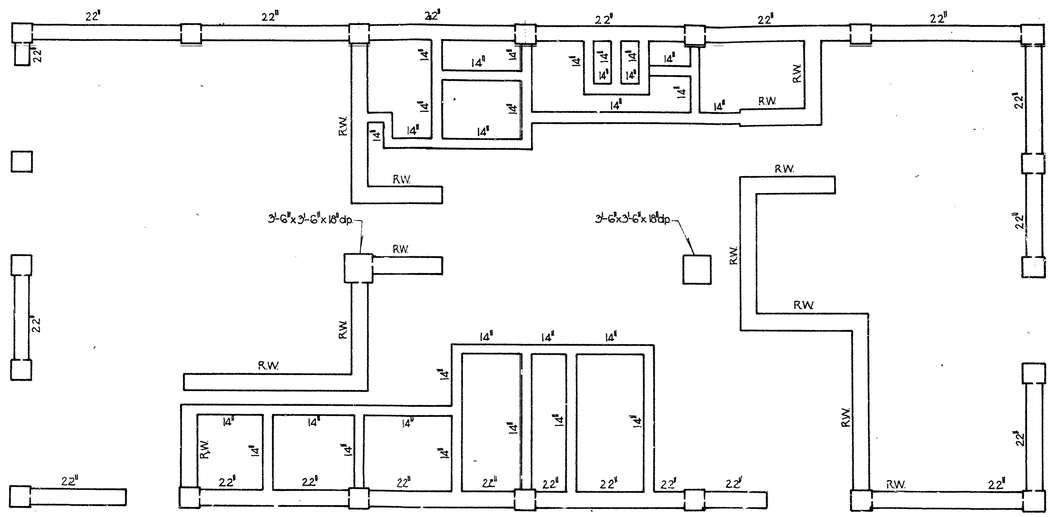
H.E. Mellman & Associates
M.I.D. Rust.
Designers.
Phone 98-4021

EXTENSION OF EXISTING RURAL BUILDINGS
FOR VARRINGAH GARDEN CENTRE · MONA VALE ROAD · TERREY HILLS

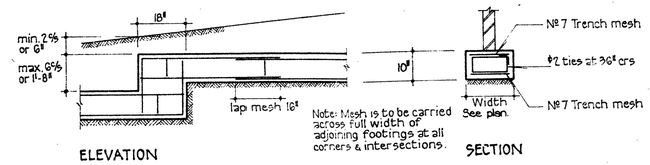
Sheet 1 of 3

Date 20.11.71
H.E.M.

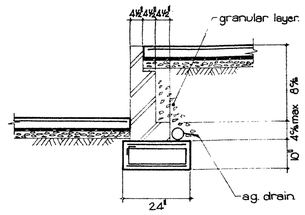
EBCO — Sydney (02) 439-2055



PLAN ON FOOTINGS
All pads 2'-6"x2'-6"x15" d.p. UNO.
All pads unreinforced.



TYPICAL STRIPFOOTING DETAILS

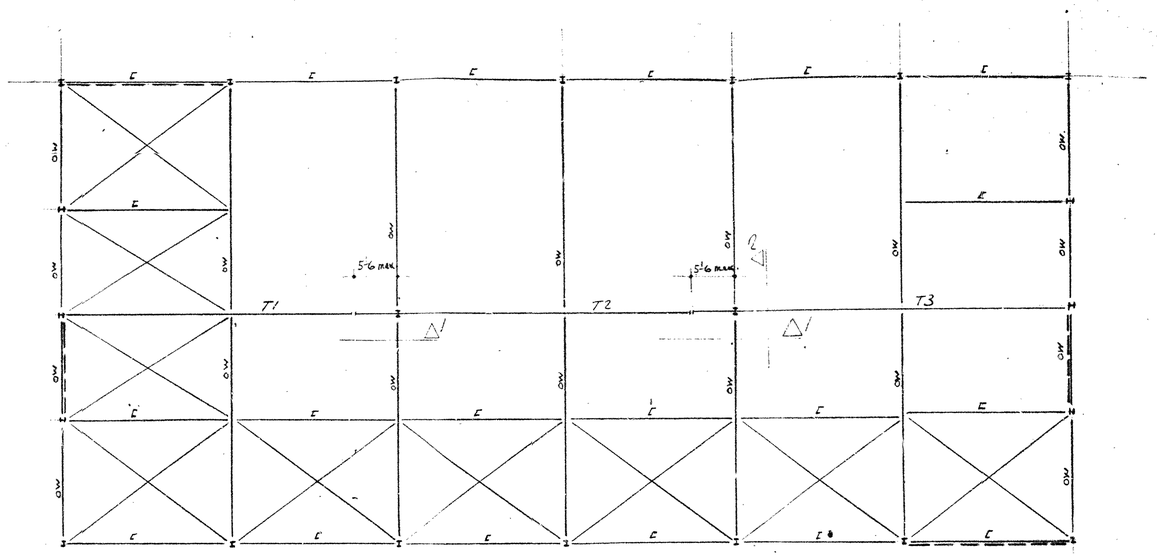


TYPICAL BRICK RETAINING WALL

A130/72

PETER TAYLOR & ASSOCIATES Consulting Structural & Civil Engineers 44 Bellevue St., Cammeray. 2062. Tel. 929-9713			PROPOSED SHOWROOM & WAREHOUSE At: Mona Vale Rd. Terry Hills For: Warringah Garden Centre.	Job. No. 17672
Drawn: K. McK.	Approved: P. Taylor	Date: 18 5 73	Scale: ⅛", ½" to 1'-0"	FOOTING DETAILS	Dwg.

EBCO – Sydney (02) 439-2055



Roof Plan

Schedule of sizes:

1. Columns: 1- 6×6×15.7 lb. U.C. — 3/8" PL's & cap PL's
   or: 1- 4½×4½×.188 RHS. — 2-5/8" H.D. bolts × 12" lg.
   or: 1- 6×4×.188 RHS. — 1" Grout.
2. E = 1- 6×3×12 lb. E. drill for bridging.
3. Purlins: Lysaght 600Z16 lapped 3'-0" @ 6'-0" ctr.
   or Bro[illegible]it BP 814 @ 6'-0" ctr:
   provide 1 line of bridging @ mid-span.
4. T1 = Main Truss 2'-6½" dp.
   T2 = do. about 4'-0" dp.
   T3 = do. 3'-10" dp.
   — Existing Trusses.
5. Roof cross bracing: upper member: 1-3"×3/8" M.S. Flat.
   lower member: 1- 2½"×2½"×¼" M.S.L. tied up to purlins.
   — 2-5/8" dia. H.S. bolts each end.
6. Vertical Bracing: where shown thus: — — — (4 locations): 2- 3"×1/4" Flats cross bracing within wall cavity, 2-5/8" H.S. bolts each end, OR: provide temporary bracing & build b.w. hard against column webs.
7. OW = Ex. open web joist 2'-3/4" dp.

STRUCTURAL STEEL

S1 ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH SA CODES AS CA1, AS CA6 AND FOR TUBULAR MEMBERS BS 449 AND BS 1775, EXCEPT WHERE VARIED BY CONTRACT DOCUMENTS.

S2 CONNECTIONS SHALL BE PROVIDED TO CARRY THE REACTIONS SHOWN UNLESS OTHERWISE DETAILED.

S3 THE CONTRACTOR SHALL PREPARE WORKSHOP DRAWINGS AND SHALL SUBMIT THREE COPIES OF EACH DRAWING FOR APPROVAL. FABRICATION SHALL NOT COMMENCE UNTIL APPROVAL HAS BEEN RECEIVED.

S4 WELDS SHALL BE ⅜" CONTINUOUS FILLET, ALL BOLTS ½" DIAME ER, ALL GUSSET PLATES 3/8" THICK UNLESS OTHERWISE NOTED.

S5 CONCRETE ENCASED STEELWORK SHALL BE WRAPPED WITH 10 S.W.G. WIRE AT 4" CENTRES AND SHALL HAVE A MINIMUM 2" COVER OF CONCRETE, UNLESS NOTED OTHERWISE.

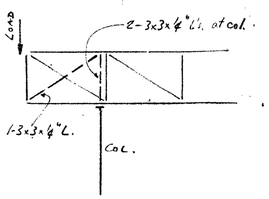
S6 UNLESS OTHERWISE NOTED, ALL STEEL SHALL BE IN ACCORDANCE WITH ASA 149 MILD STEEL AND ASB 156 STEEL TUBES GRADE 13.

S7 THE FOLLOWING SURFACE TREATMENT OR COATING SHALL BE APPLIED:—

ELEMENT	TYPE OF FINISH (SEE SPEC.)
All Steelwork.	1 Shop coat R.O.Z. Ch.

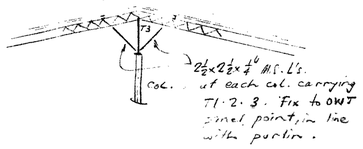
S8: H.S. = High Strength Friction Grip Bolts tightened in accordance with manuf. instructions. No paint at interfaces.

S9: Workshop drawings to clearly show (a) Marking Plan (b) New & existing steelwork.



(1)

New members shown thus — — —

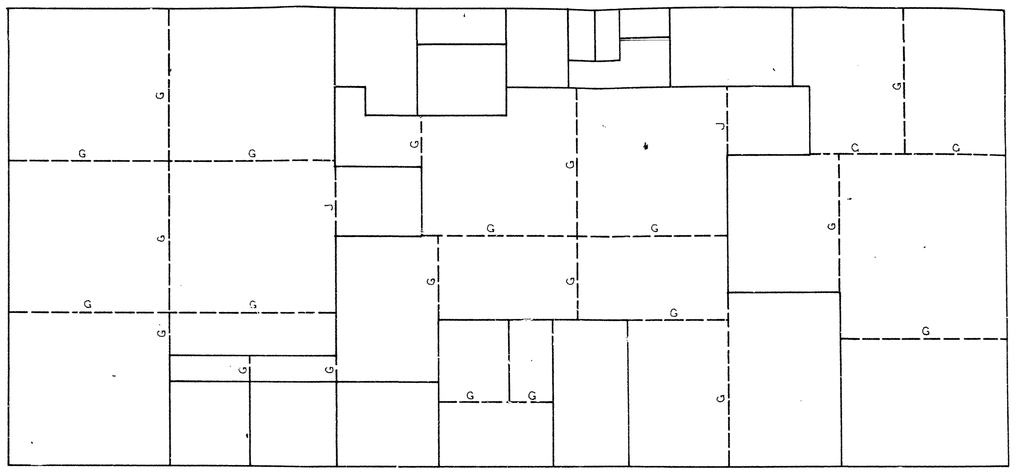


(2)

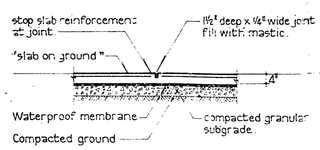
A130+72

PETER TAYLOR & ASSOCIATES Consulting Structural & Civil Engineers 44 Bellevue St., Cammeray. 2062. Tel. 929-9713			Proposed Showroom & Warehouse at Mona Vale Rd. Terry Hills for Warringah Nurseries Pty. Ltd.	Job. No. 17672
Drawn: R. O.	Approved: [illegible]	Date: 14.5.73	Scale: ⅛" 1'-0"	Roof Details	Dwg. No. 2

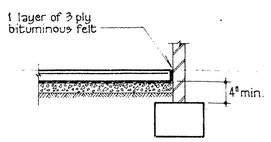
EBCO — Sydney (02) 439-2055



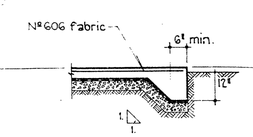
PLAN ON GROUND FLOOR SLAB · 4" THICK



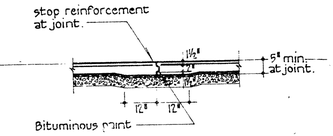
JOINT 'G'
Where shown on drawing and at internal doorways



STRAIGHT JOINT
Typical edge detail



FREE EDGE DETAIL
At external doorways.



JOINT 'J'
Where shown on drawing

TYPICAL SLAB ON GROUND DETAILS

NOTES

GENERAL

G1 THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL ARCHITECTURAL AND OTHER CONSULTANTS' DRAWINGS AND SPECIFICATIONS AND WITH SUCH OTHER WRITTEN INSTRUCTIONS AS MAY BE ISSUED DURING THE COURSE OF THE CONTRACT. ALL DISCREPANCIES SHALL BE REFERRED TO THE ARCHITECT FOR DECISION BEFORE PROCEEDING WITH THE WORK.

G2 DIMENSIONS SHALL NOT BE OBTAINED BY SCALING THE STRUCTURAL DRAWINGS.

G3 SETTING OUT DIMENSIONS SHOWN ON THE DRAWINGS SHALL BE VERIFIED BY THE BUILDER.

G4 DURING CONSTRUCTION THE STRUCTURE SHALL BE MAINTAINED IN A STABLE CONDITION & NO PART SHALL BE OVERSTRESSED.

G5 THE STRUCTURAL DESIGN SHOWN ON THESE DRAWINGS HAS BEEN DESIGNED FOR THE FOLLOWING LIVE LOADS - Roof . 5 p.s.f.
Ground Floor .100 p.s.f

FOUNDATIONS - Clay

F1 FOOTINGS HAVE BEEN DESIGNED FOR AN ALLOWABLE BEARING INTENSITY OF TWO - TONS PER SQUARE FOOT. FOUNDATION MATERIAL SHALL BE APPROVED FOR THIS PRESSURE BEFORE PLACING CONCRETE.

CONCRETE

C1 ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS CA2 (CURRENT EDITION WITH AMENDMENTS EXCEPT WHERE VARIED BY THE CONTRACT DOCUMENTS

C2 CONCRETE QUALITY

STANDARD	TO A.C.I.S.T. - CURRENT EDITION WITH AMENDMENTS TO A.C.S.E. DOC. NO. 1 - CURRENT EDITION					
ELEMENT	SLUMP	MAX. SIZE AGGREGATE	CEMENT TYPE	CASF.C. (p.s.i.)	AD. MIXTURE	MIN. CEMENT PER CU. YD.
Slab on ground	3"	3/4"	A	2500		
Footings	3"	3/4"	A	2500		

C3 CLEAR CONCRETE COVER TO REINFORCEMENT SHALL BE AS FOLLOWS UNLESS OTHERWISE SHOWN -

ELEMENT	CAST AGAINST COMPLYING WITH C.A.2 CL. 4.3		CAST AGAINST OTHER FORMWORK OR THE GROUND
	IN SHELTERED LOCATION	EXPOSED TO GROUND WEATHER	
COLUMNS & PEDESTALS	1½"	2"	3"
BEAMS	1"	1½"	2½"
FOOTINGS	—	1½"	2½"
SLABS & WALLS	½"	1½"	2"

C4 SIZES OF CONCRETE ELEMENTS DO NOT INCLUDE THICKNESS OF APPLIED FINISHES.

C5 CONSTRUCTION JOINTS WHERE NOT SHOWN SHALL BE LOCATED TO THE APPROVAL OF THE ENGINEER

C6 BEAM DEPTHS ARE WRITTEN FIRST AND INCLUDE SLAB THICKNESS.

C7 NO HOLES OR CHASES OTHER THAN THOSE SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE MADE IN CONCRETE MEMBERS WITHOUT THE PRIOR APPROVAL OF THE ENGINEER

C8 REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY, IT IS NOT NECESSARILY SHOWN IN TRUE PROJECTION

C9 SPLICES IN REINFORCEMENT SHALL BE MADE ONLY IN THE POSITION SHOWN. THE WRITTEN APPROVAL OF THE ENGINEER SHALL BE OBTAINED FOR ANY OTHER SPLICE.

C10 WELDING OF REINFORCEMENT WILL NOT BE PERMITTED UNLESS SHOWN ON THE STRUCTURAL DRAWINGS.

C11 REINFORCEMENT SYMBOLS -

- 6 HARD GRADE DEFORMED BAR IN ACCORDANCE WITH AS A92
- 6S STRUCTURAL GRADE DEFORMED BAR IN ACCORDANCE WITH AS A92
- 6C COLD WORKED DEFORMED BAR HAVING A 0.2% PROOF STRESS OF 60000 PSI
- 6 STRUCTURAL GRADE ROUND IN ACCORDANCE WITH AS A81

DEFORMATIONS ON REINFORCING BARS SHALL BE IN ACCORDANCE WITH AS A97. THE NUMBER FOLLOWING THESE SYMBOLS IS THE NUMBER OF EIGHTHS OF AN INCH IN THE BAR DIAMETER.

C12 BRICKWORK SUPPORTING SLABS AND BEAMS SHALL HAVE A LAYER OF MORTAR PLACED ON TOP AND TROWELLED SMOOTH WITH 2 LAYERS OF BITUMINOUS FELT BETWEEN THIS SURFACE AND THE CONCRETE.

STRUCTURAL STEEL

S1 ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH SAA CODES AS CA1, AS CA8 AND FOR TUBULAR MEMBERS AS 449 AND AS 1275, EXCEPT WHERE VARIED BY CONTRACT DOCUMENTS.

S2 CONNECTIONS SHALL BE PROVIDED TO CARRY THE REACTIONS SHOWN UNLESS OTHERWISE DETAILED.

S3 THE CONTRACTOR SHALL PREPARE WORKSHOP DRAWINGS AND SHALL SUBMIT TWO COPIES OF EACH DRAWING FOR APPROVAL. FABRICATION SHALL NOT COMMENCE UNTIL APPROVAL HAS BEEN RECEIVED.

S4 WELDS SHALL BE ¼" CONTINUOUS FILLET, ALL BOLTS ½" DIAMETER, ALL GUSSET PLATES 3/8" THICK UNLESS OTHERWISE NOTED

S5 CONCRETE ENCASED STEELWORK SHALL BE WRAPPED WITH 10 S.W.G. WIRE AT 4" CENTRES AND SHALL HAVE A MINIMUM 2" COVER OF CONCRETE, UNLESS NOTED OTHERWISE.

S6 UNLESS OTHERWISE NOTED, ALL STEEL SHALL BE IN ACCORDANCE WITH AS A1 MILD STEEL AND AS 1163 STEEL TUBES GRADE 13

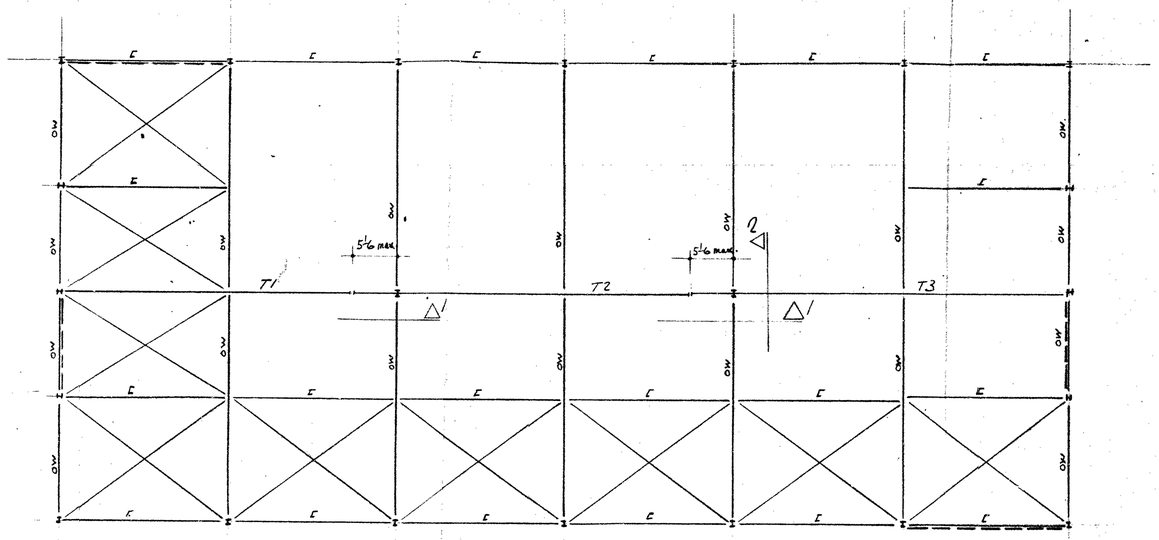
S7 THE FOLLOWING SURFACE TREATMENT OR COATING SHALL BE APPLIED :-

ELEMENT	TYPE OF FINISH (SEE SPEC.)

A130472

PETER TAYLOR & ASSOCIATES Consulting Structural & Civil Engineers 44 Bellevue St., Cammeray. 2062. Tel. 929-9713		PROPOSED SHOWROOM & WAREHOUSE. At: Mona Vale Rd., Terry Hills. For: Warringah Garden Centre.	Job. No. 17672
Drawn : K.McK.	Approved: P.R. Taylor. Date: 17 · 5 · 73 Scale: 1/8", 1/2" to 1'-0"	SLAB ON GROUND DETAILS	Dwg. No. 3

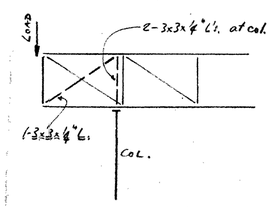
EBCO — Sydney (02) 439-2055



Roof Plan

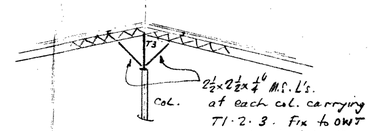
Schedule of sizes:

1. Columns: 1- 6×6×15·7 lb. U.C. — 3/8" PL's & cap PL's
   or: 1- 4½×4½×·188 R.H.S. — 2-7/8" H.D. bolts×12" lg.
   or: 1- 6×4×·188 RHS. — c/Grout.
2. E = 1- 6×3×12 lb. E. drill for bridging.
3. Purlins: Lysaght 600Z16 lapped 3'0" @ 6'0" ctr.
   or Bronx built BP 814 @ 6'0" ctr
   provide 1 line of bridging @ mid-span.
4. T1 = Main Truss 2'6½" dp.
   T2 = do. about 4'0" dp. — Existing Trusses.
   T3 = do. 3'0" dp.
5. Roof cross bracing: upper member: 1-3"×3/8" M.S. flat.
   lower member: 1- 2½"×2½"×¼" M.S.L. tied up to purlins. — 2-7/8" dia. H.S. bolts each end.
6. Vertical Bracing: where shown thus: — — — —
   (4 locations): 2- 3"×1/4" Flats cross bracing within wall cavity, 2-7/8" H.S. bolts each end, OR: provide temporary bracing & build t.w. hard against column webs.
7. OW = Ex. open web joist 2'3¼" dp.



(1)

New members shown thus — — —



(2)

STRUCTURAL STEEL

S1 ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH SAA CODES AS CH. AS 048 AND FOR TUBULAR MEMBERS BS 449 AND BS 1775, EXCEPT AS ARE VARIED BY CONTRACT DOCUMENTS.

S2 CONNECTIONS SHALL BE PROVIDED TO CARRY THE REACTIONS SHOWN UNLESS OTHERWISE DETAILED.

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S5 CONCRETE ENCASED STEELWORK SHALL BE WRAPPED WITH 10 S.W.G. WIRE AT 4" CENTRES AND SHALL HAVE A MINIMUM 2" COVER OF CONCRETE, UNLESS NOTED OTHERWISE.

S6 UNLESS OTHERWISE NOTED, ALL STEEL SHALL BE IN ACCORDANCE WITH ASA 149 MILD STEEL AND ASB 156 STEEL TUBES GRADE 12.

S7 THE FOLLOWING SURFACE TREATMENT OR COATING SHALL BE APPLIED :-

ELEMENT	TYPE OF FINISH (SEE SPEC.)
All Steelwork.	1 Shop coat R.O.Z. CH.

S8: H.S. = High Strength Friction Grip Bolts tightened in accordance with manuf. instructions. No paint at interfaces.

S9: Workshop drawings to clearly show: (a) Marking Plan
(b) New & existing steelwork.

A130/72

PETER TAYLOR & ASSOCIATES
Consulting Structural & Civil Engineers
44 Bellevue St.,
Cammeray. 2062. Tel. 929-9713

Drawn: R. O. | Approved: J. K. Taylor | Date: 14·5·73 | Scale: ½" = 1'0"

Proposed Showroom & Warehouse at Mona Vale Rd. Terry Hills for Warringah Nurseries Pty. Ltd.

Roof Detail

Job. No. 17672

Dwg. No. 2

EBCO — Sydney (02) 439-2055

Town Planning

THE COUNCIL OF THE SHIRE OF WARRINGAH

File No: PF 3297/277 Pt 2 VI.MM/0860D
Enquiries:

Telephone: (02) 982 0333

MODIFICATION OF DEVELOPMENT CONSENT
NO. 85/478, DATED 29th October 1985

SECTION 102(1) OF THE ENVIRONMENTAL
PLANNING & ASSESSMENT ACT, 1979

APPLICANT'S NAME & ADDRESS: Bonds Nursery, 277 Mona Vale Road, Terrey Hills, NSW, 2084

PROPERTY DESCRIPTION: Portion 35, Parish of Broken Bay, No 277 Mona Vale Road, Terrey Hills

PROPOSED DEVELOPMENT: A refreshment room

Complete list of Conditions contained in Consent No. 85/478 as modified by Council on 12th October 1988.

1. Development being generally in accordance with plan unnumbered, dated 27.6.1988 and plan unnumbered, undated, all submitted 9.8.1988, as modified by any conditions of this consent."

2. This consent shall expire and be void upon the issue of any future developmenmt consent for the use of the land or building or specific part of the building to which the consent relates.

3. The land and/or the premises the subject of this consent not being used for any other purpose without Council's written consent.

4. No signs to be displayed without a separate approval.

5. The trading and/or operating hours of the consented-to-use, or any part thereof, are to be confined to: Monday to Friday, 7am to 5pm, Saturday 7am to 1pm, no work on Sunday, where the use or any part thereof, in the opinion of Council, interferes with the amenity of the neighbourhood of the emission of noise, chemical or physical pollutants or otherwise.

MODIFICATION

All correspondence to be addressed
The General Manager,
Civic Centre, Pittwater Road, Dee Why, 2099
DX 9118 Dee Why Fax: (02) 982 4770

Australia
1788-1988

Town Planning

WARRINGAH SHIRE COUNCIL

COPY

CIVIC CENTRE, PITTWATER ROAD, DEE WHY, 2099
DX 9118

TELEPHONE 982 0333

All correspondence to be addressed to The General Manager
In reply please quote

MQ/mb: 1582D: PF 3297/P35

CONSENT NO: 86/218

ENVIRONMENTAL PLANNING & ASSESSMENT ACT, 1979

NOTICE TO APPLICANT OF DETERMINATION

OF A DEVELOPMENT APPLICATION

Applicant's Name and Address: Ross Bond, 277 Mona Vale Road, Terrey Hills

Being the applicant in respect of Development Application No. 1986/193.

Pursuant to section 92 of the Act, notice is hereby given of the determination by the Council of the Shire of Warringah, as the consent authority, of the Development Application No. 1986/193 relating to the land described as follows:-

Portion 35, Parish of Broken Ba[redacted]

For the following development:-

Erection of a storage shed in association with the existing wholesale and retail plant nursery

The Development Application has been determined by granting of consent subject to the following conditions:-

1. Development being generally in accordance with plans numbered EC761633, dated 28.1.1986; and plan unnumbered, undated, submitted 28.4.1986, as modified by any conditions of this Consent.

2. No signs to be displayed without a separate approval.

3. Landscaping plans shall be submitted to Council together with any building application required, or where no building application is required, prior to the commencement of the development approved by this consent. The plans shall indicate all existing trees specifying those trees to be retained and those proposed to be removed. It shall specify details of proposed planting, including common and botanical names and height and spread at maturity. Such landscaping shall be designed and executed to Council's specification and shall be maintained in perpetuity to Council's satisfaction by the existing or future owners and occupiers of the property. Such landscaping shall be completed prior to the occupation of the building, or prior to the issue of a Certificate of Compliance under Section 317A of the Local Government Act, which ever occurs first. Furthermore, no tree or shrub of any kind whatsoever planted or retained pursuant to this consent shall be lopped, topped, pruned or removed without the prior written approval of the Council as a variation of this consent.

CONSENT

FILE COPY

File No: PF 3297/277

Warringah Council

Notice of Determination of a Development Application

Development Application No	116DA
Development Application Details	
Applicant Name	John Sammut, Bonds Nursery
Applicant Address	277 Mona Vale Road TERREY HILLS NSW 2084
Land to be developed:	Lot 4, DP 737411, No. 277 Mona Vale Road, Terrey Hills (known as 62 Myoora Road).
Proposed development	Alterations and additions to existing retail plant nursery and cafe.
Determination	**Consent 116DA**
Made on (date)	22 June 1999
Determination	**Consent granted subject to conditions described below**
Consent to operate from (date)	**22 June 1999** *see note 1*
Consent to lapse on (date)	**22 June 1999**
Details of conditions (including Section 94 conditions)	*see note 2*

The conditions which have been applied to the consent aim to ensure that the Environmental Impacts of Development are minimised and the Health and Safety of the community is maintained in accordance with the relevant standards and the Building Code of Australia.
NOTE:
If the works are to be certified by a private certifying authority, then it is the certifiers responsibility to ensure all outstanding fees and bonds have been paid to Council prior to the issue of the Construction Certificate or as otherwise specified by Consent conditions.

1. Development being generally in accordance with plans numbered 980705A1a, 4 sheets dated 8 July 1998, submitted 22 July 1998; Sheet 1, dated 17 July 1998, submitted 28 September 1998; Drawing No. 365-01, dated February 1999, submitted 19 February 1999 as amended in red and Figure 1, dated 11 September 1998, submitted 20 October 1998, as modified by any conditions of this consent/approval. (C1)

2. At least 2 days prior to work commencing on site Council must be informed, by the submission of Form 7 of the Environmental Planning and Assessment Regulation 1998 of the name and details of the Principal Certifying Authority and the date construction work is proposed to commence. (C168)

3. Compliance With Building Code of Australia
(1) All building work must be carried out in accordance with the provisions of the Building Code of Australia.
(2) This clause does not apply to the extent to which an exemption is in force under Clause 80H or 80I, subject to the terms of any condition or requirement referred to in Clause 80H (6) or 80I (4). (C375)

4. The provision of 102 paved carparking spaces to be used solely for carparking purposes. Prior to issue of the Construction Certificate, the certifier to verify that the carparking spaces are provided generally in accordance with that specified above. (C13)

5. All car spaces being linemarked in accordance with the approved carparking layout. (C342)

6. The colours, texture and substance of all external components of the building and hard surfaced areas being generally in accordance with details submitted by letter from Levitch Design Associates dated 4 September 1998. Prior to issue of the Construction Certificate, the certifier to verify that the external components are generally in accordance with that specified above. (C4)

7. The payment of the following contributions pursuant to Section 94 of the Environmental Planning and Assessment Act 1979, as amended, prior to the release of the Construction Certificate:

$1,125.60 to S94 Plan Part I - Roads and Traffic Management (AC 28023)

These amounts have been calculated using the Warringah Section 94 Contributions Plan. They are current at the time of issue of this Consent. They will be adjusted at the time of payment according to the quarterly CPI (Sydney - All Groups Index). An updated schedule of Council's contribution rate is issued each quarter and is available at Council's office. Please ensure that you provide details of this Consent when paying contributions so that they can be easily recalculated. (C7)

8. Prior to the release of the Construction Certificate, the accredited certifier to ensure that stormwater from the property being piped by gravitational means to Warringah Council's stormwater system. (C129)

9. A schedule of existing and proposed fire safety measures to be implemented in the building, shall form part of the Construction Certificate documentation and specify the minimum standard of performance for each fire safety measure. (C371)

10. The following fire safety schedule must be designed, installed and maintained in accordance with the provisions of the Environmental Planning and Assessment Regulation: (C372)
1) Emergency lighting
2) Exit signs
3) Hose reels.

11. To ensure the safety of occupants of the building a "Fire Safety Certificate" which identifies the schedule of "Fire Safety Measures" that have been completed to satisfactory standard shall be provided to Council prior to the issue of an "Occupation Certificate" as required in Part 4A Clause 109 (2) of the "Environmental Planning and Assessment Amendment Act 1997". (C387)

12. Compliance Certificate (Inspections) are required at the following stages of construction:-
    a) Final - prior to occupation/use, the satisfactory completion of the building works with respect to Compliance Certificates (components) as nominated (C396)

13. The fee(s) required for a Council Compliance Certificate inspection(s) is $100.00 and it is to be paid prior to Council issuing the Construction Certificate. NOTE: Each Compliance Certificate inspection fee is $100. Where construction certificates and compliance certificates are issued by external accredited certifiers the above fee is not required. (C397)

14. The following component certificates are required to be submitted to Council prior to occupation/use of the building, to ensure compliance with the Building Code of Australia and relevant Australia Standards:- (C399)
    1. Structural Engineers certificate which states the footings are adequate and in accordance with the approved structural details and relevant Australian Standards.
    2. Structural Engineers certificate which states structural steel / timber frame and connections have been completed in accordance with structural details, approved plans and relevant Australian Standards.

15. Parking bay width and length, and aisle and internal road widths conforming with Development Control Plan No. 2 - Carparking.

16. The area within the informal carpark identified for bus manoeuvring being clearly marked and clear of parked vehicles.

17. Provision of full time "No Stopping" restrictions along Mona Vale Road adjacent to the site and in Cooyong Road (south side) from Mona Vale Road to the west side of the vehicle driveway at no cost to the Roads and Traffic Authority.

18. Sealing of the entry to the area of the road reserve of Mona Vale Rd in front of the site to the satisfaction of the Roads and Traffic Authority at the applicant's expense.

19. The hours of operation of the cafe shall not exceed those of the retail plant nursery, ie; 8.00am - 5.30pm seven (7) days per week.

20. The cafe shall operate in conjunction with and not in the absence of the retail plant nursery.

21. The maximum number of seats permissible in the cafe shall be one hundred (100), as shown on Drawing 365-01 dated February 1999, submitted 19 February 1999.

22. No signage to indicate the availability of a cafe on the premises shall be erected so as to be visible either from Mona Vale Road or Cooyong Road.

23. The existing vegetation between the boundary of the site to Cooyong Road and the informal carparking area is not to be removed and is to be maintained to provide a visual buffer to the carpark.

Right of Appeal

If you are dissatisfied with this decision Section 97 of the *Environmental Planning and Assessment Act 1979* gives you the right to appeal to the Land and Environment Court within 12 months after the date on which you receive this notice.

*Section 97 of the Environmental Planning and Assessment Act 1979 does not apply to the

determination of a development application for State significant development or local designated development that has been the subject of a Commission of Inquiry.

Signed on behalf of the consent authority

Signature L. Poulto

Name L. POLITO

Date 22/6/99

Note 1 *Where the consent is subject to a condition that the consent is not to operate until the applicant satisfies a particular condition the date should not be endorsed until that condition has been satisfied.*

Note 2 *Clause 69A of the Regulation contains additional particulars to be included in a notice of determination where a condition under Section 94 of the Environmental Planning and Assessment Act 1979 has been imposed.*

DA

Warringah Council

Notice of Determination of Development Application

Development Application No:	2002/1814DA
Development Application Details:	
Applicant Name:	Bonds Nursery Pty Ltd
Applicant Address:	124 Newbridge Road MOOREBANK 2170
Land to be developed (Address):	Lot 4, DP 737411 No. 62 Myoora Road Terrey Hills 2084
Proposed Development:	ALterations and additions to an existing retail nursery
Determination:	
Made on (Date):	1 July 2003 *See note 1*
Determination:	**Consent 2002/1814DA** granted subject to conditions described below
Consent to operate from (Date):	1 July 2003
Consent to lapse on (Date):	1 July 2008
Details of Conditions (including Section 94 conditions):	*See note 2*

The conditions which have been applied to the consent aim to ensure that the Environmental Impacts of Development are minimised and the Health and Safety of the community is maintained in accordance with the relevant standards and the Building Code of Australia.

NOTE:
If the works are to be certified by a private certifying authority, then it is the certifiers responsibility to ensure all outstanding fees and bonds have been paid to Council prior to the issue of the Construction Certificate or as otherwise specified by Consent conditions.

GENERAL CONDITIONS

1. Development being generally in accordance with plans numbered 0213-DA01 (amendment B), 0213-DA02 (amendment C dated 15/4/2003), 0213-DA03 (amendment B), 0213-DA04 (amendment B), 0213-DA05 (amendment A and undated), dated 3/2/03 (unless otherwise specified), submitted 18 February 2003 and amended in red, as modified by any conditions of this consent/approval. (C1)

2. Compliance with Building Code of Australia
   a. All building work must be carried out in accordance with the provisions of the Building Code of Australia.
   b. This clause does not apply to the extent to which an exemption is in force under Clause 80H or 80I, subject to the terms of any condition or requirement referred to in Clause 80H (6) or 80I (4). (C375)

3. A Construction Certificate is required to be approved by either Council or an Accredited Certifier, prior to the commencement of any works on the site. (C165)

4. Compliance Certificates are required at the following stages of construction:-
   a. Preliminary - immediately following the setting out of the development footprint prior to excavation and/or formation of footings or slabs with environmental protection measures and toilet facilities installed.
   b. Building Envelope - completion of the envelope skeleton prior to fixing of internal linings (where applicable).
   c. Final - prior to occupation/use, the satisfactory completion of the building works with respect to:-
      (i) Compliance Certificates as nominated
      (ii) Compliance Certificates (components) as nominated (C396)

5. The following component certificates are required to be submitted to Council where Council is the nominated principal certifying authority prior to occupation/use of the building, to ensure compliance with the Building Code of Australia and relevant Australia Standards:(C399)
   a. Structural Engineer / Accredited Certifiers certificate covering the supervision of all structural work and adequacy of the building.
   b. Hydraulic Engineer's certification (and Works as Executed plans where departure from approved plans has taken place) indicating that the on-site detention system has been installed in accordance with the approved plans and will perform in accordance with Warringah Council's publication "On-Site Stormwater Detention - Technical Specification, March 1998".

6. The external finish to the roof shall have a medium to dark range in order to minimise solar reflections to neighbouring properties. The metal roof shall not be of light colours such as off white, cream, silver or light grey colours. (C305)

7. This approval relates to proposed work only (as marked on the approved plans in red), not that already constructed without the prior consent of Council. Such unauthorised work is to be the subject of an application for a Building Certificate under Section 149A of the EPA Act. (C310)

8. Excavations and Backfilling
   a. All excavations and backfilling associated with the erection or demolition of a building must be executed safely and in accordance with appropriate professional standards.
   b. All excavations associated with the erection or demolition of a building must be properly guarded and protected to prevent them from being dangerous to life or property. (C378)

9. Support for Neighbouring Buildings
   a. If an excavation associated with the erection or demolition of a building extends below the level of the base of the footings of a building on an adjoining allotment of land, the person causing the excavation to be made:
      (i) must preserve and protect the building from damage, and
      (ii) if necessary, must underpin and support the building in an approved manner, and
      (iii) must, at least 7 days before excavating below the level of the base of the footings of a building on an adjoining allotment of land, give notice of intention to do so to the owner of the adjoining allotment of land and furnish particulars of the excavation to the owner of the building being erected or demolished.

b. The owner of the adjoining allotment of land is not liable for any part of the cost of work carried out for the purposes of this clause, whether carried out on the allotment of land being excavated or on the adjoining allotment of land.
c. In this clause, allotment of land includes a public road and any other public place. (C380)

10. Protection of Public Places
    a. If the work involved in the erection or demolition of a building:
        (i) is likely to cause pedestrian or vehicular traffic in a public place to be obstructed or rendered inconvenient, or
        (ii) building involves the enclosure of a public place, a hoarding or fence must be erected between the work site and the public place.
    b. If necessary, an awning is to be erected, sufficient to prevent any substance from, or in connection with, the work falling into the public place.
    c. The work site must be kept lit between sunset and sunrise if it is likely to be hazardous to persons in the public place.
    d. Any such hoarding, fence or awning is to be removed when the work has been completed. (C381)

11. Toilet Facilities
    a. Toilet facilities are to be provided, at or in the vicinity of the work site on which work involved in the erection or demolition of a building is being carried out, at the rate of one toilet for every 20 persons or part of 20 persons employed at the site. (C383)

12. In accordance with Part 7B of the EPA Act the owner of a building is to provide Council with an Annual Fire Safety Statement for the building (Form 15A). (C394)

13. Your attention is directed to the need to seek advice of your obligations from the Work Cover Authority. (C331)

14. Prior to finalising detailed designs of the proposed development, the applicant should check all existing public service utilities adjacent to the site and ensure that where necessary appropriate arrangements are made for the relocation and/or adjustment of any services at the applicant's expense. (C96)

15. Provision of an on-site stormwater detention facility to control the rate of stormwater runoff from the site to be in accordance with the current version of Warringah Council's publication "On-Site Stormwater Detention - Technical Specification". (C68)

16. Plant and demolition materials shall not be placed or stored within the public road reserve and shall be stored within the boundaries of the site during demolition works. Failure to comply with this condition may result in Council taking action to remove the offending items from the public reserve, and all costs incurred by Council will be deducted from any deposit moneys held in relation to the subject property. (C522)

17. All demolition work shall be carried out in a safe and responsible manner, with minimal harm to the surrounding natural environment under the supervision of a licensed contractor, and within the boundaries of the private property. (C524)

18. All demolitions are to be carried out in accordance with the guidelines contained in the Australian Standard AS2601-1991 - "The Demolition of Structures". (C525)

19. Access to the demolition site shall be protected with the use of suitable fences or hoardings being to the satisfaction of the Principal Certifying Authority and located on the private property. (C526)

20. Creation of a Positive Covenant on the title of the land requiring the proprietor of the land to maintain any water quality control and/or stormwater detention structures required by this Consent, in accordance with the standard requirements of Council. The Positive Covenant is to be prepared by the applicant using terms acceptable to, and which are available from Warringah Council. The positive covenant is to be endorsed by Council prior to its lodgement with 'the Department of Information Technology and Management'.(C51)

21. Restrictions as to User shall be created over On-Site Stormwater Detention System, restricting any alteration to the levels and/or any construction on the land. The terms of such restriction to be prepared to Warringah Council's standard requirements at the applicant's expense. Warringah Council shall be nominated as a party to release, vary or modify such restriction. (C53)

22. The on-site detention system and associated drainage works are to be strictly in accordance with the drainage plan submitted by John Matheson and Associates Pty Ltd (Drawing No 0213-DA02 – amendment C dated 15/4/03). On completion of works a Compliance Certificate is to be issued by an accredited certifier in civil works withe the institute of engineers, stating that the works are in accordance with the above approved plans and Council's "On site detention technical specification", the compliance certificate is to be submitted to the Principal Certifying Authority prior to occupation. (C510)

23. Provision shall be made throughout the period of construction to prevent transmission of soil to the public road and drainage system by vehicles leaving the site. (C44)

PRIOR TO RELEASE OF THE CONSTRUCTION CERTIFICATE

24. Payment of the Long Service Leave Levy is required prior to the release of the Construction Certificate. This payment can be made at Council or to the Long Services Payments Corporation. This payment is not required where the value of the works is less than $25,000. (C3)

25. The payment of an on-site detention checking fee of $125 to Account WCP 20340 U351, prior to issue of the Construction Certificate. (C512)

26. All works on the site shall be undertaken to prevent erosion and transport of soil and sediment off the site and onto adjoining properties. Measures shall be taken in accordance with the requirements of Warringah Council's Specification for Erosion and Sediment Control. A plan shall be submitted to the council or certifier prior to issue of the Construction Certificate. (C41)

27. The fee(s) required for a Council Compliance Certificate is $330 and it is to be paid prior to Council issuing the Construction Certificate. NOTE: Each Compliance Certificate fee is $110. Where external accredited certifiers issue construction certificates and compliance certificates the above fee is not required. (C397)

28. Submission at the Construction Certificate stage of the anticipated schedule of current and proposed fire safety measures to be implemented in the proposed new building, and existing main building such fire safety schedule shall specify the minimum standard of performance for each fire safety measure. (C371)

PRIOR TO THE COMMENCEMENT OF WORKS

29. At least 2 days prior to work commencing on site Council must be informed, by the submission of Form 7 of the Environmental Planning and Assessment Regulation 1998 of the name and details of the Principal Certifying Authority and the date construction work is proposed to commence. (C168)

30. The sediment and erosion control facilities are to be installed, and approved by the Principal Certifying Authority, prior to the commencement of any other works on the site. These facilities are to be maintained in working order during the construction works and up to the completion of the Maintenance Period. All sediment traps are to be cleared on a regular basis and after each major storm, and/or as directed by the Principal Certifying Authority, with all silt being removed from the site, or to an approved location within the site. (C116)

DURING WORKS

31. Hours of demolition being limited to Monday to Friday 7.00am - 5.00pm, Saturday 7.00am – 1pm. No demolition work to take place on Sundays or Public Holidays. (C528)

32. Dust control measures shall be undertaken on all demolition sites so as to avoid a nuisance to adjoining properties and harm to the environment. (C529)

33. A person taking down, demolishing or causing to be taken down or demolished any building or part thereof shall, upon identifying or suspecting that asbestos is present in the building, immediately notify the Work Cover Authority. The Authority is the controlling body for the safe removal, handling and disposal of asbestos. The Authority supervises and monitors contractors engaged in asbestos removal. The requirements and standards imposed by the Authority, its consultants or contractors shall be complied with. (C530)

34. Signs to be Erected on Building and Demolition Sites. (C382)
    a. A sign must be erected in a prominent position on any work site on which work involved in the erection or demolition of a building is being carried out:
        (i) stating that unauthorised entry to the work site is prohibited, and
        (ii) showing the name of the person in charge of the work site and a telephone number at which that person may be contacted outside working hours.
    b. Any such sign is to be removed when the work has been completed.
    c. This clause does not apply to:
        (i) building work carried out inside an existing building, or
        (ii) building work carried out on premises that are to be occupied continuously (both during and outside working hours) while the work is being carried out.

35. Adequate protection measures are to be employed to retain excavated areas during the construction process. (C37)

36. Footpath and roadway being kept free of obstruction by building materials and plant. All concrete trucks, pumps and/or agitators being kept wholly within the building site. No concrete or slurry being discharged onto Council's street surfaces, nature strips, drains/gutters, reserves parks etc. (C321)

37. Retaining Walls and Drainage.

If the soil conditions require it:

a. retaining walls associated with the erection or demolition of a building or other approved methods of preventing movement of the soil must be provided, and
b. adequate provision must be made for drainage. (C379)

38. The public footways and roadways adjacent to the site shall be maintained at all times during the course of the work in a safe condition. (C88)

PRIOR TO OCCUPATION

39. The building shall not be occupied until an Occupation Certificate has been issued. (C162)

40. The requirements of condition ending in code C68 shall be designed and supervised during the works by an Engineer with qualifications and expertise recognised by the Institute of Engineers Australia as being adequate for the purpose. The Engineer shall certify prior to occupation that the works have been completed strictly in accordance with the approved design and to appropriate standards of workmanship. (C98)

41. Where any conditions of this Consent require dedication, consolidation, easement or covenant, the number allocated by Land & Property Information (Land Titles Office) to the documents and/or plans referred to shall be advised in writing to Warringah Council, together with a letter of intent to proceed with the Positive Covenant and Restriction as to User, prior to Occupation. A certified copy of the documents shall be provided to Warringah Council after final approval and registration has been effected by Land & Property Information (Land Titles Office). (C57)

42. To ensure the safety of occupants of the building a "Fire Safety Certificate" which identifies the schedule of "Fire Safety Measures" that have been completed to satisfactory standard shall be provided to Council prior to the issue of an "Occupation Certificate" as required in Part 7B of the "Environmental Planning and Assessment Amendment Act 1997". (C387)

Building Code of Australia - Classification

The building is Class 6 for the purposes of the Building Code of Australia.

Right to Review by the Council

You may request the Council to review the determination of the application under Section 82A of the Environmental Planning & Assessment Act 1979. Any request to review the application must be within 28 days after the date of determination shown on this notice. A fee of 50% of the original Development Application will apply.

Right of Appeal

If you are dissatisfied with this decision Section 97* of the Environmental Planning & Assessment Act 1979 gives you the right to appeal to the Land and Environment Court within 12 months after the date on which you receive this notice.

* Section 97 of the Environmental Planning and Assessment Act 1979 does not apply to the determination of a development application for State significant development or local designated development that has been the subject of a Commission of Inquiry.

Signed on behalf of the consent authority

Signature

Name Rodney Mallam

Date 1 July 2003

Note 1 *Where the consent is subject to a condition that the consent is not to operate until the applicant satisfies a particular condition the date should not be endorsed until that condition has been satisfied.*

Note 2 *Clause 69A of the Regulation contains additional particulars to be included in a notice of determination where a condition under Section 94 of the Environmental Planning and Assessment Act 1979 has been imposed.*

Appendix C: Laboratory Results Summary Tables

ABBREVIATIONS AND EXPLANATIONS

Abbreviations used in the Tables:

ABC: Ambient Background Concentration
ACM: Asbestos Containing Material
ADWG: AustralianDrinking Water Guidelines
AF: Asbestos Fines
ANZG Australian and New Zealand Guidelines
B(a)P: Benzo(a)pyrene
CEC: Cation Exchange Capacity
CRC: Cooperative Research Centre
CT: Contaminant Threshold
EILs: Ecological Investigation Levels
ESLs: Ecological Screening Levels
FA: Fibrous Asbestos
GIL: Groundwater Investigation Levels
GSW: General Solid Waste
HILs: Health Investigation Levels
HSLs: Health Screening Levels
HSL-SSA: Health Screening Level-SiteSpecific Assessment
kg/L kilograms per litre
NA: Not Analysed
NC: Not Calculated
NEPM: National Environmental Protection Measure
NHMRC: National Health and Medical Research Council
NL: Not Limiting
NSL: No Set Limit
OCP: Organochlorine Pesticides
OPP: Organophosphorus Pesticides
PAHs: Polycyclic Aromatic Hydrocarbons
%w/w: weight per weight
ppm: Parts per million
PCBs: Polychlorinated Biphenyls
PCE: Perchloroethylene (Tetrachloroethylene or Teterachloroethene)
pH_{KCL} : pH of filtered 1:20, 1M KCL extract, shaken overnight
pH_{ox} : pH of filtered 1:20 1M KCl after peroxide digestion
PQL: Practical Quantitation Limit
RS: Rinsate Sample
RSL: Regional Screening Levels
RSW: Restricted Solid Waste
SAC: Site Assessment Criteria
SCC: Specific Contaminant Concentration
S_{Cr}: Chromium reducible sulfur
S_{POS}: Peroxide oxidisable Sulfur
SSA: Site Specific Assessment
SSHSLs: Site Specific Health Screening Levels
TAA: Total Actual Acidity in 1M KCL extract titrated to pH6.5
TB: Trip Blank
TCA: 1,1,1 Trichloroethane (methyl chloroform)
TCE: Trichloroethylene (Trichloroethene)
TCLP: Toxicity Characteristics Leaching Procedure
TPA: Total Potential Acidity, 1M KCL peroxide digest
TS: Trip Spike
TRH: Total Recoverable Hydrocarbons
TSA: Total Sulfide Acidity (TPA-TAA)
UCL: Upper Level Confidence Limit on Mean Value
USEPA United States Environmental Protection Agency
VOCC: Volatile Organic Chlorinated Compounds
WHO: World Health Organisation

Table Specific Explanations:

HIL Tables:

- The chromium results are for Total Chromium which includes Chromium III and VI. For initial screening purposes, we have assumed that the samples contain only Chromium VI unless demonstrated otherwise by additional analysis.
- Carcinogenic PAHs is a toxicity weighted sum of analyte concentrations for a specific list of PAH compounds relative to B(a)P. It is also refered to as the B(a)P Toxic Equivalence Quotient (TEQ).
- Statistical calculations are undertaken using ProUCL (USEPA). Statistical calculation is usually undertaken using data from fill samples.

EIL/ESL Table:

- ABC Values for selected metals have been adopted from the published background concentrations presented in Olszowy et. al., (1995), Trace Element Concentrations in Soils from Rural and Urban New South Wales (the 25th percentile values for old suburbs with high traffic have been quoted).

Waste Classification and TCLP Table:

- Data assessed using the NSW EPA Waste Classification Guidelines, Part 1: Classifying Waste (2014).
- The assessment of Total Moderately Harmful pesticides includes: Dichlorovos, Dimethoate, Fenitrothion, Ethion, Malathion and Parathion.
- Assessment of Total Scheduled pesticides include: HBC, alpha-BHC, gamma-BHC, beta-BHC, Heptachlor, Aldrin, Heptachlor Epoxide, gamma-Chlordane, alpha-chlordane, pp-DDE, Dieldrin, Endrin, pp-DDD, pp-DDT, Endrin Aldehyde.

QA/QC Table:

- Field blank, Inter and Intra laboratory duplicate results are reported in mg/kg.
- Trip spike results are reported as percentage recovery.
- Field rinsate results are reported in µg/L.

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TABLE S1
SOIL LABORATORY RESULTS COMPARED TO NEPM 2013.
HIL-D: 'Commercial/Industrial'

All data in mg/kg unless stated otherwise			HEAVY METALS								PAHs		ORGANOCHLORINE PESTICIDES (OCPs)							OP PESTICIDES (OPPs)	TOTAL PCBs	ASBESTOS FIBRES
			Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Total PAHs	Carcinogenic PAHs	HCB	Endosulfan	Methoxychlor	Aldrin & Dieldrin	Chlordane	DDT, DDD & DDE	Heptachlor	Chlorpyrifos		
PQL - Envirolab Services			4	0.4	1	1	1	0.1	1	1	-	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	100
Site Assessment Criteria (SAC)			3000	900	3600	240000	1500	730	6000	400000	4000	40	80	2000	2500	45	530	3600	50	2000	7	Detected/Not Detected
Sample Reference	**Sample Depth**	**Sample Description**																				
BH1	0.1-0.2	F: silty sand	<4	<0.4	**19**	**45**	**12**	<0.1	**45**	**53**	**0.52**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH1	0.1-0.2	Lab duplicate	<4	<0.4	**13**	**39**	**9**	<0.1	**41**	**38**	**0.82**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
BH1	0.6-0.7	Gravelly sand	**11**	<0.4	**58**	**1**	**4**	<0.1	**3**	**2**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH2	0.6-0.7	F: gravelly sand	**8**	<0.4	**22**	**13**	**40**	<0.1	**11**	**540**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH3	0.1-0.2	F: gravelly sand	<4	<0.4	**87**	**27**	**10**	<0.1	**91**	**65**	**0.1**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH4	0.1-0.2	F: silty sand	**18**	<0.4	**9**	**2**	**6**	<0.1	**2**	**9**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH5	0.2-0.3	F: silty sand	<4	<0.4	**13**	**3**	**8**	<0.1	**2**	**37**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH5	0.7-0.8	Silty sand	<4	<0.4	**17**	**2**	**3**	<0.1	**1**	**7**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH6	0.2-0.3	F: silty sand	<4	<0.4	**16**	**1**	**3**	<0.1	**2**	**3**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH7	0.6-0.7	F: gravelly sand	**9**	<0.4	**36**	**12**	**20**	<0.1	**17**	**57**	**9**	**1.1**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH7	1.5-1.6	F: gravelly sand	**6**	<0.4	**21**	**8**	**8**	<0.1	**8**	**34**	**1.8**	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH7	2.4-2.5	F: silty clay	**17**	**0.6**	**58**	**19**	**28**	<0.1	**23**	**99**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH8	0.6-0.7	F: silty sand	**4**	<0.4	**12**	**5**	**15**	<0.1	**4**	**19**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH8	1.6-1.7	silty sand	<4	<0.4	**18**	<1	**3**	<0.1	<1	**3**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH9	0.1-0.2	F: gravelly sand	**15**	<0.4	**49**	**6**	**6**	<0.1	**12**	**15**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH10	0.1-0.2	F: gravelly sand	<4	<0.4	**9**	**7**	**16**	<0.1	**4**	**30**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH1Dup	-	Soil dup	<4	<0.4	**15**	**43**	**11**	<0.1	**47**	**43**	**0.79**	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Number of Samples			17	17	17	17	17	17	17	17	17	17	11	11	11	11	11	11	11	11	11	10
Maximum Value			18	0.6	87	45	40	<PQL	91	540	9	1.1	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	Not Detected

Concentration above the SAC **VALUE**
Concentration above the PQL **Bold**

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TABLE S2
SOIL LABORATORY RESULTS COMPARED TO HSLs
All data in mg/kg unless stated otherwise

					C_6-C_{10} (F1)	>C_{10}-C_{16} (F2)	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	Field PID Measurement
PQL - Envirolab Services					25	50	0.2	0.5	1	1	1	ppm
NEPM 2013 HSL Land Use Category					**HSL-D: COMMERCIAL/INDUSTRIAL**							
Sample Reference	**Sample Depth**	**Sample Description**	**Depth Category**	**Soil Category**								
BH1	0.1-0.2	F: silty sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0.1
BH1	0.1-0.2	Lab duplicate	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0.1
BH1	0.6-0.7	Gravelly sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0.6
BH2	0.6-0.7	F: gravelly sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH3	0.1-0.2	F: gravelly sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH4	0.1-0.2	F: silty sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH5	0.2-0.3	F: silty sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH5	0.7-0.8	Silty sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH6	0.2-0.3	F: silty sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH7	0.6-0.7	F: gravelly sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0.3
BH7	1.5-1.6	F: gravelly sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH7	2.4-2.5	F: silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH8	0.6-0.7	F: silty sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0.4
BH8	1.6-1.7	silty sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH9	0.1-0.2	F: gravelly sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH10	0.1-0.2	F: gravelly sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH1Dup	-	Soil dup	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	-
Total Number of Samples					17	17	17	17	17	17	17	16
Maximum Value					<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0.6

Concentration above the SAC **VALUE**
Concentration above the PQL **Bold**
The guideline corresponding to the concentration above the SAC is highlighted in grey in the Site Assessment Criteria Table below

HSL SOIL ASSESSMENT CRITERIA

Sample Reference	Sample Depth	Sample Description	Depth Category	Soil Category	C_6-C_{10} (F1)	>C_{10}-C_{16} (F2)	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene
BH1	0.1-0.2	F: silty sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH1	0.1-0.2	Lab duplicate	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH1	0.6-0.7	Gravelly sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH2	0.6-0.7	F: gravelly sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH3	0.1-0.2	F: gravelly sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH4	0.1-0.2	F: silty sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH5	0.2-0.3	F: silty sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH5	0.7-0.8	Silty sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH6	0.2-0.3	F: silty sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH7	0.6-0.7	F: gravelly sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH7	1.5-1.6	F: gravelly sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH7	2.4-2.5	F: silty clay	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH8	0.6-0.7	F: silty sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH8	1.6-1.7	silty sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH9	0.1-0.2	F: gravelly sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH10	0.1-0.2	F: gravelly sand	0m to <1m	Sand	260	NL	3	NL	NL	230	NL
BH1Dup	-	Soil dup	0m to <1m	Sand	260	NL	3	NL	NL	230	NL

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TABLE S3
SOIL LABORATORY RESULTS COMPARED TO MANAGEMENT LIMITS
All data in mg/kg unless stated otherwise

			C_6-C_{10} (F1) plus BTEX	>C_{10}-C_{16} (F2) plus napthalene	>C_{16}-C_{34} (F3)	>C_{34}-C_{40} (F4)
PQL - Envirolab Services			25	50	100	100
NEPM 2013 Land Use Category			**COMMERCIAL/INDUSTRIAL**			
Sample Reference	**Sample Depth**	**Soil Texture**				
BH1	0.1-0.2	Coarse	<25	<50	**330**	**440**
BH1	0.1-0.2	Coarse	<25	<50	**320**	**500**
BH1	0.6-0.7	Coarse	<25	<50	<100	<100
BH2	0.6-0.7	Coarse	<25	<50	<100	<100
BH3	0.1-0.2	Coarse	<25	<50	<100	<100
BH4	0.1-0.2	Coarse	<25	<50	<100	<100
BH5	0.2-0.3	Coarse	<25	<50	<100	<100
BH5	0.7-0.8	Coarse	<25	<50	<100	<100
BH6	0.2-0.3	Coarse	<25	<50	<100	<100
BH7	0.6-0.7	Coarse	<25	<50	**110**	<100
BH7	1.5-1.6	Coarse	<25	<50	**150**	<100
BH7	2.4-2.5	Coarse	<25	<50	**120**	<100
BH8	0.6-0.7	Coarse	<25	<50	<100	<100
BH8	1.6-1.7	Coarse	<25	<50	<100	<100
BH9	0.1-0.2	Coarse	<25	<50	<100	<100
BH10	0.1-0.2	Coarse	<25	<50	<100	<100
BH1Dup	-	Coarse	<25	<50	**290**	**380**
Total Number of Samples			17	17	17	17
Maximum Value			<PQL	<PQL	330	500

Concentration above the SAC	**VALUE**
Concentration above the PQL	**Bold**

MANAGEMENT LIMIT ASSESSMENT CRITERIA

Sample Reference	**Sample Depth**	**Soil Texture**	C_6-C_{10} (F1) plus BTEX	>C_{10}-C_{16} (F2) plus napthalene	>C_{16}-C_{34} (F3)	>C_{34}-C_{40} (F4)
BH1	0.1-0.2	Coarse	700	1000	3500	10000
BH1	0.1-0.2	Coarse	700	1000	3500	10000
BH1	0.6-0.7	Coarse	700	1000	3500	10000
BH2	0.6-0.7	Coarse	700	1000	3500	10000
BH3	0.1-0.2	Coarse	700	1000	3500	10000
BH4	0.1-0.2	Coarse	700	1000	3500	10000
BH5	0.2-0.3	Coarse	700	1000	3500	10000
BH5	0.7-0.8	Coarse	700	1000	3500	10000
BH6	0.2-0.3	Coarse	700	1000	3500	10000
BH7	0.6-0.7	Coarse	700	1000	3500	10000
BH7	1.5-1.6	Coarse	700	1000	3500	10000
BH7	2.4-2.5	Coarse	700	1000	3500	10000
BH8	0.6-0.7	Coarse	700	1000	3500	10000
BH8	1.6-1.7	Coarse	700	1000	3500	10000
BH9	0.1-0.2	Coarse	700	1000	3500	10000
BH10	0.1-0.2	Coarse	700	1000	3500	10000
BH1Dup	-	Coarse	700	1000	3500	10000

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TABLE S4
SOIL LABORATORY RESULTS COMPARED T0 DIRECT CONTACT CRITERIA
All data in mg/kg unless stated otherwise

Analyte		C_6-C_{10}	>C_{10}-C_{16}	>C_{16}-C_{34}	>C_{34}-C_{40}	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	PID
PQL - Envirolab Services		25	50	100	100	0.2	0.5	1	1	1	
CRC 2011 -Direct contact Criteria		26,000	20,000	27,000	38,000	430	99,000	27,000	81,000	11,000	
Site Use		**COMMERCIAL/INDUSTRIAL - DIRECT SOIL CONTACT**									
Sample Reference	**Sample Depth**										
BH1	0.1-0.2	<25	<50	**330**	**440**	<0.2	<0.5	<1	<3	<1	**0.1**
BH1	0.1-0.2	<25	<50	**320**	**500**	<0.2	<0.5	<1	<3	<1	**0.1**
BH1	0.6-0.7	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	**0.6**
BH2	0.6-0.7	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH3	0.1-0.2	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH4	0.1-0.2	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH5	0.2-0.3	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH5	0.7-0.8	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH6	0.2-0.3	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH7	0.6-0.7	<25	<50	**110**	<100	<0.2	<0.5	<1	<3	<1	**0.3**
BH7	1.5-1.6	<25	<50	**150**	<100	<0.2	<0.5	<1	<3	<1	0
BH7	2.4-2.5	<25	<50	**120**	<100	<0.2	<0.5	<1	<3	<1	0
BH8	0.6-0.7	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	**0.4**
BH8	1.6-1.7	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH9	0.1-0.2	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH10	0.1-0.2	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH1Dup	-	<25	<50	**290**	**380**	<0.2	<0.5	<1	<3	<1	-
TB-S1	-	NA	NA	NA	NA	<0.2	<0.5	<1	<3	<1	-

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TABLE S5
ASBESTOS QUANTIFICATION - FIELD OBSERVATIONS AND LABORATORY RESULTS
HIL-D:Commercial/Industrial

FIELD DATA															LABORATORY DATA												
Date Sampled	Sample reference	Sample Depth	Visible ACM in top 100mm	Approx. Volume of Soil (L)	Soil Mass (g)	Mass ACM (g)	Mass Asbestos in ACM (g)	[Asbestos from ACM in soil] (%w/w)	Mass ACM <7mm (g)	Mass Asbestos in ACM <7mm (g)	[Asbestos from ACM <7mm in soil] (%w/w)	Mass FA (g)	Mass Asbestos in FA (g)	[Asbestos from FA in soil] (%w/w)	Lab Report Number	Sample refeference	Sample Depth	Sample Mass (g)	Asbestos ID in soil (AS4964) >0.1g/kg	Trace Analysis	Total Asbestos (g/kg)	Asbestos ID in soil <0.1g/kg	ACM >7mm Estimation (g)	FA and AF Estimation (g)	ACM >7mm Estimation %(w/w)	FA and AF Estimation %(w/w)
SAC			**No**					**0.05**			**0.001**			**0.001**											**0.05**	**0.001**
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	276408	BH1	0.1-0.2	661.59	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	276408	BH2	0.6-0.7	445.94	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	276408	BH3	0.1-0.2	871.34	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	276408	BH4	0.1-0.2	604.26	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	276408	BH5	0.2-0.3	570.25	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	276408	BH6	0.2-0.3	520.91	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	276408	BH7	0.6-0.7	549.38	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	276408	BH8	0.6-0.7	531.56	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	276408	BH9	0.1-0.2	638.01	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	276408	BH10	0.1-0.2	669.95	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
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Concentration above the SAC **VALUE**

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TABLE S6
SOIL LABORATORY RESULTS COMPARED TO NEPM 2013 EILs AND ESLs
All data in mg/kg unless stated otherwise

Land Use Category				COMMERCIAL/INDUSTRIAL																			
							AGED HEAVY METALS-EILs						EILs		ESLs								
				pH	CEC (cmolc/kg)	Clay Content (% clay)	Arsenic	Chromium	Copper	Lead	Nickel	Zinc	Naphthalene	DDT	C_6-C_{10} (F1)	>C_{10}-C_{16} (F2)	>C_{16}-C_{34} (F3)	>C_{34}-C_{40} (F4)	Benzene	Toluene	Ethylbenzene	Total Xylenes	B(a)P
PQL - Envirolab Services				-	1	-	4	1	1	1	1	1	1	0.1	25	50	100	100	0.2	0.5	1	1	0.05
Ambient Background Concentration (ABC)				-	-	-	NSL	13	28	163	5	122	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL
Sample Reference	**Sample Depth**	**Sample Description**	**Soil Texture**																				
BH1	0.1-0.2	F: silty sand	Coarse	NA	NA	NA	<4	**19**	**45**	**12**	**45**	**53**	<1	<0.1	<25	<50	**330**	**440**	<0.2	<0.5	<1	<3	**0.08**
BH1	0.1-0.2	Lab duplicate	Coarse	NA	NA	NA	<4	**13**	**39**	**9**	**41**	**38**	<1	<0.1	<25	<50	**320**	**500**	<0.2	<0.5	<1	<3	**0.1**
BH1	0.6-0.7	Gravelly sand	Coarse	NA	NA	NA	**11**	**58**	**1**	**4**	**3**	**2**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH2	0.6-0.7	F: gravelly sand	Coarse	**8.4**	**6.1**	**11**	**8**	**22**	**13**	**40**	**11**	**540**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH3	0.1-0.2	F: gravelly sand	Coarse	**8.9**	**22**	**7**	<4	**87**	**27**	**10**	**91**	**65**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH4	0.1-0.2	F: silty sand	Coarse	NA	NA	NA	**18**	**9**	**2**	**6**	**2**	**9**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH5	0.2-0.3	F: silty sand	Coarse	NA	NA	NA	<4	**13**	**3**	**8**	**2**	**37**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH5	0.7-0.8	Silty sand	Coarse	NA	NA	NA	<4	**17**	**2**	**3**	**1**	**7**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH6	0.2-0.3	F: silty sand	Coarse	NA	NA	NA	<4	**16**	**1**	**3**	**2**	**3**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH7	0.6-0.7	F: gravelly sand	Coarse	NA	NA	NA	**9**	**36**	**12**	**20**	**17**	**57**	<1	<0.1	<25	<50	**110**	<100	<0.2	<0.5	<1	<3	**0.75**
BH7	1.5-1.6	F: gravelly sand	Coarse	NA	NA	NA	**6**	**21**	**8**	**8**	**8**	**34**	<1	NA	<25	<50	**150**	<100	<0.2	<0.5	<1	<3	**0.2**
BH8	0.6-0.7	F: silty sand	Coarse	NA	NA	NA	**4**	**12**	**5**	**15**	**4**	**19**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH8	1.6-1.7	silty sand	Coarse	NA	NA	NA	<4	**18**	<1	**3**	<1	**3**	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH9	0.1-0.2	F: gravelly sand	Coarse	NA	NA	NA	**15**	**49**	**6**	**6**	**12**	**15**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH10	0.1-0.2	F: gravelly sand	Coarse	NA	NA	NA	<4	**9**	**7**	**16**	**4**	**30**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH1Dup	-	Soil dup	Coarse	NA	NA	NA	<4	**15**	**43**	**11**	**47**	**43**	<1	NA	<25	<50	**290**	**380**	<0.2	<0.5	<1	<3	**0.1**
Total Number of Samples				2	2	2	16	16	16	16	16	16	16	11	16	16	16	16	16	16	16	16	16
Maximum Value				8.9	22	11	18	87	45	40	91	540	<PQL	<PQL	<PQL	<PQL	330	500	<PQL	<PQL	<PQL	<PQL	0.75

Concentration above the SAC — **VALUE**
Concentration above the PQL — **Bold**
The guideline corresponding to the elevated value is highlighted in grey in the EIL and ESL Assessment Criteria Table below

EIL AND ESL ASSESSMENT CRITERIA

Sample Reference	Sample Depth	Sample Description	Soil Texture	pH	CEC (cmolc/kg)	Clay Content (% clay)	Arsenic	Chromium	Copper	Lead	Nickel	Zinc	Naphthalene	DDT	C_6-C_{10} (F1)	>C_{10}-C_{16} (F2)	>C_{16}-C_{34} (F3)	>C_{34}-C_{40} (F4)	Benzene	Toluene	Ethylbenzene	Total Xylenes	B(a)P
BH1	0.1-0.2	F: silty sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	640	215	170	1700	3300	75	135	165	180	72
BH1	0.1-0.2	Lab duplicate	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	640	215	170	1700	3300	75	135	165	180	72
BH1	0.6-0.7	Gravelly sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	--	215	170	1700	3300	75	135	165	180	72
BH2	0.6-0.7	F: gravelly sand	Coarse	8.4	6.1	11	160	670	310	2000	300	740	370	640	215	170	1700	3300	75	135	165	180	72
BH3	0.1-0.2	F: gravelly sand	Coarse	8.9	22	7	160	670	350	2000	600	1600	370	640	215	170	1700	3300	75	135	165	180	72
BH4	0.1-0.2	F: silty sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	640	215	170	1700	3300	75	135	165	180	72
BH5	0.2-0.3	F: silty sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	640	215	170	1700	3300	75	135	165	180	72
BH5	0.7-0.8	Silty sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	--	215	170	1700	3300	75	135	165	180	72
BH6	0.2-0.3	F: silty sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	640	215	170	1700	3300	75	135	165	180	72
BH7	0.6-0.7	F: gravelly sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	640	215	170	1700	3300	75	135	165	180	72
BH7	1.5-1.6	F: gravelly sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	--	215	170	1700	3300	75	135	165	180	72
BH8	0.6-0.7	F: silty sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	640	215	170	1700	3300	75	135	165	180	72
BH8	1.6-1.7	silty sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	--	215	170	1700	3300	75	135	165	180	72
BH9	0.1-0.2	F: gravelly sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	640	215	170	1700	3300	75	135	165	180	72
BH10	0.1-0.2	F: gravelly sand	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	640	215	170	1700	3300	75	135	165	180	72
BH1Dup	-	Soil dup	Coarse	NA	NA	NA	160	320	110	2000	60	230	370	--	215	170	1700	3300	75	135	165	180	72

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TABLE S7
SOIL LABORATORY RESULTS COMPARED TO WASTE CLASSIFICATION GUIDELINES
All data in mg/kg unless stated otherwise

			HEAVY METALS								PAHs		OC/OP PESTICIDES				Total PCBs	TRH					BTEX COMPOUNDS				ASBESTOS FIBRES
			Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Total PAHs	B(a)P	Total Endosulfans	Chloropyrifos	Total Moderately Harmful	Total Scheduled		C_6-C_9	C_{10}-C_{14}	C_{15}-C_{28}	C_{29}-C_{36}	Total C_{10}-C_{36}	Benzene	Toluene	Ethyl benzene	Total Xylenes	
PQL - Envirolab Services			4	0.4	1	1	1	0.1	1	1	-	0.05	0.1	0.1	0.1	0.1	0.1	25	50	100	100	50	0.2	0.5	1	1	100
General Solid Waste CT1			100	20	100	NSL	100	4	40	NSL	200	0.8	60	4	250	50	50	650		NSL		10,000	10	288	600	1,000	-
General Solid Waste SCC1			500	100	1900	NSL	1500	50	1050	NSL	200	10	108	7.5	250	50	50	650		NSL		10,000	18	518	1,080	1,800	-
Restricted Solid Waste CT2			400	80	400	NSL	400	16	160	NSL	800	3.2	240	16	1000	50	50	2600		NSL		40,000	40	1,152	2,400	4,000	-
Restricted Solid Waste SCC2			2000	400	7600	NSL	6000	200	4200	NSL	800	23	432	30	1000	50	50	2600		NSL		40,000	72	2,073	4,320	7,200	-
Sample Reference	**Sample Depth**	**Sample Description**																									
BH1	0.1-0.2	F: silty sand	<4	<0.4	**19**	**45**	**12**	<0.1	**45**	**53**	**0.52**	**0.08**	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	**100**	**350**	**450**	<0.2	<0.5	<1	<3	Not Detected
BH1	0.1-0.2	Lab duplicate	<4	<0.4	**13**	**39**	**9**	<0.1	**41**	**38**	**0.82**	**0.1**	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	**360**	**360**	<0.2	<0.5	<1	<3	NA
BH1	0.6-0.7	Gravelly sand	**11**	<0.4	**58**	**1**	**4**	<0.1	**3**	**2**	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	NA
BH2	0.6-0.7	F: gravelly sand	**8**	<0.4	**22**	**13**	**40**	<0.1	**11**	**540**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	Not Detected
BH3	0.1-0.2	F: gravelly sand	<4	<0.4	**87**	**27**	**10**	<0.1	**91**	**65**	**0.1**	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	Not Detected
BH4	0.1-0.2	F: silty sand	**18**	<0.4	**9**	**2**	**6**	<0.1	**2**	**9**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	Not Detected
BH5	0.2-0.3	F: silty sand	<4	<0.4	**13**	**3**	**8**	<0.1	**2**	**37**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	Not Detected
BH5	0.7-0.8	Silty sand	<4	<0.4	**17**	**2**	**3**	<0.1	**1**	**7**	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	NA
BH6	0.2-0.3	F: silty sand	<4	<0.4	**16**	**1**	**3**	<0.1	**2**	**3**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	Not Detected
BH7	0.6-0.7	F: gravelly sand	**9**	<0.4	**36**	**12**	**20**	<0.1	**17**	**57**	**9**	**0.75**	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	Not Detected
BH7	1.5-1.6	F: gravelly sand	**6**	<0.4	**21**	**8**	**8**	<0.1	**8**	**34**	**1.8**	**0.2**	NA	NA	NA	NA	NA	<25	<50	<100	**130**	**130**	<0.2	<0.5	<1	<3	NA
BH7	2.4-2.5	F: silty clay	**17**	**0.6**	**58**	**19**	**28**	<0.1	**23**	**99**	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	NA
BH8	0.6-0.7	F: silty sand	**4**	<0.4	**12**	**5**	**15**	<0.1	**4**	**19**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	Not Detected
BH8	1.6-1.7	silty sand	<4	<0.4	**18**	<1	**3**	<0.1	<1	**3**	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	NA
BH9	0.1-0.2	F: gravelly sand	**15**	<0.4	**49**	**6**	**6**	<0.1	**12**	**15**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	Not Detected
BH10	0.1-0.2	F: gravelly sand	<4	<0.4	**9**	**7**	**16**	<0.1	**4**	**30**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	Not Detected
BH1Dup	-	Soil dup	<4	<0.4	**15**	**43**	**11**	<0.1	**47**	**43**	**0.79**	**0.1**	NA	NA	NA	NA	NA	<25	<50	<100	**300**	**300**	<0.2	<0.5	<1	<3	NA
TB-S1	-	Soil trip blank	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.2	<0.5	<1	<3	NA
Total Number of Samples			17	17	17	17	17	17	17	17	17	17	11	11	11	11	11	17	17	17	17	17	18	18	18	18	10
Maximum Value			18	0.6	87	45	40	<PQL	91	540	9	0.75	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	100	360	450	<PQL	<PQL	<PQL	<PQL	Not Detected

Concentration above the CT1	VALUE
Concentration above SCC1	VALUE
Concentration above the SCC2	VALUE
Concentration above PQL	**Bold**

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TABLE S8
SOIL QA/QC SUMMARY

			TRH C6 - C10	TRH >C10-C16	TRH >C16-C34	TRH >C34-C40	Benzene	Toluene	Ethylbenzene	m+p-xylene	o-Xylene	Naphthalene	Acenaphthylene	Acenaph-thene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo(a)anthracene	Chrysene	Benzo(b,j+k)fluoranthene	Benzo(a)pyrene	Indeno(1,2,3-c,d)pyrene	Dibenzo(a,h)anthra-cene	Benzo(g,h,i)perylene	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
	PQL Envirolab SYD		*25*	*50*	*100*	*100*	*0.2*	*0.5*	*1*	*2*	*1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.2*	*0.05*	*0.1*	*0.1*	*0.1*	*4*	*0.4*	*1*	*1*	*1*	*0.1*	*1*	*1*
	PQL Envirolab VIC		*25*	*50*	*100*	*100*	*0.2*	*0.5*	*1.0*	*2.0*	*1.0*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.2*	*0.1*	*0.1*	*0.1*	*0.1*	*4.0*	*0.4*	*1.0*	*1.0*	*1.0*	*0.1*	*1.0*	*1.0*
Intra	BH1	0.1-0.2	<25	<50	330	440	<0.2	<0.5	<1	<2	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.2	<0.1	<0.2	0.08	<0.1	<0.1	0.1	<4	<0.4	19	45	12	<0.1	45	53
laboratory	BH1Dup	-	<25	<50	290	380	<0.2	<0.5	<1	<2	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	0.1	0.3	0.1	<0.1	<0.1	0.1	<4	<0.4	15	43	11	<0.1	47	43
duplicate	MEAN		nc	nc	310	410	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	0.1	0.125	0.075	0.2	0.09	nc	nc	0.1	nc	nc	17	44	11.5	nc	46	48
	RPD %		nc	nc	13%	15%	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	0%	120%	67%	100%	22%	nc	nc	0%	nc	nc	24%	5%	9%	nc	4%	21%
Field	TB-S1	-	NA	NA	NA	NA	<0.2	<0.5	<1	<2	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Blank	12/08/21																																		

Result outside of QA/QC acceptance criteria

Appendix D: Borehole Logs

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BOREHOLE LOG

Borehole No. **1**

Client: SYESUN PTY LTD - FLOWER POWER TERREY HILLS

Project: PROPOSED REDEVELOPMENT OF GARDEN CENTRE

Location: 277 MONA VALE ROAD, TERREY HILLS, NSW

Job No.: 34278B **Method:** SPIRAL AUGER **R.L. Surface:** ≈ 199.6m

Date: 12/8/21 **Datum:** AHD

Plant Type: JK400 **Logged/Checked by:** B.S./D.B.

Groundwater Record	SAMPLES (ES, U50, DB, DS)	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
			0		-	ASPHALTIC CONCRETE: 40mm.t FILL: Silty sand, medium grained, brown, trace of medium to coarse grained igneous and ironstone gravel.	M			
		N = 6 3,3,3	1		CL	Gravelly sandy CLAY: low plasticity, orange brown, fine to medium grained ironstone gravel, medium grained sand, trace of silt.	w>PL	(St)		RESIDUAL TOO GRAVELLY FOR HP TESTING
		N > 21 2,9,12/ 50mm REFUSAL			SC	Clayey SAND: medium to coarse grained, grey and brown, with iron indurated bands, trace of coarse grained sand lenses, and silt.	M	VD		
			2		-	Extremely Weathered sandstone: clayey SAND, fine to coarse grained, grey and orange brown, with iron indurated bands, trace of silt.	XW	VD		HAWKESBURY SANDSTONE VERY LOW 'TC' RESISTANCE
▶		N = SPT 4/10mm REFUSAL	3			as above, but with very low strength bands.				VERY LOW RESISTANCE WITH LOW BANDS
			4							
			5			SANDSTONE: fine to medium grained, red brown, with extremely weathered bands.	DW	VL		VERY LOW TO LOW RESISTANCE
▼ ON COMPLET-ION			6			Extremely Weathered sandstone: silty CLAY, medium plasticity, red brown and grey.	XW	(St-VSt)		SOIL 'TC' BIT RESISTANCE
			7							

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BOREHOLE LOG

Borehole No. **1**

Client: SYESUN PTY LTD - FLOWER POWER TERREY HILLS

Project: PROPOSED REDEVELOPMENT OF GARDEN CENTRE

Location: 277 MONA VALE ROAD, TERREY HILLS, NSW

Job No.: 34278B **Method:** SPIRAL AUGER **R.L. Surface:** ≈ 199.6m

Date: 12/8/21 **Datum:** AHD

Plant Type: JK400 **Logged/Checked by:** B.S./D.B.

Groundwater Record	SAMPLES (ES, U50, DB, DS)	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
						Extremely Weathered sandstone: silty CLAY, medium plasticity, red brown and grey.	XW	(St-VSt)		
						END OF BOREHOLE AT 7.5m				
			8							
			9							
			10							
			11							
			12							
			13							
			14							

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BOREHOLE LOG

Borehole No. **2**

Client: SYESUN PTY LTD - FLOWER POWER TERREY HILLS

Project: PROPOSED REDEVELOPMENT OF GARDEN CENTRE

Location: 277 MONA VALE ROAD, TERREY HILLS, NSW

Job No.: 34278B **Method:** SPIRAL AUGER **R.L. Surface:** ≈ 198.2m

Date: 12/8/21 **Datum:** AHD

Plant Type: JK400 **Logged/Checked by:** B.S./D.B.

Groundwater Record	SAMPLES (ES, U50, DB, DS)	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION			0			ASPHALTIC CONCRETE: 100mm.t				
					-	FILL: Gravelly silty sand, fine to coarse grained, dark grey, fine grained igneous gravel, trace of concrete fragments.	M			APPEARS POORLY COMPACTED
							w>PL			
		N = 3 3,1,2				FILL: Gravelly sandy clay, low plasticity, dark grey, fine to coarse grained ironstone gravel, medium grained sand, trace of glass, carbonaceous organic matter and silt.				ORGANIC ODOUR
			1			as above, but with metal and timber fragments, and silty sand lenses.				
		N = SPT 34/150mm REFUSAL			-	Extremely Weathered siltstone: silty CLAY, medium grained, light grey and red brown, with iron indurated bands.	XW	Hd		HAWKESBURY SANDSTONE VERY LOW 'TC' BIT RESISTANCE
			2							
		N = 17 4,8,9	3						>600 >600 >600	
			4							
			5		-	Extremely Weathered sandstone: silty SAND, fine to medium grained, grey, with extremely weathered siltstone bands.		(D)		
			6							
			7			SANDSTONE: medium to coarse grained, red brown.	DW	L		LOW RESISTANCE

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BOREHOLE LOG

Borehole No. **2**

Client: SYESUN PTY LTD - FLOWER POWER TERREY HILLS

Project: PROPOSED REDEVELOPMENT OF GARDEN CENTRE

Location: 277 MONA VALE ROAD, TERREY HILLS, NSW

Job No.: 34278B **Method:** SPIRAL AUGER **R.L. Surface:** ≈ 198.2m

Date: 12/8/21 **Datum:** AHD

Plant Type: JK400 **Logged/Checked by:** B.S./D.B.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
									SANDSTONE: medium to coarse grained, red brown.	DW	L		
									END OF BOREHOLE AT 7.5m				
						8							
						9							
						10							
						11							
						12							
						13							
						14							

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BOREHOLE LOG

Borehole No. **3**

Client: SYESUN PTY LTD - FLOWER POWER TERREY HILLS

Project: PROPOSED REDEVELOPMENT OF GARDEN CENTRE

Location: 277 MONA VALE ROAD, TERREY HILLS, NSW

Job No.: 34278B **Method:** SPIRAL AUGER **R.L. Surface:** ≈ 196.0m

Date: 12/8/21 **Datum:** AHD

Plant Type: JK400 **Logged/Checked by:** B.S./D.B.

Groundwater Record	SAMPLES (ES, U50, DB, DS)	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
			0		-	ASPHALTIC CONCRETE: 70mm.t	M			
						FILL: Gravelly silty sand, fine to medium grained, dark grey, fine to medium grained igneous gravel.	w>PL			ORGANIC ODOUR
					SM	FILL: Sandy clay, low plasticity, dark grey and brown, fine to medium grained sand, trace of fine grained igneous and carbonaceous organic matter and silt.	M	VL		RESIDUAL
		N = 2 1,1,1	1							
					CL	Silty SAND: fine to coarse grained, orange brown, with clay fines.	w>PL	F-St		
		N = 3 1,1,2				Sandy CLAY: low plasticity, brown and orange brown, medium grained sand, trace of fine to medium grained weakly cemented ironstone gravel, clayey sand lenses, and silt.			90 100 110	
			2							
ON COMPLET-ION						as above, but medium to coarse grained sand and trace of sand bands		St		
		N - 7 2,3,4	3						180 180 180	
			4							
		N = 8 3,4,4						St-VSt	190 270 240	
			5							
			6							
			7							

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BOREHOLE LOG

Borehole No. 3

Client: SYESUN PTY LTD - FLOWER POWER TERREY HILLS

Project: PROPOSED REDEVELOPMENT OF GARDEN CENTRE

Location: 277 MONA VALE ROAD, TERREY HILLS, NSW

Job No.: 34278B **Method:** SPIRAL AUGER **R.L. Surface:** ≈ 196.0m

Date: 12/8/21 **Datum:** AHD

Plant Type: JK400 **Logged/Checked by:** B.S./D.B.

Groundwater Record	SAMPLES ES	U50	DB	DS	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
									Sandy CLAY: low plasticity, brown and orange brown, medium to coarse grained sand, trace of fine to medium grained weakly cemented ironstone gravel, clayey sand lenses, sand bands, and silt.	w>PL	St-VSt		
						8		CI-CH	Silty CLAY: medium to high plasticity, grey and red brown.		(Hd)		POSSIBLY EXTREMELY WEATHERED SILTSTONE
						9							
								-	SANDSTONE: fine to medium grained, red brown.	DW	VL		HAWKESBURY SANDSTONE
						10			END OF BOREHOLE AT 10.0m				VERY LOW TO LOW 'TC' BIT RESISTANCE
						11							
						12							
						13							
						14							

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BOREHOLE LOG

Borehole No. **4**

Client: SYESUN PTY LTD - FLOWER POWER TERREY HILLS

Project: PROPOSED REDEVELOPMENT OF GARDEN CENTRE

Location: 277 MONA VALE ROAD, TERREY HILLS, NSW

Job No.: 34278B **Method:** SPIRAL AUGER **R.L. Surface:** ≈ 201.2m

Date: 12/8/21 **Datum:** AHD

Plant Type: JK400 **Logged/Checked by:** B.S./D.B.

Groundwater Record	SAMPLES (ES, U50, DB, DS)	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES		0			FILL: Sandy gravel, fine to coarse grained, igneous gravel, brown, dark brown and grey, fine grained sand, trace of silt and concrete fragments.	M			
					SM	FILL: Silty sand, fine to medium grained, brown, trace of fine grained igneous gravel.	M	L		RESIDUAL
	ES, DS	N = 6 3,2,4								
	DS		1		-	Silty SAND: medium to coarse grained, yellow brown and brown, with fine to coarse grained ironstone gravel, trace of clay.	DW	VL		HAWKESBURY SANDSTONE
	DS	N = SPT 7/10mm REFUSAL				SANDSTONE: fine to coarse grained, yellow brown and grey.				VERY LOW TO LOW 'TC' BIT RESISTANCE
			2							
			3			as above, but with extremely weathered bands.				
			4							
						SANDSTONE: medium to coarse grained, yellow brown, purple brown and grey.				
			5							
			6			as above, but with extremely weathered bands.				VERY LOW RESISTANCE WITH LOW BANDS
			7							

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BOREHOLE LOG

Borehole No. 4

Client: SYESUN PTY LTD - FLOWER POWER TERREY HILLS

Project: PROPOSED REDEVELOPMENT OF GARDEN CENTRE

Location: 277 MONA VALE ROAD, TERREY HILLS, NSW

Job No.: 34278B **Method:** SPIRAL AUGER **R.L. Surface:** ≈ 201.2m

Date: 12/8/21 **Datum:** AHD

Plant Type: JK400 **Logged/Checked by:** B.S./D.B.

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
▼ ON COMPLET-ION				■					SANDSTONE: medium to coarse grained, yellow brown, purple brown and grey, with extremely weathered bands.	DW	VL		
									END OF BOREHOLE AT 7.5m				
						8							
						9							
						10							
						11							
						12							
						13							
						14							

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BOREHOLE LOG

Borehole No. **5**

Client: SYESUN PTY LTD - FLOWER POWER TERREY HILLS

Project: PROPOSED REDEVELOPMENT OF GARDEN CENTRE

Location: 277 MONA VALE ROAD, TERREY HILLS, NSW

Job No.: 34278B **Method:** SPIRAL AUGER **R.L. Surface:** ≈ 194.7m

Date: 12/8/21 **Datum:** AHD

Plant Type: JK400 **Logged/Checked by:** B.S./D.B.

Groundwater Record	SAMPLES (ES, U50, DB, DS)	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
			0			CONCRETE: 135mm.t				8mm DIA. REINFORCEMENT, 85mm TOP COVER
					-	FILL: Silty sand, medium grained, brown and orange brown, trace of fine grained igneous gravel.	M			
		N = 3 1,1,2			SM	Silty SAND: medium grained, orange brown.	M	VL		RESIDUAL
			1							
		N = 2 1,1,1				as above, but trace of clay.				
			2							
ON COMPLET-ION					CL	Sandy CLAY: low plasticity, grey, medium grained sand, trace of silt and clayey sand lenses.	w>PL	St		
		N = 6 2,3,3	3						140 170 140	
			4							
		N = 7 2,2,5			SC	Clayey SAND: medium grained, grey, with sandy clay bands, trace of silt.	W	L		
			5							
					CL/SC	Interbedded sandy CLAY and clayey SAND: low plasticity, medium grained, grey, trace of silt.	w>PL/W	St-VSt /L		
		N > 23 5,23/50mm REFUSAL	6		-	Extremely Weathered sandstone: silty SAND, medium to coarse grained, grey, with iron indurated bands.	XW	VD	110 270 200	HAWKESBURY SANDSTONE
						END OF BOREHOLE AT 6.3m				
			7							

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BOREHOLE LOG

Borehole No. **6**

1/1

Client: SYESUN PTY LTD - FLOWER POWER TERREY HILLS

Project: PROPOSED REDEVELOPMENT OF GARDEN CENTRE

Location: 277 MONA VALE ROAD, TERREY HILLS, NSW

Job No.: 34278B **Method:** SPIRAL AUGER **R.L. Surface:** ≈ 196.8m

Date: 13/8/21 **Datum:** AHD

Plant Type: JK400 **Logged/Checked by:** B.S./D.B.

Groundwater Record	SAMPLES (ES, U50, DB, DS)	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION			0			CONCRETE: 230mm.t				7mm DIA. REINFORCENMENT, 145mm TOP COVER
					-	FILL: Silty sand, fine to medium grained, brown and orange brown, trace of clay nodules.	M			
		N = 3 2,2,1	1		SM	Silty SAND: medium grained, orange brown, with clay.	M	L		RESIDUAL
		N = 15 3,6,9	2		CL	Gravelly sandy CLAY: low plasticity, grey and brown, fine to coarse grained ironstone gravel, coarse grained sand, trace of silt and coarse grained sand lenses.	w>PL	F	50 70 70	
		N = 20 7,13,7	3		SM/CL	Interbedded silty SAND and sandy CLAY: medium to coarse grained, low plasticity, light grey, trace of weakly cemented iron indurated bands, silty clay bands and fine grained quartz gravel.	M/ w>PL	MD/ St-VSt	190 250 200	
		N = 28 6,14,14	4		ML	Sandy SILT: low plasticity, light grey, fine grained sand, with silty sand bands, trace of silty clay lenses.	w<PL	VSt-Hd	220 410 400	
			5		-	Extremely Weathered sandstone: clayey sand, fine grained, purple brown, trace of silt.	XW	MD-D		HAWKESBURY SANDSTONE VERY LOW 'TC' BIT RESISTANCE
			6			END OF BOREHOLE AT 6.0m				
			7							

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BOREHOLE LOG

Borehole No. 7

Client: SYESUN PTY LTD - FLOWER POWER TERREY HILLS

Project: PROPOSED REDEVELOPMENT OF GARDEN CENTRE

Location: 277 MONA VALE ROAD, TERREY HILLS, NSW

Job No.: 34278B **Method:** SPIRAL AUGER **R.L. Surface:** ≈ 198.2m

Date: 13/8/21 **Datum:** AHD

Plant Type: JK400 **Logged/Checked by:** B.S./D.B.

Groundwater Record	SAMPLES (ES, U50, DB, DS)	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
		N = 9 4,5,4	0			FILL: Gravelly silty sand, fine to medium grained, dark brown, fine to coarse grained igneous gravel, trace of concrete, tile and brick fragments, and ash.	M			APPEARS MODERATELY COMPACTED
			1			as above, but with steel and glass fragments.				
▶							W			ORGANIC ODOUR
▼ ON COMPLET-ION		N = 1 2,1,0	2							APPEARS POORLY COMPACTED
						FILL: Sandy clay, low plasticity, dark grey and brown, fine grained sand, trace of fine to medium grained igneous gravel, carbonaceous, trace of roots, silt and steel fragments.	w>PL			
		N = 24 5,10,14	3		CI	Silty CLAY: medium plasticity, red brown mottled grey, with iron indurated bands.	w<PL	Hd		RESIDUAL TOO FRIABLE FOR HP TESTING
			4							
		N = SPT 17/150mm REFUSAL	5		-	Extremely Weathered sandstone: clayey SAND, fine grained, red brown and grey, trace of silt.	XW	VD		HAWKESBURY SANDSTONE VERY LOW 'TC' BIT RESISTANCE
			6			END OF BOREHOLE AT 6.0m				
			7							

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BOREHOLE LOG

Borehole No. **8**

1/1

Client: SYESUN PTY LTD - FLOWER POWER TERREY HILLS

Project: PROPOSED REDEVELOPMENT OF GARDEN CENTRE

Location: 277 MONA VALE ROAD, TERREY HILLS, NSW

Job No.: 34278B **Method:** SPIRAL AUGER **R.L. Surface:** ≈ 201.5m

Date: 13/8/21 **Datum:** AHD

Plant Type: JK400 **Logged/Checked by:** B.S./D.B.

Groundwater Record	SAMPLES (ES, U50, DB, DS)	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
			0			FILL: Silty sand, fine to medium grained, dark brown, trace of medium to coarse grained igneous gravel, concrete and timber fragments.	M			APPEARS POORLY COMPACTED
		N = 2 2,1,1	1			FILL: Silty sand, medium grained, yellow brown and brown, trace of medium to coarse grained sandstone gravel, trace of fine grained igneous gravel.				
		N = 6 5,4,2	2		SM	Gravelly silty SAND: medium grained, yellow brown and orange brown, medium to coarse grained ironstone gravel, trace of clay fines.	M	L		RESIDUAL
		N = SPT 14/100mm REFUSAL	3		-	Extremely Weathered sandstone: sandy CLAY, low to medium plasticity, red brown, grey and orange brown, fine to medium grained sand, trace of silt.	DW	VD		HAWKESBURY SANDSTONE VERY LOW 'TC' BIT RESISTANCE
ON COMPLET-ION			5			SANDSTONE: medium grained, grey, with iron indurated and extremely weathered bands.	DW	VL		VERY LOW TO LOW RESISTANCE
			6			END OF BOREHOLE AT 6.0m				
			7							

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BOREHOLE LOG

Borehole No. **9**

1/1

Client: SYESUN PTY LTD - FLOWER POWER TERREY HILLS

Project: PROPOSED REDEVELOPMENT OF GARDEN CENTRE

Location: 277 MONA VALE ROAD, TERREY HILLS, NSW

Job No.: 34278B **Method:** SPIRAL AUGER **R.L. Surface:** ≈ 201.9m

Date: 13/8/21 **Datum:** AHD

Plant Type: JK400 **Logged/Checked by:** B.S./D.B.

Groundwater Record	SAMPLES (ES, U50, DB, DS)	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
			0			FILL: Gravelly silty sand, fine to medium grained, dark brown, medium to coarse grained igneous and ironstone gravel, trace of concrete, brick and tile fragments.	M			APPEARS MODERATELY TO WELL COMPACTED
		N = 13 15,9,4			SM	Gravelly silty SAND: medium grained, orange brown, fine to coarse grained ironstone gravel.	M			RESIDUAL
			1			Silty SAND: medium grained, orange brown, trace of clay fines.				
		N > 4 10,4/10mm REFUSAL			-	SANDSTONE: fine to coarse grained, yellow brown and red brown, with medium strength bands and extremely weathered bands.	DW	VL		HAWKESBURY SANDSTONE VERY LOW 'TC' BIT RESISTANCE WITH LOW BANDS
			2							
			3			as above, but orange brown and grey, with iron indurated bands.				
			4							
			5							
▶ ▼ ON COMPLET-ION			6			END OF BOREHOLE AT 6.0m				
			7							

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BOREHOLE LOG

Borehole No. **10**

1/1

Client: SYESUN PTY LTD - FLOWER POWER TERREY HILLS

Project: PROPOSED REDEVELOPMENT OF GARDEN CENTRE

Location: 277 MONA VALE ROAD, TERREY HILLS, NSW

Job No.: 34278B **Method:** SPIRAL AUGER **R.L. Surface:** ≈ 203.0m

Date: 13/8/21 **Datum:** AHD

Plant Type: JK400 **Logged/Checked by:** B.S./D.B.

Groundwater Record	SAMPLES (ES, U50, DB, DS)	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION			0			FILL: Gravelly silty sand, fine to medium grained, dark brown, fine to medium grained, igneous and ironstone gravel, trace plastic, concrete and glass fragments.	M			
					SM	Gravelly silty SAND: medium grained, orange brown, medium to coarse grained ironstone gravel.	M	L		RESIDUAL
		N = 5 3,2,3	1							
					-	Extremely Weathered sandstone: sandy clay, low plasticity, grey mottled orange brown, medium grained sand, trace of silt.	XW	(Hd)		HAWKESBURY SANDSTONE
		N = SPT 6/50mm REFUSAL					DW	VL-L		VERY LOW 'TC' BIT RESISTANCE
			2			SANDSTONE: medium grained, grey and orange brown, with extremely weathered and iron indurated bands.		H		LOW RESISTANCE HIGH RESISTANCE
						SANDSTONE: coarse grained, red brown and grey.				'TC' BIT REFUSAL
						END OF BOREHOLE AT 2.2m				
			3							
			4							
			5							
			6							
			7							

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ENVIRONMENTAL LOGS EXPLANATION NOTES

INTRODUCTION

These notes have been provided to amplify the environmental report in regard to classification methods, field procedures and certain matters relating to the logging of soil and rock. Not all notes are necessarily relevant to all reports.

Where geotechnical borehole logs are utilised for environmental purpose, reference should also be made to the explanatory notes included in the geotechnical report. Environmental logs are not suitable for geotechnical purposes.

The ground is a product of continuing natural and man-made processes and therefore exhibits a variety of characteristics and properties which vary from place to place and can change with time. Environmental studies include gathering and assimilating limited facts about these characteristics and properties in order to understand or predict the behaviour of the ground on a particular site under certain conditions. This report may contain such facts obtained by inspection, excavation, probing, sampling, testing or other means of investigation. If so, they are directly relevant only to the ground at the place where and time when the investigation was carried out.

DESCRIPTION AND CLASSIFICATION METHODS

The methods of description and classification of soils and rocks used in this report are based on Australian Standard 1726:2017 *'Geotechnical Site Investigations'*. In general, descriptions cover the following properties – soil or rock type, colour, structure, strength or density, and inclusions. Identification and classification of soil and rock involves judgement and the Company infers accuracy only to the extent that is common in current geoenvironmental practice.

Soil types are described according to the predominating particle size and behaviour as set out in the attached soil classification table qualified by the grading of other particles present (eg. sandy clay) as set out below:

Soil Classification	Particle Size
Clay	< 0.002mm
Silt	0.002 to 0.075mm
Sand	0.075 to 2.36mm
Gravel	2.36 to 63mm
Cobbles	63 to 200mm
Boulders	> 200mm

Non-cohesive soils are classified on the basis of relative density, generally from the results of Standard Penetration Test (SPT) as below:

Relative Density	SPT 'N' Value (blows/300mm)
Very loose (VL)	< 4
Loose (L)	4 to 10
Medium dense (MD)	10 to 30
Dense (D)	30 to 50
Very Dense (VD)	> 50

Cohesive soils are classified on the basis of strength (consistency) either by use of a hand penetrometer, vane shear, laboratory testing and/or tactile engineering examination. The strength terms are defined as follows.

Classification	Unconfined Compressive Strength (kPa)	Indicative Undrained Shear Strength (kPa)
Very Soft (VS)	≤ 25	≤ 12
Soft (S)	> 25 and ≤ 50	> 12 and ≤ 25
Firm (F)	> 50 and ≤ 100	> 25 and ≤ 50
Stiff (St)	> 100 and ≤ 200	> 50 and ≤ 100
Very Stiff (VSt)	> 200 and ≤ 400	> 100 and ≤ 200
Hard (Hd)	> 400	> 200
Friable (Fr)	Strength not attainable – soil crumbles	

Rock types are classified by their geological names, together with descriptive terms regarding weathering, strength, defects, etc. Where relevant, further information regarding rock classification is given in the text of the report. In the Sydney Basin, 'shale' is used to describe fissile mudstone, with a weakness parallel to bedding. Rocks with alternating inter-laminations of different grain size (eg. siltstone/claystone and siltstone/fine grained sandstone) are referred to as 'laminite'.

INVESTIGATION METHODS

The following is a brief summary of investigation methods currently adopted by the Company and some comments on their use and application. All methods except test pits, hand auger drilling and portable Dynamic Cone Penetrometers require the use of a mechanical rig which is commonly mounted on a truck chassis or track base.

Test Pits: These are normally excavated with a backhoe or a tracked excavator, allowing close examination of the insitu soils and 'weaker' bedrock if it is safe to descend into the pit. The depth of penetration is limited to about 3m for a backhoe and up to 6m for a large excavator. Limitations of test pits are the problems associated with disturbance and difficulty of reinstatement and the consequent effects on close-by structures. Care must be taken if construction is to be carried out near test pit locations to either properly recompact the backfill during construction or to design and construct the

structure so as not to be adversely affected by poorly compacted backfill at the test pit location.

Hand Auger Drilling: A borehole of 50mm to 100mm diameter is advanced by manually operated equipment. Refusal of the hand auger can occur on a variety of materials such as obstructions within any fill, tree roots, hard clay, gravel or ironstone, cobbles and boulders, and does not necessarily indicate rock level.

Continuous Spiral Flight Augers: The borehole is advanced using 75mm to 115mm diameter continuous spiral flight augers, which are withdrawn at intervals to allow sampling and insitu testing. This is a relatively economical means of drilling in clays and in sands above the water table. Samples are returned to the surface by the flights or may be collected after withdrawal of the auger flights, but they can be very disturbed and layers may become mixed. Information from the auger sampling (as distinct from specific sampling by SPTs or undisturbed samples) is of limited reliability due to mixing or softening of samples by groundwater, or uncertainties as to the original depth of the samples. Augering below the groundwater table is of even lesser reliability than augering above the water table.

Rock Augering: Use can be made of a Tungsten Carbide (TC) bit for auger drilling into rock to indicate rock quality and continuity by variation in drilling resistance and from examination of recovered rock cuttings. This method of investigation is quick and relatively inexpensive but provides only an indication of the likely rock strength and predicted values may be in error by a strength order. Where rock strengths may have a significant impact on construction feasibility or costs, then further investigation by means of cored boreholes may be warranted.

Wash Boring: The borehole is usually advanced by a rotary bit, with water being pumped down the drill rods and returned up the annulus, carrying the drill cuttings. Only major changes in stratification can be assessed from the cuttings, together with some information from "feel" and rate of penetration.

Mud Stabilised Drilling: Either Wash Boring or Continuous Core Drilling can use drilling mud as a circulating fluid to stabilise the borehole. The term 'mud' encompasses a range of products ranging from bentonite to polymers. The mud tends to mask the cuttings and reliable identification is only possible from intermittent intact sampling (eg. from SPT and U50 samples) or from rock coring, etc.

Continuous Core Drilling: A continuous core sample is obtained using a diamond tipped core barrel. Provided full core recovery is achieved (which is not always possible in very low strength rocks and granular soils), this technique provides a very reliable (but relatively expensive) method of investigation. In rocks, NMLC or HQ triple tube core barrels, which give a core of about 50mm and 61mm diameter, respectively, is usually used with water flush. The length of core recovered is compared to the length drilled and any length not recovered is shown as NO CORE. The location of NO CORE recovery is determined on site by the supervising engineer; where the location is uncertain, the loss is placed at the bottom of the drill run.

Standard Penetration Tests: Standard Penetration Tests (SPT) are used mainly in non-cohesive soils, but can also be used in cohesive soils, as a means of indicating density or strength and also of obtaining a relatively undisturbed sample. The test procedure is described in Australian Standard 1289.6.3.1–2004 (R2016) *'Methods of Testing Soils for Engineering Purposes, Soil Strength and Consolidation Tests – Determination of the Penetration Resistance of a Soil – Standard Penetration Test (SPT)'*.

The test is carried out in a borehole by driving a 50mm diameter split sample tube with a tapered shoe, under the impact of a 63.5kg hammer with a free fall of 760mm. It is normal for the tube to be driven in three successive 150mm increments and the 'N' value is taken as the number of blows for the last 300mm. In dense sands, very hard clays or weak rock, the full 450mm penetration may not be practicable and the test is discontinued.

The test results are reported in the following form:

- In the case where full penetration is obtained with successive blow counts for each 150mm of, say, 4, 6 and 7 blows, as

  N = 13
  4, 6, 7

- In a case where the test is discontinued short of full penetration, say after 15 blows for the first 150mm and 30 blows for the next 40mm, as

  N > 30
  15, 30/40mm

The results of the test can be related empirically to the engineering properties of the soil.

A modification to the SPT is where the same driving system is used with a solid 60° tipped steel cone of the same diameter as the SPT hollow sampler. The solid cone can be continuously driven for some distance in soft clays or loose sands, or may be used where damage would otherwise occur to the SPT. The results of this Solid Cone Penetration Test (SCPT) are shown as 'N_c' on the borehole logs, together with the number of blows per 150mm penetration.

LOGS

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

The terms and symbols used in preparation of the logs are defined in the following pages.

Interpretation of the information shown on the logs, and its application to design and construction, should therefore take into account the spacing of boreholes or test pits, the method of drilling or excavation, the frequency of sampling and testing and the possibility of other than 'straight line' variations between the boreholes or test pits. Subsurface conditions between boreholes or test pits may vary significantly from conditions encountered at the borehole or test pit locations.

GROUNDWATER

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

- Although groundwater may be present, in low permeability soils it may enter the hole slowly or perhaps not at all during the time it is left open.
- A localised perched water table may lead to an erroneous indication of the true water table.
- Water table levels will vary from time to time with seasons or recent weather changes and may not be the same at the time of construction.
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must be washed out of the hole or 'reverted' chemically if reliable water observations are to be made.

More reliable measurements can be made by installing standpipes which are read after the groundwater level has stabilised at intervals ranging from several days to perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from perched water tables or surface water.

FILL

The presence of fill materials can often be determined only by the inclusion of foreign objects (eg. bricks, steel, etc) or by distinctly unusual colour, texture or fabric. Identification of the extent of fill materials will also depend on investigation methods and frequency. Where natural soils similar to those at the site are used for fill, it may be difficult with limited testing and sampling to reliably assess the extent of the fill.

The presence of fill materials is usually regarded with caution as the possible variation in density and material type is much greater than with natural soil deposits. Consequently, there is an increased risk of adverse environmental characteristics or behaviour. If the volume and nature of fill is of importance to a project, then frequent test pit excavations are preferable to boreholes.

LABORATORY TESTING

Laboratory testing has not been undertaken to confirm the soil classification and rock strengths indicated on the environmental logs unless noted in the report.

SYMBOL LEGENDS

SOIL

- FILL
- TOPSOIL
- CLAY (CL, CI, CH)
- SILT (ML, MH)
- SAND (SP, SW)
- GRAVEL (GP, GW)
- SANDY CLAY (CL, CI, CH)
- SILTY CLAY (CL, CI, CH)
- CLAYEY SAND (SC)
- SILTY SAND (SM)
- GRAVELLY CLAY (CL, CI, CH)
- CLAYEY GRAVEL (GC)
- SANDY SILT (ML, MH)
- PEAT AND HIGHLY ORGANIC SOILS (Pt)

ROCK

- CONGLOMERATE
- SANDSTONE
- SHALE/MUDSTONE
- SILTSTONE
- CLAYSTONE
- COAL
- LAMINITE
- LIMESTONE
- PHYLLITE, SCHIST
- TUFF
- GRANITE, GABBRO
- DOLERITE, DIORITE
- BASALT, ANDESITE
- QUARTZITE

OTHER MATERIALS

- BRICKS OR PAVERS
- CONCRETE
- ASPHALTIC CONCRETE

CLASSIFICATION OF COARSE AND FINE GRAINED SOILS

Major Divisions		Group Symbol	Typical Names	Field Classification of Sand and Gravel	Laboratory Classification	
Coarse grained soil (more than 65% of soil excluding oversize fraction is greater than 0.075mm)	GRAVEL (more than half of coarse fraction is larger than 2.36mm	GW	Gravel and gravel-sand mixtures, little or no fines	Wide range in grain size and substantial amounts of all intermediate sizes, not enough fines to bind coarse grains, no dry strength	≤ 5% fines	$C_u > 4$ $1 < C_c < 3$
		GP	Gravel and gravel-sand mixtures, little or no fines, uniform gravels	Predominantly one size or range of sizes with some intermediate sizes missing, not enough fines to bind coarse grains, no dry strength	≤ 5% fines	Fails to comply with above
		GM	Gravel-silt mixtures and gravel-sand-silt mixtures	'Dirty' materials with excess of non-plastic fines, zero to medium dry strength	≥ 12% fines, fines are silty	Fines behave as silt
		GC	Gravel-clay mixtures and gravel-sand-clay mixtures	'Dirty' materials with excess of plastic fines, medium to high dry strength	≥ 12% fines, fines are clayey	Fines behave as clay
	SAND (more than half of coarse fraction is smaller than 2.36mm)	SW	Sand and gravel-sand mixtures, little or no fines	Wide range in grain size and substantial amounts of all intermediate sizes, not enough fines to bind coarse grains, no dry strength	≤ 5% fines	$C_u > 6$ $1 < C_c < 3$
		SP	Sand and gravel-sand mixtures, little or no fines	Predominantly one size or range of sizes with some intermediate sizes missing, not enough fines to bind coarse grains, no dry strength	≤ 5% fines	Fails to comply with above
		SM	Sand-silt mixtures	'Dirty' materials with excess of non-plastic fines, zero to medium dry strength	≥ 12% fines, fines are silty	N/A
		SC	Sand-clay mixtures	'Dirty' materials with excess of plastic fines, medium to high dry strength	≥ 12% fines, fines are clayey	

Major Divisions		Group Symbol	Typical Names	Field Classification of Silt and Clay			Laboratory Classification
				Dry Strength	Dilatancy	Toughness	% < 0.075mm
ine grained soils (more than 35% of soil excluding oversize fraction is less than 0.075mm)	SILT and CLAY (low to medium plasticity)	ML	Inorganic silt and very fine sand, rock flour, silty or clayey fine sand or silt with low plasticity	None to low	Slow to rapid	Low	Below A line
		CL, CI	Inorganic clay of low to medium plasticity, gravelly clay, sandy clay	Medium to high	None to slow	Medium	Above A line
		OL	Organic silt	Low to medium	Slow	Low	Below A line
	SILT and CLAY (high plasticity)	MH	Inorganic silt	Low to medium	None to slow	Low to medium	Below A line
		CH	Inorganic clay of high plasticity	High to very high	None	High	Above A line
		OH	Organic clay of medium to high plasticity, organic silt	Medium to high	None to very slow	Low to medium	Below A line
	Highly organic soil	Pt	Peat, highly organic soil	–	–	–	–

Laboratory Classification Criteria

A well graded coarse grained soil is one for which the coefficient of uniformity $Cu > 4$ and the coefficient of curvature $1 < C_c < 3$. Otherwise, the soil is poorly graded. These coefficients are given by:

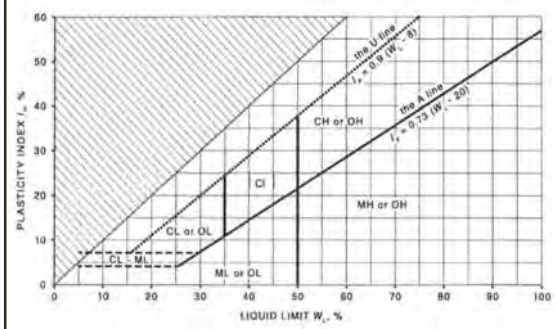
$$C_U = \frac{D_{60}}{D_{10}} \qquad and \qquad C_C = \frac{(D_{30})^2}{D_{10}\,D_{60}}$$

Where D_{10}, D_{30} and D_{60} are those grain sizes for which 10%, 30% and 60% of the soil grains, respectively, are smaller.

NOTES:

1. For a coarse grained soil with a fines content between 5% and 12%, the soil is given a dual classification comprising the two group symbols separated by a dash; for example, for a poorly graded gravel with between 5% and 12% silt fines, the classification is GP-GM.
2. Where the grading is determined from laboratory tests, it is defined by coefficients of curvature (C_c) and uniformity (C_u) derived from the particle size distribution curve.
3. Clay soils with liquid limits > 35% and ≤ 50% may be classified as being of medium plasticity.
4. The U line on the Modified Casagrande Chart is an approximate upper bound for most natural soils.

Modified Casagrande Chart for Classifying Silts and Clays according to their Behaviour



LOG SYMBOLS

Log Column	Symbol	Definition
Groundwater Record	▼	Standing water level. Time delay following completion of drilling/excavation may be shown.
	C	Extent of borehole/test pit collapse shortly after drilling/excavation.
	▶	Groundwater seepage into borehole or test pit noted during drilling or excavation.
Samples	ES	Sample taken over depth indicated, for environmental analysis.
	U50	Undisturbed 50mm diameter tube sample taken over depth indicated.
	DB	Bulk disturbed sample taken over depth indicated.
	DS	Small disturbed bag sample taken over depth indicated.
	ASB	Soil sample taken over depth indicated, for asbestos analysis.
	ASS	Soil sample taken over depth indicated, for acid sulfate soil analysis.
	SAL	Soil sample taken over depth indicated, for salinity analysis.
	PFAS	Soil sample taken over depth indicated, for analysis of Per- and Polyfluoroalkyl Substances.
Field Tests	N = 17 4, 7, 10	Standard Penetration Test (SPT) performed between depths indicated by lines. Individual figures show blows per 150mm penetration. 'Refusal' refers to apparent hammer refusal within the corresponding 150mm depth increment.
	N_c = 5 7 3R	Solid Cone Penetration Test (SCPT) performed between depths indicated by lines. Individual figures show blows per 150mm penetration for 60° solid cone driven by SPT hammer. 'R' refers to apparent hammer refusal within the corresponding 150mm depth increment.
	VNS = 25 PID = 100	Vane shear reading in kPa of undrained shear strength. Photoionisation detector reading in ppm (soil sample headspace test).
Moisture Condition (Fine Grained Soils)	w > PL	Moisture content estimated to be greater than plastic limit.
	$w \approx$ PL	Moisture content estimated to be approximately equal to plastic limit.
	w < PL	Moisture content estimated to be less than plastic limit.
	$w \approx$ LL	Moisture content estimated to be near liquid limit.
	w > LL	Moisture content estimated to be wet of liquid limit.
(Coarse Grained Soils)	D	DRY – runs freely through fingers.
	M	MOIST – does not run freely but no free water visible on soil surface.
	W	WET – free water visible on soil surface.
Strength (Consistency) Cohesive Soils	VS	VERY SOFT – unconfined compressive strength ≤ 25kPa.
	S	SOFT – unconfined compressive strength > 25kPa and ≤ 50kPa.
	F	FIRM – unconfined compressive strength > 50kPa and ≤ 100kPa.
	St	STIFF – unconfined compressive strength > 100kPa and ≤ 200kPa.
	VSt	VERY STIFF – unconfined compressive strength > 200kPa and ≤ 400kPa.
	Hd	HARD – unconfined compressive strength > 400kPa.
	Fr	FRIABLE – strength not attainable, soil crumbles.
	( )	Bracketed symbol indicates estimated consistency based on tactile examination or other assessment.
Density Index/ Relative Density (Cohesionless Soils)		**Density Index (I_D) Range (%)** / **SPT 'N' Value Range (Blows/300mm)**
	VL	VERY LOOSE – ≤ 15 – 0 – 4
	L	LOOSE – > 15 and ≤ 35 – 4 – 10
	MD	MEDIUM DENSE – > 35 and ≤ 65 – 10 – 30
	D	DENSE – > 65 and ≤ 85 – 30 – 50
	VD	VERY DENSE – > 85 – > 50
	( )	Bracketed symbol indicates estimated density based on ease of drilling or other assessment.

Log Column	Symbol	Definition
Hand Penetrometer Readings	300 250	Measures reading in kPa of unconfined compressive strength. Numbers indicate individual test results on representative undisturbed material unless noted otherwise.
Remarks	'V' bit	Hardened steel 'V' shaped bit.
	'TC' bit	Twin pronged tungsten carbide bit.
	T_{60}	Penetration of auger string in mm under static load of rig applied by drill head hydraulics without rotation of augers.
	Soil Origin	The geological origin of the soil can generally be described as:
		RESIDUAL – soil formed directly from insitu weathering of the underlying rock. No visible structure or fabric of the parent rock.
		EXTREMELY WEATHERED – soil formed directly from insitu weathering of the underlying rock. Material is of soil strength but retains the structure and/or fabric of the parent rock.
		ALLUVIAL – soil deposited by creeks and rivers.
		ESTUARINE – soil deposited in coastal estuaries, including sediments caused by inflowing creeks and rivers, and tidal currents.
		MARINE – soil deposited in a marine environment.
		AEOLIAN – soil carried and deposited by wind.
		COLLUVIAL – soil and rock debris transported downslope by gravity, with or without the assistance of flowing water. Colluvium is usually a thick deposit formed from a landslide. The description 'slopewash' is used for thinner surficial deposits.
		LITTORAL – beach deposited soil.

Classification of Material Weathering

Term		Abbreviation		Definition
Residual Soil		RS		Material is weathered to such an extent that it has soil properties. Mass structure and material texture and fabric of original rock are no longer visible, but the soil has not been significantly transported.
Extremely Weathered		XW		Material is weathered to such an extent that it has soil properties. Mass structure and material texture and fabric of original rock are still visible.
Highly Weathered	Distinctly Weathered (Note 1)	HW	DW	The whole of the rock material is discoloured, usually by iron staining or bleaching to the extent that the colour of the original rock is not recognisable. Rock strength is significantly changed by weathering. Some primary minerals have weathered to clay minerals. Porosity may be increased by leaching, or may be decreased due to deposition of weathering products in pores.
Moderately Weathered		MW		The whole of the rock material is discoloured, usually by iron staining or bleaching to the extent that the colour of the original rock is not recognisable, but shows little or no change of strength from fresh rock.
Slightly Weathered		SW		Rock is partially discoloured with staining or bleaching along joints but shows little or no change of strength from fresh rock.
Fresh		FR		Rock shows no sign of decomposition of individual minerals or colour changes.

NOTE 1: The term 'Distinctly Weathered' is used where it is not practicable to distinguish between 'Highly Weathered' and 'Moderately Weathered' rock. 'Distinctly Weathered' is defined as follows: *'Rock strength usually changed by weathering. The rock may be highly discoloured, usually by iron staining. Porosity may be increased by leaching, or may be decreased due to deposition of weathering products in pores'*. There is some change in rock strength.

Rock Material Strength Classification

Term	Abbreviation	Uniaxial Compressive Strength (MPa)	Guide to Strength	
			Point Load Strength Index $Is_{(50)}$ (MPa)	Field Assessment
Very Low Strength	VL	0.6 to 2	0.03 to 0.1	Material crumbles under firm blows with sharp end of pick; can be peeled with knife; too hard to cut a triaxial sample by hand. Pieces up to 30mm thick can be broken by finger pressure.
Low Strength	L	2 to 6	0.1 to 0.3	Easily scored with a knife; indentations 1mm to 3mm show in the specimen with firm blows of the pick point; has dull sound under hammer. A piece of core 150mm long by 50mm diameter may be broken by hand. Sharp edges of core may be friable and break during handling.
Medium Strength	M	6 to 20	0.3 to 1	Scored with a knife; a piece of core 150mm long by 50mm diameter can be broken by hand with difficulty.
High Strength	H	20 to 60	1 to 3	A piece of core 150mm long by 50mm diameter cannot be broken by hand but can be broken by a pick with a single firm blow; rock rings under hammer.
Very High Strength	VH	60 to 200	3 to 10	Hand specimen breaks with pick after more than one blow; rock rings under hammer.
Extremely High Strength	EH	> 200	> 10	Specimen requires many blows with geological pick to break through intact material; rock rings under hammer.

Appendix E: Laboratory Report(s) & COC Documents

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CERTIFICATE OF ANALYSIS 276408

Client Details

Client	JK Environments
Attention	Todd Hore
Address	PO Box 976, North Ryde BC, NSW, 1670

Sample Details

Your Reference	**E34278PH, Terrey Hills**
Number of Samples	32 Soil
Date samples received	23/08/2021
Date completed instructions received	23/08/2021

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	30/08/2021
Date of Issue	27/08/2021

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Authorised by Asbestos Approved Signatory: Lucy Zhu

Results Approved By
Dragana Tomas, Senior Chemist
Hannah Nguyen, Metals Supervisor
Lucy Zhu, Asbestos Supervisor
Manju Dewendrage, Prep Team Leader
Steven Luong, Organics Supervisor

Authorised By

Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		276408-1	276408-2	276408-4	276408-7	276408-9
Your Reference	UNITS	BH1	BH1	BH2	BH3	BH4
Depth		0.1-0.2	0.6-0.7	0.6-0.7	0.1-0.2	0.1-0.2
Date Sampled		12/08/2021	12/08/2021	12/08/2021	12/08/2021	12/08/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	24/08/2021	24/08/2021	24/08/2021	24/08/2021	24/08/2021
Date analysed	-	24/08/2021	24/08/2021	24/08/2021	24/08/2021	24/08/2021
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	109	104	109	104	110

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		276408-11	276408-12	276408-13	276408-16	276408-17
Your Reference	UNITS	BH5	BH5	BH6	BH7	BH7
Depth		0.2-0.3	0.7-0.8	0.2-0.3	0.6-0.7	1.5-1.6
Date Sampled		12/08/2021	12/08/2021	13/08/2021	13/08/2021	13/08/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	24/08/2021	24/08/2021	24/08/2021	24/08/2021	24/08/2021
Date analysed	-	24/08/2021	24/08/2021	24/08/2021	24/08/2021	24/08/2021
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	108	106	104	113	101

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		276408-19	276408-22	276408-24	276408-25	276408-28
Your Reference	UNITS	BH7	BH8	BH8	BH9	BH10
Depth		2.4-2.5	0.6-0.7	1.6-1.7	0.1-0.2	0.1-0.2
Date Sampled		13/08/2021	13/08/2021	13/08/2021	13/08/2021	13/08/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	24/08/2021	24/08/2021	24/08/2021	24/08/2021	24/08/2021
Date analysed	-	24/08/2021	24/08/2021	24/08/2021	24/08/2021	24/08/2021
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<3	<3	<3	<3	<3
Surrogate aaa-Trifluorotoluene	%	106	97	108	105	117

vTRH(C6-C10)/BTEXN in Soil			
Our Reference		276408-30	276408-32
Your Reference	UNITS	BH1Dup	TB-S1
Depth		-	-
Date Sampled		12/08/2021	12/08/2021
Type of sample		Soil	Soil
Date extracted	-	24/08/2021	24/08/2021
Date analysed	-	24/08/2021	24/08/2021
TRH C_6 - C_9	mg/kg	<25	[NA]
TRH C_6 - C_{10}	mg/kg	<25	[NA]
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	[NA]
Benzene	mg/kg	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1
m+p-xylene	mg/kg	<2	<2
o-Xylene	mg/kg	<1	<1
naphthalene	mg/kg	<1	<1
Total +ve Xylenes	mg/kg	<3	<3
Surrogate aaa-Trifluorotoluene	%	101	108

svTRH (C10-C40) in Soil						
Our Reference		276408-1	276408-2	276408-4	276408-7	276408-9
Your Reference	UNITS	BH1	BH1	BH2	BH3	BH4
Depth		0.1-0.2	0.6-0.7	0.6-0.7	0.1-0.2	0.1-0.2
Date Sampled		12/08/2021	12/08/2021	12/08/2021	12/08/2021	12/08/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	24/08/2021	24/08/2021	24/08/2021	24/08/2021	24/08/2021
Date analysed	-	26/08/2021	26/08/2021	26/08/2021	26/08/2021	26/08/2021
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	350	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	450	<50	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	330	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	440	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	770	<50	<50	<50	<50
Surrogate o-Terphenyl	%	84	73	102	84	76

svTRH (C10-C40) in Soil						
Our Reference		276408-11	276408-12	276408-13	276408-16	276408-17
Your Reference	UNITS	BH5	BH5	BH6	BH7	BH7
Depth		0.2-0.3	0.7-0.8	0.2-0.3	0.6-0.7	1.5-1.6
Date Sampled		12/08/2021	12/08/2021	13/08/2021	13/08/2021	13/08/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	24/08/2021	24/08/2021	24/08/2021	24/08/2021	24/08/2021
Date analysed	-	26/08/2021	26/08/2021	26/08/2021	26/08/2021	26/08/2021
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	130
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	130
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	110	150
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	110	150
Surrogate o-Terphenyl	%	76	77	87	87	84

svTRH (C10-C40) in Soil						
Our Reference		276408-19	276408-22	276408-24	276408-25	276408-28
Your Reference	UNITS	BH7	BH8	BH8	BH9	BH10
Depth		2.4-2.5	0.6-0.7	1.6-1.7	0.1-0.2	0.1-0.2
Date Sampled		13/08/2021	13/08/2021	13/08/2021	13/08/2021	13/08/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	24/08/2021	24/08/2021	24/08/2021	24/08/2021	24/08/2021
Date analysed	-	26/08/2021	26/08/2021	26/08/2021	26/08/2021	26/08/2021
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	120	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	120	<50	<50	<50	<50
Surrogate o-Terphenyl	%	92	88	76	88	79

svTRH (C10-C40) in Soil		
Our Reference		276408-30
Your Reference	UNITS	BH1Dup
Depth		-
Date Sampled		12/08/2021
Type of sample		Soil
Date extracted	-	24/08/2021
Date analysed	-	26/08/2021
TRH C_{10} - C_{14}	mg/kg	<50
TRH C_{15} - C_{28}	mg/kg	<100
TRH C_{29} - C_{36}	mg/kg	300
Total +ve TRH (C10-C36)	mg/kg	300
TRH >C_{10} -C_{16}	mg/kg	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50
TRH >C_{16} -C_{34}	mg/kg	290
TRH >C_{34} -C_{40}	mg/kg	380
Total +ve TRH (>C10-C40)	mg/kg	670
Surrogate o-Terphenyl	%	84

PAHs in Soil						
Our Reference		276408-1	276408-2	276408-4	276408-7	276408-9
Your Reference	UNITS	BH1	BH1	BH2	BH3	BH4
Depth		0.1-0.2	0.6-0.7	0.6-0.7	0.1-0.2	0.1-0.2
Date Sampled		12/08/2021	12/08/2021	12/08/2021	12/08/2021	12/08/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	24/08/2021	23/08/2021	24/08/2021	24/08/2021	24/08/2021
Date analysed	-	24/08/2021	23/08/2021	24/08/2021	24/08/2021	24/08/2021
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.2	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	0.08	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	0.52	<0.05	<0.05	0.1	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	81	92	75	76	77

PAHs in Soil						
Our Reference		276408-11	276408-12	276408-13	276408-16	276408-17
Your Reference	UNITS	BH5	BH5	BH6	BH7	BH7
Depth		0.2-0.3	0.7-0.8	0.2-0.3	0.6-0.7	1.5-1.6
Date Sampled		12/08/2021	12/08/2021	13/08/2021	13/08/2021	13/08/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	24/08/2021	23/08/2021	24/08/2021	24/08/2021	23/08/2021
Date analysed	-	24/08/2021	23/08/2021	24/08/2021	24/08/2021	23/08/2021
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	1	0.2
Anthracene	mg/kg	<0.1	<0.1	<0.1	0.4	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	1.6	0.4
Pyrene	mg/kg	<0.1	<0.1	<0.1	1.5	0.3
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	0.8	0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	0.6	0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	1	0.3
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	0.75	0.2
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	0.8	0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	0.5	0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	9.0	1.8
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	1.0	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	1.1	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	1.1	<0.5
Surrogate p-Terphenyl-d14	%	75	93	85	79	92

PAHs in Soil						
Our Reference		276408-19	276408-22	276408-24	276408-25	276408-28
Your Reference	UNITS	BH7	BH8	BH8	BH9	BH10
Depth		2.4-2.5	0.6-0.7	1.6-1.7	0.1-0.2	0.1-0.2
Date Sampled		13/08/2021	13/08/2021	13/08/2021	13/08/2021	13/08/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	23/08/2021	24/08/2021	24/08/2021	24/08/2021	23/08/2021
Date analysed	-	23/08/2021	24/08/2021	24/08/2021	24/08/2021	23/08/2021
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	92	78	87	80	87

PAHs in Soil		
Our Reference		276408-30
Your Reference	UNITS	BH1Dup
Depth		-
Date Sampled		12/08/2021
Type of sample		Soil
Date extracted	-	23/08/2021
Date analysed	-	23/08/2021
Naphthalene	mg/kg	<0.1
Acenaphthylene	mg/kg	<0.1
Acenaphthene	mg/kg	<0.1
Fluorene	mg/kg	<0.1
Phenanthrene	mg/kg	<0.1
Anthracene	mg/kg	<0.1
Fluoranthene	mg/kg	<0.1
Pyrene	mg/kg	0.1
Benzo(a)anthracene	mg/kg	<0.1
Chrysene	mg/kg	0.1
Benzo(b,j+k)fluoranthene	mg/kg	0.3
Benzo(a)pyrene	mg/kg	0.1
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1
Benzo(g,h,i)perylene	mg/kg	0.1
Total +ve PAH's	mg/kg	0.79
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5
Surrogate p-Terphenyl-d14	%	90

Organochlorine Pesticides in soil						
Our Reference		276408-1	276408-4	276408-7	276408-9	276408-11
Your Reference	UNITS	BH1	BH2	BH3	BH4	BH5
Depth		0.1-0.2	0.6-0.7	0.1-0.2	0.1-0.2	0.2-0.3
Date Sampled		12/08/2021	12/08/2021	12/08/2021	12/08/2021	12/08/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	24/08/2021	24/08/2021	24/08/2021	24/08/2021	24/08/2021
Date analysed	-	24/08/2021	24/08/2021	24/08/2021	24/08/2021	24/08/2021
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	91	91	90	93	93

Organochlorine Pesticides in soil						
Our Reference		276408-13	276408-16	276408-22	276408-25	276408-28
Your Reference	UNITS	BH6	BH7	BH8	BH9	BH10
Depth		0.2-0.3	0.6-0.7	0.6-0.7	0.1-0.2	0.1-0.2
Date Sampled		13/08/2021	13/08/2021	13/08/2021	13/08/2021	13/08/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	24/08/2021	24/08/2021	24/08/2021	24/08/2021	23/08/2021
Date analysed	-	24/08/2021	24/08/2021	24/08/2021	24/08/2021	23/08/2021
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	90	93	93	90	91

Organophosphorus Pesticides in Soil						
Our Reference		276408-1	276408-4	276408-7	276408-9	276408-11
Your Reference	UNITS	BH1	BH2	BH3	BH4	BH5
Depth		0.1-0.2	0.6-0.7	0.1-0.2	0.1-0.2	0.2-0.3
Date Sampled		12/08/2021	12/08/2021	12/08/2021	12/08/2021	12/08/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	24/08/2021	24/08/2021	24/08/2021	24/08/2021	24/08/2021
Date analysed	-	24/08/2021	24/08/2021	24/08/2021	24/08/2021	24/08/2021
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	91	91	90	93	93

Organophosphorus Pesticides in Soil						
Our Reference		276408-13	276408-16	276408-22	276408-25	276408-28
Your Reference	UNITS	BH6	BH7	BH8	BH9	BH10
Depth		0.2-0.3	0.6-0.7	0.6-0.7	0.1-0.2	0.1-0.2
Date Sampled		13/08/2021	13/08/2021	13/08/2021	13/08/2021	13/08/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	24/08/2021	24/08/2021	24/08/2021	24/08/2021	23/08/2021
Date analysed	-	24/08/2021	24/08/2021	24/08/2021	24/08/2021	23/08/2021
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	90	93	93	90	91

PCBs in Soil						
Our Reference		276408-1	276408-4	276408-7	276408-9	276408-11
Your Reference	UNITS	BH1	BH2	BH3	BH4	BH5
Depth		0.1-0.2	0.6-0.7	0.1-0.2	0.1-0.2	0.2-0.3
Date Sampled		12/08/2021	12/08/2021	12/08/2021	12/08/2021	12/08/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	24/08/2021	24/08/2021	24/08/2021	24/08/2021	24/08/2021
Date analysed	-	24/08/2021	24/08/2021	24/08/2021	24/08/2021	24/08/2021
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	91	91	90	93	93

PCBs in Soil						
Our Reference		276408-13	276408-16	276408-22	276408-25	276408-28
Your Reference	UNITS	BH6	BH7	BH8	BH9	BH10
Depth		0.2-0.3	0.6-0.7	0.6-0.7	0.1-0.2	0.1-0.2
Date Sampled		13/08/2021	13/08/2021	13/08/2021	13/08/2021	13/08/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	24/08/2021	24/08/2021	24/08/2021	24/08/2021	23/08/2021
Date analysed	-	24/08/2021	24/08/2021	24/08/2021	24/08/2021	23/08/2021
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	90	93	93	90	91

Acid Extractable metals in soil						
Our Reference		276408-1	276408-2	276408-4	276408-7	276408-9
Your Reference	UNITS	BH1	BH1	BH2	BH3	BH4
Depth		0.1-0.2	0.6-0.7	0.6-0.7	0.1-0.2	0.1-0.2
Date Sampled		12/08/2021	12/08/2021	12/08/2021	12/08/2021	12/08/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	25/08/2021	25/08/2021	25/08/2021	25/08/2021	25/08/2021
Date analysed	-	25/08/2021	25/08/2021	25/08/2021	25/08/2021	25/08/2021
Arsenic	mg/kg	<4	11	8	<4	18
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	19	58	22	87	9
Copper	mg/kg	45	1	13	27	2
Lead	mg/kg	12	4	40	10	6
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	45	3	11	91	2
Zinc	mg/kg	53	2	540	65	9

Acid Extractable metals in soil						
Our Reference		276408-11	276408-12	276408-13	276408-16	276408-17
Your Reference	UNITS	BH5	BH5	BH6	BH7	BH7
Depth		0.2-0.3	0.7-0.8	0.2-0.3	0.6-0.7	1.5-1.6
Date Sampled		12/08/2021	12/08/2021	13/08/2021	13/08/2021	13/08/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	25/08/2021	25/08/2021	25/08/2021	25/08/2021	25/08/2021
Date analysed	-	25/08/2021	25/08/2021	25/08/2021	25/08/2021	25/08/2021
Arsenic	mg/kg	<4	<4	<4	9	6
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	13	17	16	36	21
Copper	mg/kg	3	2	1	12	8
Lead	mg/kg	8	3	3	20	8
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	2	1	2	17	8
Zinc	mg/kg	37	7	3	57	34

Acid Extractable metals in soil						
Our Reference		276408-19	276408-22	276408-24	276408-25	276408-28
Your Reference	UNITS	BH7	BH8	BH8	BH9	BH10
Depth		2.4-2.5	0.6-0.7	1.6-1.7	0.1-0.2	0.1-0.2
Date Sampled		13/08/2021	13/08/2021	13/08/2021	13/08/2021	13/08/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	25/08/2021	25/08/2021	25/08/2021	25/08/2021	25/08/2021
Date analysed	-	25/08/2021	25/08/2021	25/08/2021	25/08/2021	25/08/2021
Arsenic	mg/kg	17	4	<4	15	<4
Cadmium	mg/kg	0.6	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	58	12	18	49	9
Copper	mg/kg	19	5	<1	6	7
Lead	mg/kg	28	15	3	6	16
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	23	4	<1	12	4
Zinc	mg/kg	99	19	3	15	30

Acid Extractable metals in soil		
Our Reference		276408-30
Your Reference	UNITS	BH1Dup
Depth		-
Date Sampled		12/08/2021
Type of sample		Soil
Date prepared	-	25/08/2021
Date analysed	-	25/08/2021
Arsenic	mg/kg	<4
Cadmium	mg/kg	<0.4
Chromium	mg/kg	15
Copper	mg/kg	43
Lead	mg/kg	11
Mercury	mg/kg	<0.1
Nickel	mg/kg	47
Zinc	mg/kg	43

Moisture						
Our Reference		276408-1	276408-2	276408-4	276408-7	276408-9
Your Reference	UNITS	BH1	BH1	BH2	BH3	BH4
Depth		0.1-0.2	0.6-0.7	0.6-0.7	0.1-0.2	0.1-0.2
Date Sampled		12/08/2021	12/08/2021	12/08/2021	12/08/2021	12/08/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	24/08/2021	24/08/2021	24/08/2021	24/08/2021	24/08/2021
Date analysed	-	25/08/2021	25/08/2021	25/08/2021	25/08/2021	25/08/2021
Moisture	%	4.9	11	13	6.9	5.2

Moisture						
Our Reference		276408-11	276408-12	276408-13	276408-16	276408-17
Your Reference	UNITS	BH5	BH5	BH6	BH7	BH7
Depth		0.2-0.3	0.7-0.8	0.2-0.3	0.6-0.7	1.5-1.6
Date Sampled		12/08/2021	12/08/2021	13/08/2021	13/08/2021	13/08/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	24/08/2021	24/08/2021	24/08/2021	24/08/2021	24/08/2021
Date analysed	-	25/08/2021	25/08/2021	25/08/2021	25/08/2021	25/08/2021
Moisture	%	16	12	9.1	14	19

Moisture						
Our Reference		276408-19	276408-22	276408-24	276408-25	276408-28
Your Reference	UNITS	BH7	BH8	BH8	BH9	BH10
Depth		2.4-2.5	0.6-0.7	1.6-1.7	0.1-0.2	0.1-0.2
Date Sampled		13/08/2021	13/08/2021	13/08/2021	13/08/2021	13/08/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	24/08/2021	24/08/2021	24/08/2021	24/08/2021	24/08/2021
Date analysed	-	25/08/2021	25/08/2021	25/08/2021	25/08/2021	25/08/2021
Moisture	%	22	7.8	17	13	6.1

Moisture		
Our Reference		276408-30
Your Reference	UNITS	BH1Dup
Depth		-
Date Sampled		12/08/2021
Type of sample		Soil
Date prepared	-	24/08/2021
Date analysed	-	25/08/2021
Moisture	%	5.0

Asbestos ID - soils NEPM - ASB-001						
Our Reference		276408-1	276408-4	276408-7	276408-9	276408-11
Your Reference	UNITS	BH1	BH2	BH3	BH4	BH5
Depth		0.1-0.2	0.6-0.7	0.1-0.2	0.1-0.2	0.2-0.3
Date Sampled		12/08/2021	12/08/2021	12/08/2021	12/08/2021	12/08/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	26/08/2021	26/08/2021	26/08/2021	26/08/2021	26/08/2021
Sample mass tested	g	661.59	445.94	871.34	604.26	570.25
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos[#1]	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	–	–	–	–	–
FA and AF Estimation*	g	–	–	–	–	–
ACM >7mm Estimation*	%(w/w)	<0.01	<0.01	<0.01	<0.01	<0.01
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001

Asbestos ID - soils NEPM - ASB-001						
Our Reference		276408-13	276408-16	276408-22	276408-25	276408-28
Your Reference	UNITS	BH6	BH7	BH8	BH9	BH10
Depth		0.2-0.3	0.6-0.7	0.6-0.7	0.1-0.2	0.1-0.2
Date Sampled		13/08/2021	13/08/2021	13/08/2021	13/08/2021	13/08/2021
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	26/08/2021	26/08/2021	26/08/2021	26/08/2021	26/08/2021
Sample mass tested	g	520.91	549.38	531.56	638.01	669.95
Sample Description	-	Brown fine-grained soil & rocks	Black fine-grained soil & rocks	Grey fine-grained soil & rocks	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos#1	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	–	–	–	–	–
FA and AF Estimation*	g	–	–	–	–	–
ACM >7mm Estimation*	%(w/w)	<0.01	<0.01	<0.01	<0.01	<0.01
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001

Method ID	Methodology Summary
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
ASB-001	Asbestos ID - Identification of asbestos in soil samples using Polarised Light Microscopy and Dispersion Staining Techniques. Minimum 500mL soil sample was analysed as recommended by "National Environment Protection (Assessment of site contamination) Measure, Schedule B1 and "The Guidelines from the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia - May 2009" with a reporting limit of 0.1g/kg (0.01% w/w) as per Australian Standard AS4964-2004. Results reported denoted with * are outside our scope of NATA accreditation. **NOTE** #1 Total Asbestos g/kg was analysed and reported as per Australian Standard AS4964 (This is the sum of ACM >7mm, <7mm and FA/AF) **NOTE** #2 The screening level of 0.001% w/w asbestos in soil for FA and AF only applies where the FA and AF are able to be quantified by gravimetric procedures. This screening level is not applicable to free fibres. Estimation = Estimated asbestos weight Results reported with "--" is equivalent to no visible asbestos identified using Polarised Light microscopy and Dispersion Staining Techniques.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-021	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.

Method ID	Methodology Summary
Org-021	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-022	Determination of VOCs sampled onto coconut shell charcoal sorbent tubes, that can be desorbed using carbon disulphide, and analysed by GC-MS.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-MS/GC-MSMS. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS and/or GC-MS/MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL'values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero'values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL'values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	276408-4
Date extracted	-			24/08/2021	1	24/08/2021	24/08/2021		24/08/2021	24/08/2021
Date analysed	-			24/08/2021	1	24/08/2021	24/08/2021		24/08/2021	24/08/2021
TRH C_6 - C_9	mg/kg	25	Org-023	<25	1	<25	<25	0	115	113
TRH C_6 - C_{10}	mg/kg	25	Org-023	<25	1	<25	<25	0	115	113
Benzene	mg/kg	0.2	Org-023	<0.2	1	<0.2	<0.2	0	115	118
Toluene	mg/kg	0.5	Org-023	<0.5	1	<0.5	<0.5	0	116	99
Ethylbenzene	mg/kg	1	Org-023	<1	1	<1	<1	0	114	115
m+p-xylene	mg/kg	2	Org-023	<2	1	<2	<2	0	115	116
o-Xylene	mg/kg	1	Org-023	<1	1	<1	<1	0	119	119
naphthalene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	112	1	109	91	18	114	103

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	276408-4
Date extracted	-			24/08/2021	1	24/08/2021	24/08/2021		24/08/2021	24/08/2021
Date analysed	-			26/08/2021	1	26/08/2021	26/08/2021		26/08/2021	26/08/2021
TRH C_{10} - C_{14}	mg/kg	50	Org-020	<50	1	<50	<50	0	107	106
TRH C_{15} - C_{28}	mg/kg	100	Org-020	<100	1	100	<100	0	103	106
TRH C_{29} - C_{36}	mg/kg	100	Org-020	<100	1	350	360	3	122	92
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	<50	1	<50	<50	0	107	106
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	<100	1	330	320	3	103	106
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	<100	1	440	500	13	122	92
Surrogate o-Terphenyl	%		Org-020	88	1	84	83	1	115	83

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	276408-4
Date extracted	-			24/08/2021	1	24/08/2021	24/08/2021		24/08/2021	24/08/2021
Date analysed	-			24/08/2021	1	24/08/2021	24/08/2021		24/08/2021	24/08/2021
Naphthalene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	95	94
Acenaphthylene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	84	82
Fluorene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	95	89
Phenanthrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	111	109
Anthracene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	96	84
Pyrene	mg/kg	0.1	Org-022/025	<0.1	1	0.1	0.1	0	98	86
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	<0.1	1	0.2	0.2	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	0.1	0	73	106
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	<0.05	1	0.08	0.1	22	97	90
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	<0.1	1	0.1	0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	94	1	81	85	5	90	72

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	276408-4
Date extracted	-			24/08/2021	1	24/08/2021	24/08/2021		24/08/2021	24/08/2021
Date analysed	-			24/08/2021	1	24/08/2021	24/08/2021		24/08/2021	24/08/2021
alpha-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	101	97
HCB	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	94	94
gamma-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	85	81
delta-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	117	92
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	114	101
gamma-Chlordane	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	80	99
Dieldrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	117	101
Endrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	102	91
Endosulfan II	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	101	85
Endrin Aldehyde	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	95	78
Methoxychlor	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	95	1	91	93	2	102	89

QUALITY CONTROL: Organophosphorus Pesticides in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	276408-4
Date extracted	-			24/08/2021	1	24/08/2021	24/08/2021		24/08/2021	24/08/2021
Date analysed	-			24/08/2021	1	24/08/2021	24/08/2021		24/08/2021	24/08/2021
Dichlorvos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	100	89
Dimethoate	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos-methyl	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	111	91
Fenitrothion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	101	93
Malathion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	125	104
Chlorpyriphos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	82	111
Parathion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	96	98
Bromophos-ethyl	mg/kg	0.1	Org-022	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	115	95
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	95	1	91	93	2	102	89

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	276408-4
Date extracted	-			24/08/2021	1	24/08/2021	24/08/2021		24/08/2021	24/08/2021
Date analysed	-			24/08/2021	1	24/08/2021	24/08/2021		24/08/2021	24/08/2021
Aroclor 1016	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	120	101
Aroclor 1260	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-021	95	1	91	93	2	102	89

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-7	276408-4
Date prepared	-			25/08/2021	1	25/08/2021	25/08/2021		25/08/2021	25/08/2021
Date analysed	-			25/08/2021	1	25/08/2021	25/08/2021		25/08/2021	25/08/2021
Arsenic	mg/kg	4	Metals-020	<4	1	<4	<4	0	105	101
Cadmium	mg/kg	0.4	Metals-020	<0.4	1	<0.4	<0.4	0	104	98
Chromium	mg/kg	1	Metals-020	<1	1	19	13	38	114	94
Copper	mg/kg	1	Metals-020	<1	1	45	39	14	122	108
Lead	mg/kg	1	Metals-020	<1	1	12	9	29	104	#
Mercury	mg/kg	0.1	Metals-021	<0.1	1	<0.1	<0.1	0	97	96
Nickel	mg/kg	1	Metals-020	<1	1	45	41	9	121	101
Zinc	mg/kg	1	Metals-020	<1	1	53	38	33	116	##

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Report Comments

Asbestos-ID in soil: NEPM
This report is consistent with the reporting recommendations in the National Environment Protection (Assessment of Site Contamination) Measure, Schedule B1, May 2013. This is reported outside our scope of NATA accreditation.

8 metals in soil:
- # Percent recovery is not possible to report due to the inhomogeneous nature of the element/s in the sample/s. However an acceptable recovery was obtained for the LCS.
- ## Percent recovery is not applicable due to the high concentration of the element/s in the sample/s. However an acceptable recovery was obtained for the LCS.

Envirolab Services Pty Ltd
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customerservice@envirolab.com.au
www.envirolab.com.au

SAMPLE RECEIPT ADVICE

Client Details

Client	JK Environments
Attention	Todd Hore

Sample Login Details

Your reference	E34278PH, Terrey Hills
Envirolab Reference	276408
Date Sample Received	23/08/2021
Date Instructions Received	23/08/2021
Date Results Expected to be Reported	30/08/2021

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	32 Soil
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	3
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	**Phone: 02 9910 6200**
Fax: 02 9910 6201	**Fax: 02 9910 6201**
Email: ahie@envirolab.com.au	**Email: jhurst@envirolab.com.au**

Analysis Underway, details on the following page:

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Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	PCBsin Soil	Acid Extractable metalsin soil	Asbestos ID - soils NEPM - ASB-001	On Hold
BH1-0.1-0.2	✓	✓	✓	✓	✓	✓	✓	✓	
BH1-0.6-0.7	✓	✓	✓				✓		
BH2-0.1-0.2									✓
BH2-0.6-0.7	✓	✓	✓	✓	✓	✓	✓	✓	
BH2-1.1-1.2									✓
BH2-1.6-1.7									✓
BH3-0.1-0.2	✓	✓	✓	✓	✓	✓	✓	✓	
BH3-0.6-0.7									✓
BH4-0.1-0.2	✓	✓	✓	✓	✓	✓	✓	✓	
BH4-0.6-0.7									✓
BH5-0.2-0.3	✓	✓	✓	✓	✓	✓	✓	✓	
BH5-0.7-0.8	✓	✓	✓				✓		
BH6-0.2-0.3	✓	✓	✓	✓	✓	✓	✓	✓	
BH6-0.7-0.8									✓
BH7-0.1-0.2									✓
BH7-0.6-0.7	✓	✓	✓	✓	✓	✓	✓	✓	
BH7-1.5-1.6	✓	✓	✓				✓		
BH7-2.1-2.2									✓
BH7-2.4-2.5	✓	✓	✓				✓		
BH7-3.0-3.1									✓
BH8-0.1-0.2									✓
BH8-0.6-0.7	✓	✓	✓	✓	✓	✓	✓	✓	
BH8-1.4-1.5									✓
BH8-1.6-1.7	✓	✓	✓				✓		
BH9-0.1-0.2	✓	✓	✓	✓	✓	✓	✓	✓	
BH9-0.6-0.7									✓
BH9-1.1-1.2									✓
BH10-0.1-0.2	✓	✓	✓	✓	✓	✓	✓	✓	
BH10-0.6-0.7									✓
BH1Dup	✓	✓	✓				✓		
BH2Dup									✓
TB-S1	✓								

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

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Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.
Requests for longer term sample storage must be received in writing.
Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.
TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

SAMPLE AND CHAIN OF CUSTODY FORM

TO:		FROM:
ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen	JKE Job Number: E34278PH Date Results Required: STANDARD Page: 1 of 2	JKEnvironments REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: Todd Hore

Location:	Terrey Hills	Sample Preserved in Esky on Ice
Sampler:	BS	Tests Required

Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 2	Combo 3	Combo 6	Combo 6a	8 Metals	PAHs	TRH/BTEX	BTEX	Asbestos (500mL)			
12/08/2021	1	BH1	0.1-0.2	G, A	0.1	F: silty sand			X						X			
12/08/2021	2	BH1	0.6-0.7	G, A	0.6	Gravelly sand		X										
12/08/2021	3	BH2	0.1-0.2	G, A	0.1	F: gravelly sand												
12/08/2021	4	BH2	0.6-0.7	G, A	0	F: gravelly sand			X						X			
12/08/2021	5	BH2	1.1-1.2	G, A	0	F: gravelly sand												
12/08/2021	6	BH2	1.6-1.7	G, A	0.1	Siltstone												
12/08/2021	7	BH3	0.1-0.2	G, A	0	F: gravelly sand			X						X			
12/08/2021	8	BH3	0.6-0.7	G, A	0	Silty sand												
12/08/2021	9	BH4	0.1-0.2	G, A	0	F: silty sand			X						X			
12/08/2021	10	BH4	0.6-0.7	G, A	0	Silty sand												
12/08/2021	11	BH5	0.2-0.3	G, A	0	F: silty asnd			X						X			
12/08/2021	12	BH5	0.7-0.8	G, A	0	Silty sand		X										
13/08/2021	13	BH6	0.2-0.3	G, A	0	F: silty sand			X						X			
13/08/2021	14	BH6	0.7-0.8	G, A	0	Silty sand												
13/08/2021	15	BH7	0.1-0.2	G, A	0.1	F: gravelly sand												
13/08/2021	16	BH7	0.6-0.7	G, A	0.3	F: gravelly sand			X						X			
13/08/2021	17	BH7	1.5-1.6	G, A	0	F: gravelly sand		X										
13/08/2021	18	BH7	2.1-2.2	G, A	0.2	F: gravelly sand												
13/08/2021	19	BH7	2.4-2.5	G, A	0	F: silty clay		X										
13/08/2021	20	BH7	3.0-3.1	G, A	0	silty clay												
13/08/2021	21	BH8	0.1-0.2	G, A	0	F: silty sand												
13/08/2021	22	BH8	0.6-0.7	G, A	0.4	F: silty sand			X						X			
13/08/2021	23	BH8	1.4-1.5	G, A	0.1	F: silty sand												
13/08/2021	24	BH8	1.6-1.7	G, A	0	silty sand		X										
13/08/2021	25	BH9	0.1-0.2	G, A	0	F: gravelly sand			X						X			

Remarks (comments/detection limits required):

Sample Containers:
G - 250mg Glass Jar
A - Ziplock Asbestos Bag
P - Plastic Bag

Relinquished By:	Date:	Time:	Received By:	Date:
Hore	23/8/21	12pm	Nancy Zhang Envirolab	23/08/21 14:20pm

ENVIROLAB SERVICES
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No: 276408
Date Received: 23/08/21
Time Received: 14:20
Received By:
Temp: Cool/Ambient
Cooling: Ice/Icepack

SAMPLE AND CHAIN OF CUSTODY FORM

TO:		FROM:
ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen	JKE Job Number: E34278PH Date Results Required: STANDARD Page: 2 of 2	JKEnvironments REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: Todd Hore

Location:	Terrey Hills	Sample Preserved in Esky on Ice																
Sampler:	BS	Tests Required																
Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 2	Combo 3	Combo 6	Combo 6a	8 Metals	PAHs	TRH/BTEX	BTEX	Asbestos (500mL)			
13/08/2021	26	BH9	0.6-0.7	G, A	0.3	gravelly sand												
13/08/2021	27	BH9	1.1-1.2	G, A	0	silty sand												
13/08/2021	28	BH10	0.1-0.2	G, A	0	F: gravelly sand			X						X			
13/08/2021	29	BH10	0.6-0.7	G, A	0.3	gravelly sand												
12/08/2021	30	BH1Dup	-	G, A	-	Soil dup		X										
12/08/2021	31	BH2Dup	-	G, A	-	Soil dup												
12/08/2021	32	TB-S1	-	G	-	Soil trip blank								X				

ENVIROLAB GROUP
Chatswood NSW
Ph: (02) 9910 6200
Job No: 276408
Date Received: 23/08/21
Time Received: 14:20
Received By: [illegible]
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

Remarks (comments/detection limits required):	Sample Containers: G - 250mg Glass Jar A - Ziplock Asbestos Bag P - Plastic Bag		
Relinquished By: thore	Date: 23/8/21	Time: 12pm	Received By: Nancy Zhang Envirolab	Date: 23/08/21 14:20

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CERTIFICATE OF ANALYSIS 276408-A

Client Details

Client	JK Environments
Attention	Todd Hore
Address	PO Box 976, North Ryde BC, NSW, 1670

Sample Details

Your Reference	**E34278PH, Terrey Hills**
Number of Samples	additional analysis
Date samples received	23/08/2021
Date completed instructions received	27/08/2021

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	03/09/2021
Date of Issue	03/09/2021

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Accredited for compliance with ISO/IEC 17025 - Testing. **Tests not covered by NATA are denoted with ***

Results Approved By
Diego Bigolin, Inorganics Supervisor
Jaimie Loa-Kum-Cheung, Senior Chemist
Nick Sarlamis, Assistant Operation Manager

Authorised By

Nancy Zhang, Laboratory Manager

Misc Inorg - Soil			
Our Reference		276408-A-4	276408-A-7
Your Reference	UNITS	BH2	BH3
Depth		0.6-0.7	0.1-0.2
Date Sampled		12/08/2021	12/08/2021
Type of sample		Soil	Soil
Date prepared	-	02/09/2021	02/09/2021
Date analysed	-	02/09/2021	02/09/2021
pH 1:5 soil:water	pH Units	8.4	8.9

CEC			
Our Reference		276408-A-4	276408-A-7
Your Reference	UNITS	BH2	BH3
Depth		0.6-0.7	0.1-0.2
Date Sampled		12/08/2021	12/08/2021
Type of sample		Soil	Soil
Date prepared	-	02/09/2021	02/09/2021
Date analysed	-	02/09/2021	02/09/2021
Exchangeable Ca	meq/100g	4.7	17
Exchangeable K	meq/100g	0.2	0.3
Exchangeable Mg	meq/100g	1.0	5.5
Exchangeable Na	meq/100g	0.15	0.12
Cation Exchange Capacity	meq/100g	6.1	22

Clay 50-120g			
Our Reference		276408-A-4	276408-A-7
Your Reference	UNITS	BH2	BH3
Depth		0.6-0.7	0.1-0.2
Date Sampled		12/08/2021	12/08/2021
Type of sample		Soil	Soil
Date prepared	-	31/08/2021	31/08/2021
Date analysed	-	01/09/2021	01/09/2021
Clay in soils <2µm	% (w/w)	11	7

Method ID	Methodology Summary
AS1289.3.6.3	Determination Particle Size Analysis using AS1289.3.6.3 and AS1289.3.6.1 and in house method INORG-107. Clay fraction at <2µm reported.
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Metals-020	Determination of exchangeable cations and cation exchange capacity in soils using 1M Ammonium Chloride exchange and ICP-AES analytical finish.

QUALITY CONTROL: Misc Inorg - Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			02/09/2021	[NT]	[NT]	[NT]	[NT]	02/09/2021	[NT]
Date analysed	-			02/09/2021	[NT]	[NT]	[NT]	[NT]	02/09/2021	[NT]
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	[NT]	[NT]	[NT]	[NT]	102	[NT]

QUALITY CONTROL: CEC						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			02/09/2021	[NT]	[NT]	[NT]	[NT]	02/09/2021	[NT]
Date analysed	-			02/09/2021	[NT]	[NT]	[NT]	[NT]	02/09/2021	[NT]
Exchangeable Ca	meq/100g	0.1	Metals-020	<0.1	[NT]	[NT]	[NT]	[NT]	106	[NT]
Exchangeable K	meq/100g	0.1	Metals-020	<0.1	[NT]	[NT]	[NT]	[NT]	106	[NT]
Exchangeable Mg	meq/100g	0.1	Metals-020	<0.1	[NT]	[NT]	[NT]	[NT]	104	[NT]
Exchangeable Na	meq/100g	0.1	Metals-020	<0.1	[NT]	[NT]	[NT]	[NT]	118	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Report Comments

pH/EC Samples were out of the recommended holding time for this analysis.

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SAMPLE RECEIPT ADVICE

Client Details

Client	JK Environments
Attention	Todd Hore

Sample Login Details

Your reference	E34278PH, Terrey Hills
Envirolab Reference	276408-A
Date Sample Received	23/08/2021
Date Instructions Received	27/08/2021
Date Results Expected to be Reported	03/09/2021

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	additional analysis
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	3
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	**Phone: 02 9910 6200**
Fax: 02 9910 6201	**Fax: 02 9910 6201**
Email: ahie@envirolab.com.au	**Email: jhurst@envirolab.com.au**

Analysis Underway, details on the following page:

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

Sample ID	Misc Inorg - Soil	CEC	Clay 50-120g	On Hold
BH1-0.1-0.2				✓
BH1-0.6-0.7				✓
BH2-0.1-0.2				✓
BH2-0.6-0.7	✓	✓	✓	
BH2-1.1-1.2				✓
BH2-1.6-1.7				✓
BH3-0.1-0.2	✓	✓	✓	
BH3-0.6-0.7				✓
BH4-0.1-0.2				✓
BH4-0.6-0.7				✓
BH5-0.2-0.3				✓
BH5-0.7-0.8				✓
BH6-0.2-0.3				✓
BH6-0.7-0.8				✓
BH7-0.1-0.2				✓
BH7-0.6-0.7				✓
BH7-1.5-1.6				✓
BH7-2.1-2.2				✓
BH7-2.4-2.5				✓
BH7-3.0-3.1				✓
BH8-0.1-0.2				✓
BH8-0.6-0.7				✓
BH8-1.4-1.5				✓
BH8-1.6-1.7				✓
BH9-0.1-0.2				✓
BH9-0.6-0.7				✓
BH9-1.1-1.2				✓
BH10-0.1-0.2				✓
BH10-0.6-0.7				✓
BH1Dup				✓
BH2Dup				✓
TB-S1				✓

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

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Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.
Requests for longer term sample storage must be received in writing.
Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.
TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

Ming To

Subject: FW: 276408

Ref: 276408-A.
TAT: standard
Due: 03/09/2021
MT

From: Todd Hore <THore@jkenvironments.com.au>
Sent: Friday, 27 August 2021 7:13 PM
To: Aileen Hie <AHie@envirolab.com.au>
Cc: Jessica Hie <JHie@envirolab.com.au>
Subject: 276408

CAUTION: This email originated from outside of the organisation. Do not act on instructions, click links or open attachments unless you recognise the sender and know the content is authentic and safe.

Hey Aileen,
Can you please schedule the following additional analyses for E34278PH, Terrey Hills:

- 276408-4 – pH, CEC, Clay Content;
- 276408-7 – pH, CEC, Clay Content;

Please undertake the above on a standard turnaround.

Regards
Todd Hore
Senior Associate | Environmental Engineer

In accordance with the current NSW Government health orders, we are mostly working from home. When phoning, please contact staff on their mobile first.

T: +612 9888 5000
D: 0414 863 307
E: THore@jkenvironments.com.au
www.jkenvironments.com.au

PO Box 976
NORTH RYDE BC NSW 1670
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JKEnvironments

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Appendix F: Report Explanatory Notes

QA/QC Definitions

The QA/QC terms used in this report are defined below. The definitions are in accordance with US EPA publication SW-846, entitled *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods* (1994)[14] methods and those described in *Environmental Sampling and Analysis, A Practical Guide,* (1991)[15]. The NEPM (2013) is consistent with these documents.

A. Practical Quantitation Limit (PQL), Limit of Reporting (LOR) & Estimated Quantitation Limit (EQL)

These terms all refer to the concentration above which results can be expressed with a minimum 95% confidence level. The laboratory reporting limits are generally set at ten times the standard deviation for the Method Detection Limit for each specific analyte. For the purposes of this report the LOR, PQL, and EQL are considered to be equivalent.

When assessing laboratory data it should be borne in mind that values at or near the PQL have two important limitations: *"The uncertainty of the measurement value can approach, and even equal, the reported value. Secondly, confirmation of the analytes reported is virtually impossible unless identification uses highly selective methods. These issues diminish when reliably measurable amounts of analytes are present. Accordingly, legal and regulatory actions should be limited to data at or above the reliable detection limit*" (Keith, 1991).

B. Precision

The degree to which data generated from repeated measurements differ from one another due to random errors. Precision is measured using the standard deviation or Relative Percent Difference (RPD).

C. Accuracy

Accuracy is a measure of the agreement between an experimental result and the true value of the parameter being measured (i.e. the proximity of an averaged result to the true value, where all random errors have been statistically removed). The assessment of accuracy for an analysis can be achieved through the analysis of known reference materials or assessed by the analysis of surrogates, field blanks, trip spikes and matrix spikes. Accuracy is typically reported as percent recovery.

D. Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represents a characteristic of a population, parameter variations at a sampling point, or an environmental condition. Representativeness is primarily dependent upon the design and implementation of the sampling program. Representativeness of the data is partially ensured by the avoidance of contamination, adherence to sample handing and analysis protocols and use of proper chain-of-custody and documentation procedures.

E. Completeness

Completeness is a measure of the number of valid measurements in a data set compared to the total number of measurements made and overall performance against DQIs. The following information is assessed for completeness:

- Chain-of-custody forms;
- Sample receipt form;
- All sample results reported;
- All blank data reported;

[14] US EPA, (1994). *SW-846: Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.* (US EPA SW-846)

[15] Keith., H, (1991). *Environmental Sampling and Analysis, A Practical Guide*

- All laboratory duplicate and RPDs calculated;
- All surrogate spike data reported;
- All matrix spike and lab control spike (LCS) data reported and RPDs calculated;
- Spike recovery acceptable limits reported; and
- NATA stamp on reports.

F. Comparability

Comparability is the evaluation of the similarity of conditions (e.g. sample depth, sample homogeneity) under which separate sets of data are produced. Data comparability checks include a bias assessment that may arise from the following sources:

- Collection and analysis of samples by different personnel; Use of different techniques;
- Collection and analysis by the same personnel using the same methods but at different times; and
- Spatial and temporal changes (due to environmental dynamics).

G. Blanks

The purpose of laboratory and field blanks is to check for artefacts and interferences that may arise during sampling, transport and analysis.

H. Matrix Spikes

Samples are spiked with laboratory grade standards to detect interactive effects between the sample matrix and the analytes being measured. Matrix Spikes are reported as a percent recovery and are prepared for 1 in every 20 samples. Sample batches that contain less than 20 samples may be reported with a Matrix Spike from another batch. The percent recovery is calculated using the formula below. Acceptable recovery limits are 70% to 130%.

$$\frac{(\text{Spike Sample Result} - \text{Sample Result}) \times 100}{\text{Concentration of Spike Added}}$$

I. Surrogate Spikes

Samples are spiked with a known concentration of compounds that are chemically related to the analyte being investigated but unlikely to be detected in the environment. The purpose of the Surrogate Spikes is to check the accuracy of the analytical technique. Surrogate Spikes are reported as percent recovery.

J. Duplicates

Laboratory duplicates measure precision, expressed as Relative Percent Difference. Duplicates are prepared from a single field sample and analysed as two separate extraction procedures in the laboratory. The RPD is calculated using the formula where D1 is the sample concentration and D2 is the duplicate sample concentration:

$$\frac{(D1 - D2) \times 100}{\{(D1 + D2)/2\}}$$

Appendix G: Data (QA/QC) Evaluation

Data (QA/QC) Evaluation

A. INTRODUCTION

This Data (QA/QC) Evaluation forms part of the validation process for the DQOs documented in Section 6.1 of this report. Checks were made to assess the data in terms of precision, accuracy, representativeness, comparability and completeness. These 'PARCC' parameters are referred to collectively as DQIs and are defined in the Report Explanatory Notes attached in the report appendices.

1. Field and Laboratory Considerations

The quality of the analytical data produced for this project has been considered in relation to the following:

- Sample collection, storage, transport and analysis;
- Laboratory PQLs;
- Field QA/QC results; and
- Laboratory QA/QC results.

2. Field QA/QC Samples and Analysis

A summary of the field QA/QC samples collected and analysed for this investigation is provided in the following table:

Sample Type	Sample Identification	Frequency (of Sample Type)	Analysis Performed
Intra-laboratory duplicate (soil)	BH1Dup (primary sample BH1 0.1-0.2m)	Approximately 10% of primary samples	Heavy metals, TRH/BTEX and PAHs
Trip blank (soil)	TB-S1 (12/8/21)	One for the investigation to demonstrate adequacy of storage and transport methods	BTEX

The results for the field QA/QC samples are detailed in the laboratory summary tables (Table S8) attached to the investigation report and are discussed in the subsequent sections of this Data (QA/QC) Evaluation report.

3. Data Assessment Criteria

JKE adopted the following criteria for assessing the field and laboratory QA/QC analytical results:

Field Duplicates

Acceptable targets for precision of field duplicates in this report will be 30% or less, consistent with NEPM (2013). RPD failures will be considered qualitatively on a case-by-case basis taking into account factors such as the concentrations used to calculate the RPD (i.e. RPD exceedance where concentrations are close to the PQL are typically not as significant as those where concentrations are reported at least five or 10 times the PQL), sample type, collection methods and the specific analyte where the RPD exceedance was reported.

Field/Trip Blanks
Acceptable targets for field blank samples in this report will be less than the PQL for organic analytes.

Laboratory QA/QC
The suitability of the laboratory data is assessed against the laboratory QA/QC criteria which is outlined in the laboratory reports. These criteria were developed and implemented in accordance with the laboratory's NATA accreditation and align with the acceptable limits for QA/QC samples as outlined in NEPM (2013) and other relevant guidelines.

A summary of the acceptable limits adopted by the primary laboratory (Envirolab) is provided below:

RPDs
- Results that are <5 times the PQL, any RPD is acceptable; and
- Results >5 times the PQL, RPDs between 0-50% are acceptable.

Laboratory Control Samples (LCS) and Matrix Spikes
- 70-130% recovery acceptable for metals and inorganics;
- 60-140% recovery acceptable for organics; and
- 10-140% recovery acceptable for VOCs.

Surrogate Spikes
- 60-140% recovery acceptable for general organics; and
- 10-140% recovery acceptable for VOCs.

Method Blanks
- All results less than PQL.

B. DATA EVALUATION

1. Sample Collection, Storage, Transport and Analysis

Samples were collected by trained field staff in accordance. Field sampling procedures were designed to be consistent with relevant guidelines, including NEPM (2013) and other guidelines made under the CLM Act 1997.

Appropriate sample preservation, handling and storage procedures were adopted. Laboratory analysis was undertaken within specified holding times generally in accordance with Schedule B(3) of NEPM (2013) and the laboratory NATA accredited methodologies. Envirolab noted that the asbestos results were reported to be consistent with the recommendations in NEPM (2013), however this level of reporting is outside the scope of their NATA accreditation. In the absence of other available analytical methods for asbestos, this was found to be acceptable for the purpose of this investigation.

Review of the project data also indicated that:
- COC documentation was adequately maintained;
- Sample receipt advice documentation was provided for all sample batches;
- All analytical results were reported; and

- Consistent units were used to report the analysis results.

2. Laboratory PQLs

Appropriate PQLs were adopted for the analysis and all PQLs were below the SAC.

3. Field QA/QC Sample Results

Field Duplicates

The results indicated that field precision was acceptable. RPD non-conformances were reported for some analytes as discussed below:

- Elevated RPDs were reported for several PAH compounds in BH1Dup/BH1 (0.1-0.2m).

Values outside the acceptable limits have been attributed to concentrations close to the PQL. As both the primary and duplicate sample results were all significantly less than the SAC, the exceedances are not considered to have had an adverse impact on the data set as a whole.

Field/Trip Blanks

During the investigation, one soil trip blank was placed in the esky during sampling and transported back to the laboratory. The results were all less than the PQLs, therefore cross contamination between samples that may have significance for data validity did not occur.

4. Laboratory QA/QC

The analytical methods implemented by the laboratory were performed in accordance with their NATA accreditation and were consistent with Schedule B(3) of NEPM (2013). The frequency of data reported for the laboratory QA/QC (i.e. duplicates, spikes, blanks, LCS) was considered to be acceptable for the purpose of this investigation.

A review of the laboratory QA/QC data identified the following minor non-conformances:

- Percent recovery was not possible for lead in a matrix spike sample due to the inhomogeneous nature of the element in the samples. However, an acceptable recovery was obtained for the LCS; and
- Percent recovery was not applicable for zinc in the matrix spike sample due to the high concentration of the element in the samples. However, an acceptable recovery was obtained for the LCS.

C. DATA QUALITY SUMMARY

JKE are of the opinion that the data are adequately precise, accurate, representative, comparable and complete to serve as a basis for interpretation to achieve the investigation objectives. A detailed QA/QC programme is to be designed and implemented for the DSI in accordance with the NEPM (2013) requirements.

Non-conformances were reported for some field QA/QC samples and laboratory QA/QC analysis. These non-conformances were considered to be sporadic and minor, and were not considered to be indicative of systematic sampling or analytical errors. On this basis, these non-conformances are not considered to materially impact the report findings.

Appendix H: Guidelines and Reference Documents

Acid Sulfate Soils Management Advisory Committee (ASSMAC), (1998). Acid Sulfate Soils Manual

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

Canadian Council of Ministers of the Environment, (1999). Canadian soil quality guidelines for the protection of environmental and human health: Benzo(a)Pyrene (1997)

CRC Care, (2011). Technical Report No. 10 – Health screening levels for hydrocarbons in soil and groundwater Part 1: Technical development document

Contaminated Land Management Act 1997 (NSW)

Department of Land and Water Conservation, (1997). 1:25,000 Acid Sulfate Soil Risk Map Series

Managing Land Contamination, Planning Guidelines SEPP55 – Remediation of Land (1998)

National Health and Medical Research Council (NHMRC), (2018). National Water Quality Management Strategy, Australian Drinking Water Guidelines 2011

NSW Department of Environment and Conservation, (2007). Guidelines for the Assessment and Management of Groundwater Contamination

NSW EPA, (1995). Contaminated Sites Sampling Design Guidelines

NSW EPA, (2014). Waste Classification Guidelines - Part 1: Classifying Waste

NSW EPA, (2015). Guidelines on the Duty to Report Contamination under Section 60 of the CLM Act 1997

NSW EPA, (2017). Guidelines for the NSW Site Auditor Scheme, 3rd Edition

NSW EPA, (2020). Consultants Reporting on Contaminated Land, Contaminated Land Guidelines

National Environment Protection Council (NEPC), (2013). National Environmental Protection (Assessment of Site Contamination) Measure 1999 as amended (2013)

Olszowy, H., Torr, P., and Imray, P., (1995). Trace Element Concentrations in Soils from Rural and Urban Areas of Australia. Contaminated Sites Monograph Series No. 4. Department of Human Services and Health, Environment Protection Agency, and South Australian Health Commission

Protection of the Environment Operations Act 1997 (NSW)

State Environmental Planning Policy No.55 – Remediation of Land 1998 (NSW)

World Health Organisation (WHO), (2008). Petroleum Products in Drinking-water, Background document for the development of WHO Guidelines for Drinking Water Quality

Western Australia Department of Health, (2021). Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia