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Site Contamination Investigation

Client: Tamworth Aboriginal Medical Service

Site Address: Lot 2 DP 1264030
Tamworth NSW 2340

13 October 2023

Our Reference : 40924-ER01_A

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Project Name:	Preliminary Site Investigation at Lot 2 DP 1264030 NSW 2340
Client:	Tamworth Aboriginal Medical Service
Project Number:	40924
Report Reference:	40924 ER01_A
Date:	5/09/2023

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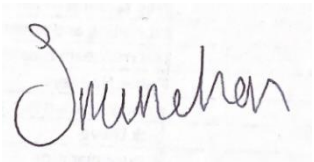	
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Executive Summary

Barnson Pty Ltd was engaged by Tamworth Aboriginal Medical Service (Rep. Damien Brown) to undertake a preliminary contaminated site investigation (PSI) of the property at Hillview Road, Tamworth, NSW 2340.

The investigation had as its objectives to identify contamination issues that may affect the suitability of the Subject Site for future Health Services development and assess the need for possible further investigations, remediation or management of any contamination issues identified.

The investigation was based on a desktop review of information available for the Subject Site, as well as the findings of a site inspection and confirmatory sampling and analysis of surface soils collected at the site.

A review of the available historical information, including contaminated sites databases, indicated no recorded activities with the potential to significantly contaminate the site.

Although the potential for *significant* environmental contamination to be present across the site was concluded to be low, activities associated with the current and historical use of the Subject Site were identified as having a potential to contaminate surface soil. The following potential sources and areas of contamination were identified:

- Landscaping Maintenance.
- Use of motorised vehicles and equipment.
- Building maintenance activities or uncontrolled disposal of waste

A site inspection, supplemented with confirmatory sampling and analysis, was conducted to determine the presence and significance of potential contamination associated with the identified sources. This investigation revealed that in the area of the Subject Site, no evidence of contamination was found.

Based on the findings of the desktop review and site investigation it can be stated with a reasonable level of confidence that the area identified for development within the Subject Site is suitable for the proposed health-care re-development and land use.

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1. INTRODUCTION

1.1. Background and Objectives

Barnson Pty Ltd was engaged by Tamworth Aboriginal Medical Services to undertake a preliminary contaminated site investigation (PSI) in support of a future Health Services Facility of the property located at Hillvue Road, Tamworth NSW (hereafter referred to as the Subject Site).

The client is submitting a Development Application to Tamworth Regional Council for a proposed Health Services Facility. In accordance with the State Environmental Planning Policy Resilience and Hazards (2021), a consent authority must determine if land is contaminated and, if so, whether it is suitable for the intended purpose or require remediation, before (future) development consent may be given.

This report therefore presents a general assessment of the conditions at the Subject Site in relation to general planning requirements and considers the contaminants potentially relevant to the past and current use of the property, as well as the proposed future use of the site for the provision of Health Services.

1.2. Objectives

The objectives of the Investigation are:

- Identify contamination that may affect the site's suitability for development, and
- Assess the need for possible further investigations, remediation or management of any contamination identified.

1.3. Scope of Work

To meet the stated objectives, Barnson completed the following scope of work:

- Site identification including a review of site history, site condition, surrounding environment, geology and, where information was available, hydrogeology.
- Desktop review of site history and assessment of potential sources of contamination.
- Development of a Conceptual Site Model (CSM) with information gathered from the data review and site inspection.
- Site inspection to assess site conditions.
- Collection of confirmatory soil samples and analysis to determine nature of possible contamination.
- Provide conclusions as to the suitability of the site for the intended future land use.
- Preparation of a report.

1.4. Purpose of this report

The purpose of this report is to document, with cognisance of the Guidelines for Consultants Reporting on Contaminated sites (NSW EPA, 2020), works undertaken, in accordance with the scope of works as described in Section 1.3, results of the desktop review and site inspection, and recommendations for further actions required to determine fitness of the site for the intended use.

1.5. Assumptions and Limitations

The following assumptions have been made in preparing this report:

- The future use of the site will be for Health Service purposes. This assumption forms the basis for the conceptual site model (Section 4).
- All information pertaining to the contamination status of the site has been obtained through public record searches, a preliminary site inspection and analysis of confirmatory samples collected at the site. All documents and information in relation to the site, which were obtained from public records, are accepted to be correct and has not been independently verified or checked.

It should be recognised that even the most comprehensive site assessments may fail to detect all contamination on a site. This is because contaminants may be present in areas that were not previously surveyed or sampled or may migrate to areas that showed no signs of contamination when sampled. Investigative works undertaken at the Subject Site by Barnson identified actual conditions only at those locations in which sampling and analysis were performed. Opinions regarding the conditions of the site have been expressed based on historical information and analytical data obtained and interpreted from previous assessments of the site. Barnson does not take responsibility for any consequences as a result of variations in site conditions.

2. SITE DESCRIPTION

2.1. Site Identification

Table 2.1 presents a summary of the available information pertaining to the identification of the Subject Site.

Table 2.1: Summary of Subject Site

Information	Details
Site address	Hillvue Road, South Tamworth, NSW 2340
Lot/Section and Deposited Plan	Lot 2 DP 1264030
Land Zoning	RE1 – Public Recreation
County	Parry
Parish	Calala
Local Government Area	Tamworth Regional Council

Figure 2.1 shows the Subject Site located to the south-west outskirts of Tamworth.

Figure 2.1: Location of the Subject Site.

2.2. Site Layout and Proposed Development

The Subject Site is identified as Lot 2 DP 1264030 occupying an area of approximately 1.60ha, located to the east of the Hillvue Road. The site is bounded by Robert Street, Kathleen Street, a recreational park, and residential land uses.

The Subject Site is unoccupied being predominantly grassed with evidence of a vehicle track and scattered trees with the tract to the west housing some utility poles and sewer infrastructure. The Subject Site is used mainly for recreational purposes.

Figure 2.2 presents a plan of the Subject Site that is supplemented with photographs showing the different elements of the Site (Figure 2.3 to Figure 2.5). Figure 2.2 includes markers indicating the vantage point and direction of the photographs.

Figure 2.2: Existing Subject Site layout.

Figure 2.3: Photo A – Photo of western portion of the site, looking north.

Figure 2.4: Photo B – View of car tracks crossing the site, looking west.

Figure 2.5: Photo C – View of vegetation and vehicle tracks.

2.3. Proposed Development

The proposed development is for a Medical Centre for the Tamworth Aboriginal Medical Service. It includes; a medical service building, Wellbeing Centre, Allied Health Services, 161 car spaces, yarning circle, outdoor gathering area, reflection space, and associated landscaping. Please refer to the proposed development plans attached as Appendix A.

2.4. Site History

2.4.1. General

The assessment of the historical use of the site is based on a review of the historical title and cadastral plan search, aerial photographs dating back to 1976 as well as anecdotal information from neighbouring residents.

2.4.2. Title Search

A search of historical titles and cadastral plans for DP20599 show the Subject Site was part of a larger area known as Hyman Park which, on a cadastral plan dated 1947, is indicated as a reserve for park recreation and drainage. The Subject site was later separated from the now Hyman Par by the completion of Hillvue Road. The historical cadastral plans are attached as Appendix B.

2.4.3. Historical Aerial Images

The historical aerial images reviewed is attached as Appendix B. The following is a summary of the observations made from the historical aerial images:

1976 – 1998 The Subject Site has been a recreational park since the earliest available aerial image. The site's access has come from both the east and the west. No evidence of contaminating activities from the earlier years, however, some vehicle tracts are evident from the years 1976, 1989, 1993, and 1998. Apart from some vegetation, the site has remained predominantly vacant. Surrounding land uses have not drastically changed.

1998 – 2014 In the western portion of the site, a single structure is observed, believed to be a weather station. A clear vehicle track is now evident running east to west; no other significant changes are observed.

2014 – 2016 The site remains largely the same as noted for 2014, however the weather station structure in the west has since been demolished. All other elements including neighbouring sites remain the same.

2.4.4. Anecdotal Information

A neighbouring resident Mr John Williams, living at 25 Robert Street, confirmed that the Subject Site has been unoccupied for the 40 years that he has lived in Tamworth. He noted the weather station which used to be located on the western extent of the Site and recalls that the same portion was previously used as netball courts. No evidence of concrete slabs or demarcated courts could be found. It is therefore assumed that the netball courts were line-marked on the grass with a pole and net at each end.

2.5. Record of Site Contamination

Datasets maintained by the Office of Environment and Heritage (OEH) including notices under CLM Act, POEO Environment Protection License Register, and environmental incidents were reviewed.

- List of NSW contaminated sites notified to EPA – The sites appearing on the OEH "List of NSW contaminated sites notified to the EPA" indicate that the notifiers consider that the sites are contaminated and warrant reporting to EPA. However, the contamination may or may not be significant enough to warrant regulation by the EPA. The EPA needs to review information before it can make a determination as to whether the site warrants regulation. A search of the listing returned no record for the subject site.
- Contaminated Land Record of Notices – A site will be on the Contaminated Land Record of Notices only if the EPA has issued a regulatory notice in relation to the site under the *Contaminated Land Management Act 1997*. A search of the register in October 2023 returned no record for the subject site.

There is further no record of the Subject Site in any of the following databases:

- Former Gasworks Database
- EPA PFAS Investigation Program
- Defence PFAS Investigation & Management Program
- Air Services Australia National PFAS Management Program
- Defence 3 Year Regional Contamination Investigation Program.

2.6. Previous Site Investigations

No information relating to any previous assessment of contamination at the Subject Site were available for review.

3. SITE SETTING

3.1. Geology

A review of the 1:250000 Geology Map of Tamworth (refer to Figure 3.1) shows that geologically, the Subject Site is underlain by Baldwin Formation Argillite and Greywacke.

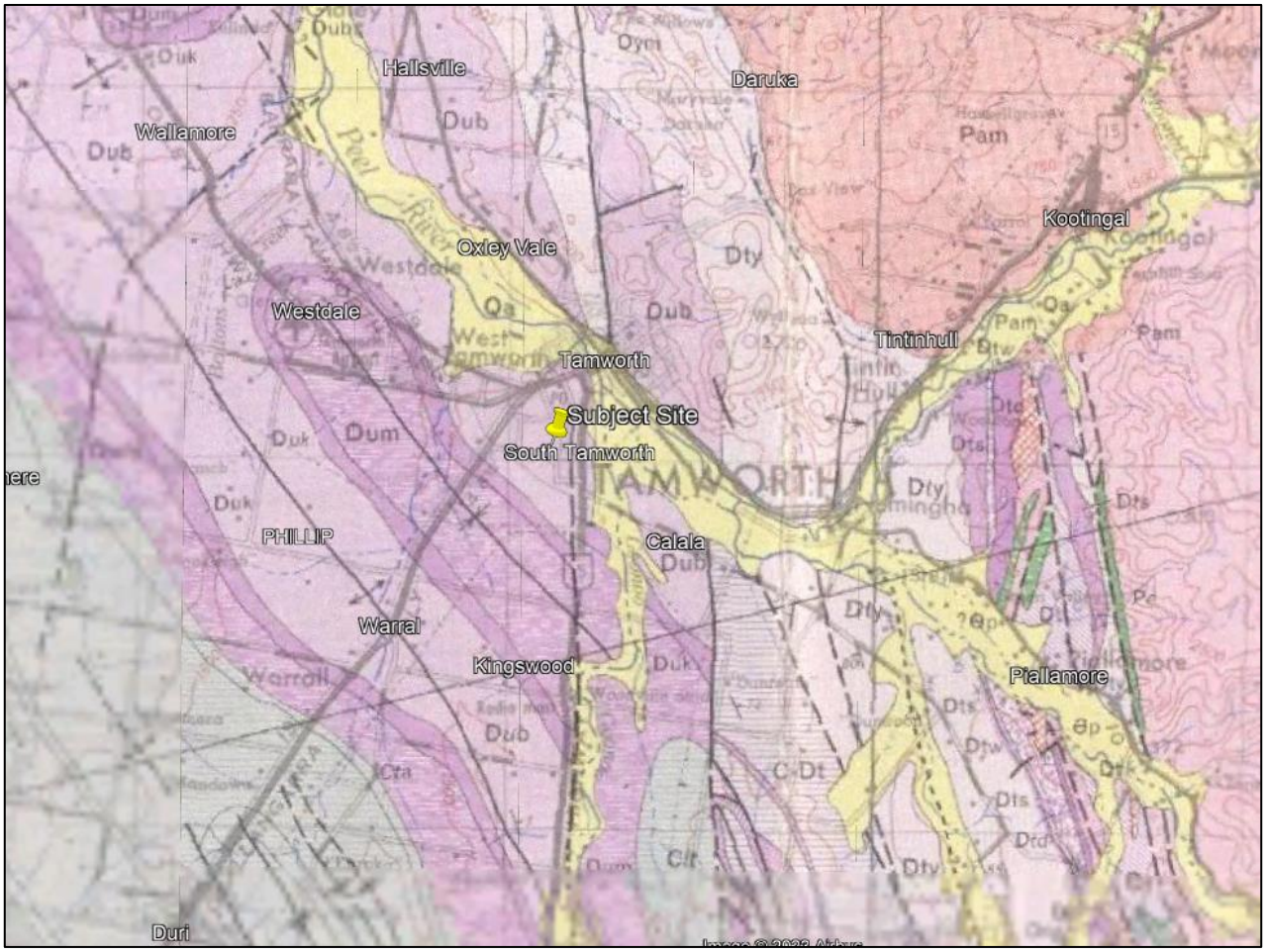

Figure 3.1: Orange 1:100,000 geology map showing the location of the Subject Site

Source: Google Earth, accessed 07/08/2023

An examination of the Geological Survey of NSW maps of Naturally Occurring Asbestos (accessed on 17 October 2023), shows that the geological units underlaying the Subject Site area has no asbestos potential. Refer to Figure 3.2.

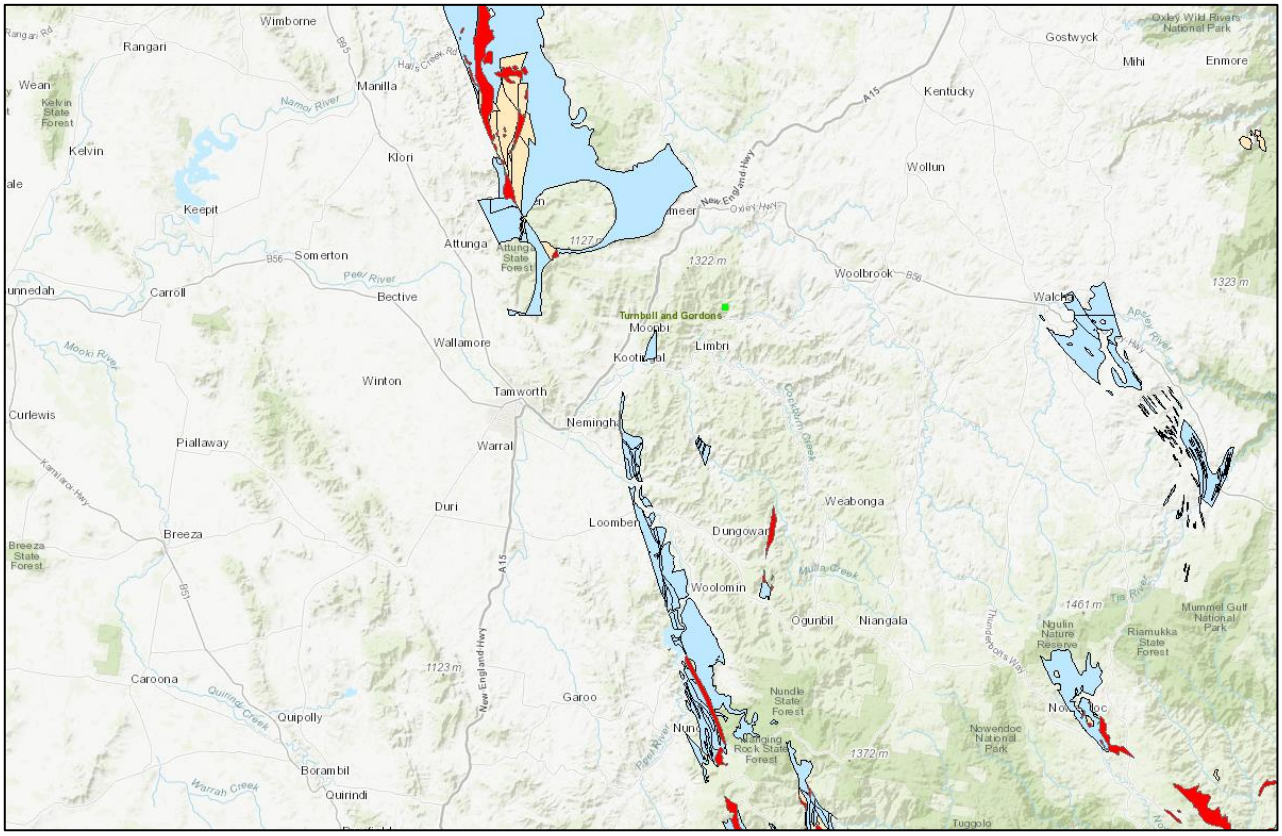

Figure 3.2: Asbestos potential of Geological Units underlaying Subject Site.

Source: NSW Department of Planning & Environment online map of Naturally Occurring Asbestos in NSW, accessed 07/08/2023

3.2. Soils

The Subject Site is mapped within the Duri Soil Landscape. Soils are extremely complex due to rapid changes in underlying lithology. Generally dominated by duplex soils such as moderately deep, moderately well-drained Red and Brown Chromosols (Noncalcic Brown Soils; Red-brown Earths) with minor occurrences of shallow, very well-drained Rudosols (Lithosols) around rock outcrops. Deep, imperfectly drained Red Vertosols (Red Clays) and deep to very deep, imperfectly drained Red and Brown Chromosols (Non-calcic Brown Soils) and possibly some Sodosols (Solodic Soils) occur along drainage lines and on sodic bedrock.

The Atlas of Australian Acid Sulfate Soil has the subject site in an area of high probability/confidence unknown. Surface soils in the area are not considered saline.

3.3. Topography and Drainage

Figure 3.3 presents topographical information overlain on the map of the Subject Site. The presented data shows that the Subject Site include a slight slope to the east.

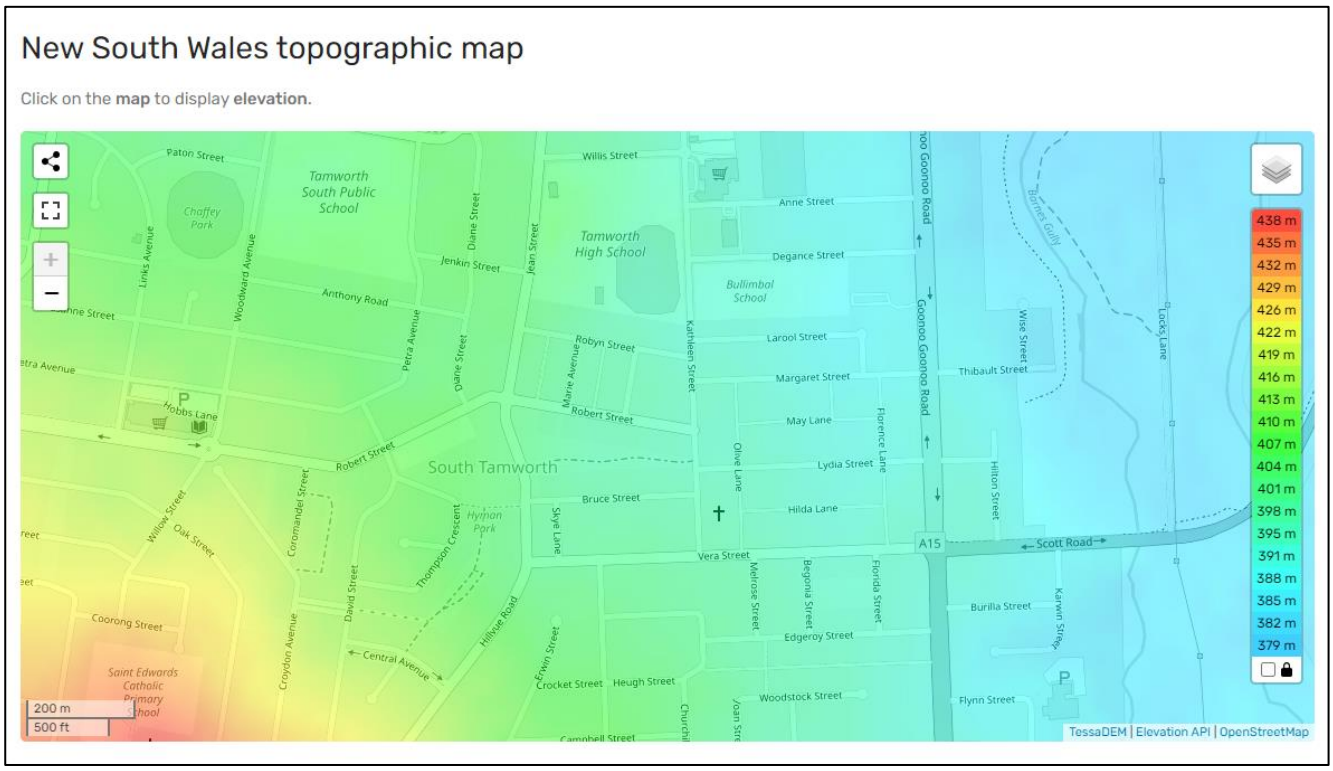

Figure 3.3: Subject Site topography.

Source: en-au.topographic-map.com, accessed 07/08/2023

The closest natural water body is the Goonoo Goonoo Creek located 1,000m to the east of the Subject Site.

3.4. Groundwater Resources

A review of existing groundwater bore records (WaterNSW, 2023) indicate that no groundwater bores are located within the boundaries of the Subject Site.

Two (2) bores are identified within 500m of the Subject Site. The location of these nearby groundwater bores is shown in Figure 3.4.

The information recorded in the database for the groundwater bores indicates the bores reach final depths ranging from 28.6m to 30.5m. Both the shallowest Standing Water Level (S.W.L) and Water Bearing Zone (W.B.Z) were recorded for the same bore (GW900877). They were recorded at 15.20m and 11.0m. According to the database, the bores are utilised for domestic purposes.

Groundwater Sensitivity mapping obtained from the ePlanning Spatial Viewer, indicate that the Subject Site is not located on environmentally sensitive land.

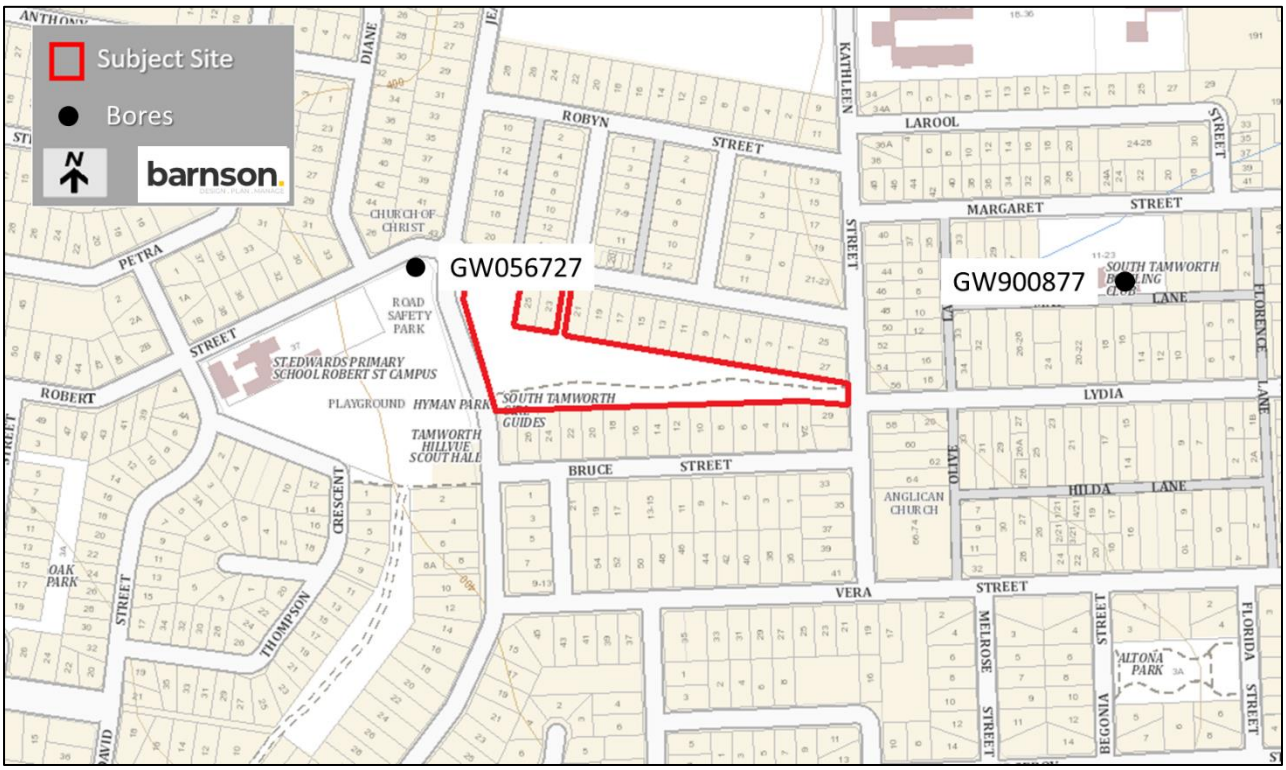

Figure 3.4: Groundwater bores near the subject site

Source: WaterNSW All Goundwater Map, accessed 07/08/2023

4. CONCEPTUAL SITE MODEL

4.1. General

The Conceptual Site Model (CSM) is intended to provide an understanding of the potential for contamination and exposure to contaminants within the investigation areas. The CSM draws together the available historical information for the site, with site specific geological, and hydrogeological information to identify potential contaminants, contamination sources, migration and exposure pathways and sensitive receptors.

4.2. Sources

The identification of sources presented here is based on the review of available historical information and photographs, as well as an understanding of current conditions at the Subject Site. The following is a summary of the potentially contaminated areas and sources of contamination identified:

- Landscaping Maintenance.

Landscaping and the grassed areas seem to be actively maintained and historically would have been maintained for use as public recreation area and possibly for use as netball court. Maintenance of lawn and plants could require the use of chemicals such as pesticides or fertilisers.

- Use, maintenance and storage of motorised vehicles and equipment.

The use of motorised gardening equipment as well as other vehicles historically driving across the site (tracks are evident) have the potential to contribute to localised contamination of surface soils through leakage and spillage of hydrocarbon fuel and lubricants during use and refuelling of the equipment.

- Demolition of Structures and Uncontrolled Waste Disposal

The subject site is not fenced and has the potential to be impacted by the uncontrolled disposal of waste. Historical photos of the site depicted a structure that has since been demolished. Materials that were used as part of the demolished structure are unknown and may have included hazardous materials such as asbestos and potentially lead based paint. Residues of these materials may be present on-site following the demolition of the structure.

4.3. Contaminants of Potential Concern

Considering the potential sources relevant to the Subject Site, a wide variety of contaminants may be present. With the historical landscape maintenance and vehicle use considered the primary potential sources of contamination. The residues of landscape chemicals such as pesticides and fertilisers, as well as hydrocarbons associated with motorised vehicles, are accepted as the most likely contaminants.

Of interest here are chlorinated organic compounds which historically have been widely used as insecticides, fungicides, herbicides and soil fumigants in landscaping and which are stable enough in the environment (persistent) to remain in soil for extended periods of time.

The presence of fuels and lubricants are further potentially relevant to the on-site storage, maintenance or movement of vehicles and equipment used in maintenance of vegetation.

Additionally, inorganic compounds that contain heavy metal including, copper, lead and zinc as well as asbestos are potential contaminants relevant ot the demolition of the structure formerly housed on the western extent of the Subject Site.

Based on this understanding of the site history and activities, the contaminants of potential concern identified for the investigation of the Subject Site include:

- heavy metals (As, Cd, Cr, Cu, Pb, Hg, Ni and Zn)
- pesticides (organochlorines, organophosphates);
- hydrocarbons (mainly fuel and lubricants); and
- asbestos

4.4. Pathways

The primary pathways by which receptors could be exposed to the contaminants outlined above include:

- Inhalation of dust or vapours.
- Dermal contact with contaminated soils.
- Incidental ingestion of contaminated soils.
- Surface runoff, sediment transport and discharge to surface waters.
- Vertical and horizontal migration of contamination through the soils into the underlying groundwater.

Of the listed potential pathways, the contamination of water resources through infiltration is considered the most unlikely. The Subject Site is not indicated as a groundwater vulnerable zone and the lack of groundwater bores and the presumed depth to groundwater at the site (>10m) would limit vertical migration of any contaminants which may be entering the surface soil from above.

4.5. Receptors

Potential receptors may include:

Human receptor populations

- Visitors to the site (e.g. members of the public making use of the facility, workers conducting maintenance, contractors,);

- Workers at the Clinic; and
- Workers involved in the construction of the Clinic facility.

Environmental Receptors

- Local drainage channels and receiving surface water bodies; and
- Groundwater resources beneath the site (negligible likelihood of contamination expected).

4.6. Potential for Contamination

The Subject Site is not listed in any of the contaminated land databases. Based on the results of the desktop assessment, the overall likelihood for *significant* chemical contamination to be present within the site is low.

Although former land use and activities at the site is reasoned to have a potential for contaminating surface soils, the type and quantity of contaminants introduced through this land use is not expected to have led to significant contamination.

5. SITE INVESTIGATION

5.1. General

The objective of the investigation is to determine whether there are any environmental risks associated with the Subject Site that could affect the proposed future development and would require further investigation or action to render the site suitable for its intended use.

The desktop evaluation of the site history and current use of the site did not identify any significant risks in this regard but did identify both historical and current land use activities that could contribute to contamination of the surface soils of the Subject Site.

Barnson conducted an inspection of the Subject Site on 27th September 2023. The purpose of the site inspection was to verify the findings of the desktop assessment, as well as to collect confirmatory samples of soil from areas of the Subject Site where development is proposed or contamination is suspected.

Based on the findings of the CSM the inspection and sampling were focussed on the surface soils (0-150mm). The site inspection included all areas of the Subject Site. During the site inspection the following observations were made:

- The Subject Site is not fenced on all sides and access to the site is not controlled. The Site is therefore susceptible to vehicles crossing over the site, as well as uncontrolled disposal of waste (Figure 5.1). However, at the time of the inspection no evidence of any disposal or waste stockpiling or burial was evident.
- At the time Barnson conducted the site inspection, grass running along a neighbouring dwelling's fence-line has an obvious discolouration which may have been caused by pesticide use (Figure 5.2).
- Maintained grasses evident all over the site (Figure 5.3).

Some gravel, indicative of materials stockpiles is evident at the base of an existing tree (

- Figure 5.4) located near Hillvue Road.
- Small trees/vegetation have been planted in the north-western portion of the site (Figure 5.5:) along the path of a underground sewer/stormwater line.

Figure 5.1: Photo from west depicting vehicle access.

Figure 5.2: Photo of discoloured grasses along dwelling fence line.

Figure 5.3: Maintained grasses in the central portion of the site.

Figure 5.4: Gravel evident at base of a tree near Hillvue Road.

Figure 5.5: Newly planted vegetation.

5.2. Confirmatory Sampling

The purpose of collecting confirmatory samples as part of the site inspection is to determine if any of the potential contaminants identified from the CSM are present. The samples are not intended for statistically valid characterisation or quantification of contamination levels.

Based on the findings of the CSM the inspection and sampling were focussed on the surface soils (0-150mm) and fragments of suspected hazardous materials. As it is accessible on site, groundwater as potential pathway is also included in the confirmatory sampling.

The site inspection included all accessible areas of the Subject Site. Samples of soil were collected in eight (8) different areas running from east to west across the site, and two (2) from the northern portion of the site. Figure 5.6 presents a map of the Subject Site with the locations of the surface soil samples indicated. Table 5.1 is a summary description of the collected samples.

Figure 5.6: Surface soil sample locations.

The pattern followed for the soil sampling can be described as Judgement Sampling, where points are selected on the basis of the information available of the historical land use and likely distribution of contaminants at a site. It is an efficient sampling method for confirmatory sampling that utilises knowledge of the site history and field observations to direct sample collection (NSW EPA, 2020).

Table 5.1: Summary of sample details.

Reference in Figure 5.6	Description
1	Surface soil (0-150mm) collected from eastern boundary.
2	Surface soil (0-150mm) collected from trees in eastern portion of the site.
3	Surface soil (0-150mm) collected from northern boundary where line of yellow grass was observed.
4	Surface soil (0-150mm) collected from southern boundary, following vehicle track.
5	Surface soil (0-150mm) collected from central portion of the site.
6	Surface soil (0-150mm) collected from bottom of small entrance from Robert Street.
7	Surface soil (0-150mm) collected in north-western portion of the site where netball courts may historically been located.

8	Surface soil (0-150mm) collected from area where gravel was observed near Hillvue Road.
9	Fill collected from location of historical location of a structure.
10	Surface soil (0-150mm) collected from the vehicle tracks.

The samples submitted for analysis were submitted to the Australian Laboratory Services (ALS) laboratory in Mudgee, for determination of the following parameters:

- metallic element (cadmium, chromium, copper, lead, nickel and zinc) concentrations, including arsenic and mercury in soil;
- extraction with organic solvent and analysis of Total Recoverable Hydrocarbons (TRH) fractions C6 to C40, benzene, toluene, ethylbenzene and total xylene (BTEX), Polycyclic Aromatic Hydrocarbons (PAHs), polychlorinated biphenyls (PCBs) and phenols; and
- extraction with organic solvent and analysis of Organochlorine (OCP) and Organophosphorus (OPP) pesticide compounds.
- asbestos screening.

The ALS laboratory is NATA accredited for all the analysis indicated above. Table 5.2 present a summary of the samples submitted for analysis as well as the sample numbers assigned to each analytical sample and the analysis requested for each.

Table 5.2: Summary of analysis undertaken on soil and water

Sample Number	Location Reference in Figure 5.6	Analysis
BH-01	1	TRH (C6-C40) / BTEXN / PAH / OC / PCB / 8 Metals
BH-02	2	TRH (C6-C40) / BTEXN / PAH / OC / PCB / 8 Metals
BH-03	3	TRH (C6-C40) / BTEXN / PAH / OC / PCB / 8 Metals
BH-04	4	TRH (C6-C40) / BTEXN / PAH / OC / PCB / 8 Metals
BH-05	5	TRH (C6-C40) / BTEXN / PAH / OC / PCB / 8 Metals
BH-06	6	TRH (C6-C40) / BTEXN / PAH / OC / PCB / 8 Metals
BH-07	7	TRH (C6-C40) / BTEXN / PAH / OC / PCB / 8 Metals
BH-08	8	TRH (C6-C40) / BTEXN / PAH / OC / PCB / 8 Metals

BH-10	10	TRH (C6-C40) / BTEXN / PAH / OC / PCB / 8 Metals
BH-A	8	Asbestos
BH-B	9	Asbestos

5.3. Analytical Results

The ALS report for the samples is attached as Appendix C. The laboratory report indicates that only heavy metals and trace quantities of organochlorine pesticide were detected in the soil. The concentrations of all other pesticides, petroleum hydrocarbons, polycyclic organic compounds as well as total polychlorinated biphenyls are indicated as below the limits of detection in all surface soil and sediment samples.

The metals detected include arsenic, chromium (Cr), copper (Cu), lead (Pb), nickel (Ni), and zinc (Zn). Concentrations of cadmium (Cd) and mercury (Hg) were shown to be below the limit of reporting in all samples.

Table 5.3 presents a summary of the compounds and elements detected above the limit of detection in surface soil samples.

Table 5.3: Summary of metals and hydrocarbons detected in soil samples collected from the Subject Site.

Element	BH-01	BH-02	BH-03	BH-04	BH-05	BH-06	BH-07	BH-08	BH-10
	mg.kg^{-1}								
Arsenic (As)	<5	<5	5	5	<5	<5	<5	<5	9
Cadmium (Cd)	<1	<1	<1	<1	<1	1	<1	<1	<1
Chromium (Cr)	26	22	21	33	16	26	17	18	24
Copper (Cu)	39	32	43	50	43	36	24	18	40
Lead (Pb)	46	15	17	12	15	17	18	9	14
Mercury (Hg)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel (Ni)	16	20	17	30	17	23	14	12	25
Zinc (Zn)	119	135	80	89	66	88	68	45	71
Heptachlor epoxide	0.08	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Trans-Chlordane	0.16	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

No asbestos fibres were detected in any of the two surface soil samples submitted for analysis.

5.4. Analytical Data Quality

Samples were collected in new, clean containers using cleaned equipment and soils were placed in glass jars provided by the laboratory that were refrigerated after filling and transported in an insulated container to the laboratory. Chain of custody was recorded for all samples. A copy of the signed sheet is attached as Appendix C.

The analyses were undertaken at a NATA accredited laboratory. The laboratory quality control procedures in the form of duplicates as well as analyte and surrogate spikes were applied to all contaminant classes analysed. The results reported for the duplicate is within the Relative Percent Difference range of the acceptance criteria for a duplicate sample. The analyte spike recoveries reported for the different sets of organic analytes are indicated as within the acceptance criteria (see Appendix C).

All media appropriate to the objectives of this investigation have been adequately analysed and no area of significant uncertainty exist. It is concluded the data is suitable for the purposes of the contaminated site investigation.

6. ASSESSMENT

6.1. Assessment Criteria – Human Health and Environmental Risk

Screening for human health and ecological risk, utilises published human health investigation levels (HILs) and ecological screening and investigation levels (ESLs & EILs) from the National Environment Protection (Assessment of Site Contamination) Measure (NEPC, 1999) to identify contaminant concentrations in soil that may pose a risk to future residents, people visiting the site, or to ecological receptors.

HILs are scientifically based, generic assessment criteria designed to be used in the screening of potential risks to human health from chronic exposure to contaminants. HIL's are conservatively derived and are designed to be protective of human health under the majority of circumstances, soil types and human susceptibilities and thus represent a reasonable 'worst-case' scenario for specific land-use settings.

The HILs selected for evaluation of the Investigation Areas are those derived for a standard residential scenario (HIL-A), which assumes typical residential land use with garden/accessible soil (home grown produce <10% fruit and vegetable intake, and no poultry). The standard residential scenario is conservative to use for evaluation of a health services facility as the exposure pathways included in the residential scenario are unlikely to exist in the proposed development. However, the more conservative HILs are used to account for sensitive receptors such as children, the elderly or persons with illnesses which may be visiting the proposed facility.

Although the primary concern in most site assessments is protection of human health, the assessment should also include consideration of ecological risks and protection of groundwater resources that may result from site contamination. EILs provide screening criteria to assess the effect of contaminants on a soil ecosystem and afford species level protection for organisms that frequent or inhabit soil and protect essential soil processes.

Ecological investigation levels (EILs) have been derived for common metallic contaminants in soil. The values selected for the evaluation of the heavy metals detected in the soil samples from the Subject Site considers the physicochemical properties of soil and contaminants and the capacity of the soil to accommodate increases in contaminant levels above natural background while maintaining ecosystem protection for identified land uses. There are no ecological screening guidelines for the organochlorine pesticides detected in the samples of soil from the Subject Site.

Table 6.1 presents a summary of the health-risk based criteria and ecological investigation levels selected for assessment of the detected metal and pesticide concentrations.

It was confirmed that limits of detection reported by the laboratory are below the criteria values. All other contaminants analysed for in the soil samples that are reported below the limit of detection by the laboratory can therefore be excluded from further assessment.

Table 6.1: Human health and ecological risk screening levels.

Element	Health-based Investigation Levels HIL A Residential mg.kg^{-1}	Ecological Investigation Levels (EIL) Urban residential and public open space mg.kg^{-1}
Arsenic (As)	100	100
Cadmium (Cd)	20	NA
Chromium	NR	190
Copper (Cu)	6,000	190
Lead (Pb)	300	1,100
Mercury (Hg)	40	NA
Nickel (Ni)	400	30
Zinc (Zn)	7,400	230
Heptachlor	6	NA
Chlordane	50	NA

Note: NR=not relevant due to low human toxicity of Cr(III). NA=No applicable screening level. EILs selected are most conservative values relevant to residential land use scenario.

6.2. Findings

Direct comparison of the analytical results presented in Table 5.3 with the assessment criteria (refer Table 6.1) show that detected metal concentrations in samples collected from the Investigation Area are well below the health and ecological risk-based criteria values. The general low concentrations of heavy metals detected suggest naturally occurring element abundance and is most likely not related to the historical activities conducted at the Subject Site.

No asbestos fibres were detected in the samples of soil collected from the Subject Site. No fragments of fibre cement or any evidence of demolition waste was observed anywhere on Site. The evidence of potential material stockpiling (gravel observed under tree) was investigated with a sample of soil from the area. No contaminants were present at elevated levels and no asbestos fibres were identified.

One sample of soil collected at the down-slope end of the Subject Site contained trace quantities of chlorinated pesticides. The presence of the pesticide traces at this location most likely relate to sedimentation of silt from the surface water flowing across the site where the pesticide was applied at this 'down-stream' location where the surface water would exit the site. The concentrations detected are very low (just above the limit of detection) and since no pesticides were detected in any of the other samples, significant quantities are not expected to be present at the Subject Site.

These results verify the assertion that the activities previously undertaken at the site did not contribute significant or widespread contamination to the surface soils.

7. CONCLUSIONS AND RECOMMENDATIONS

7.1. Conclusions

In accordance with the objectives stated in Section 1.2, and based on the information contained within this assessment, the following conclusions are presented (subject to the limitations noted in Section 1.5):

- Activities associated with the historical and current use of the Subject Site were identified as having a potential to contaminate surface soil at the site.
- The following potential sources of contamination were identified:
  - Landscaping Maintenance.
  - Use of motorised vehicles and equipment
  - Demolition activities or uncontrolled disposal of waste
- A review of the available historical information, including contaminated sites databases and aerial photographs, indicated a low potential for significant environmental contamination to be present across the Subject Site.
- The analysis of surface soil samples collected at the site confirmed that average concentrations of all contaminants investigated were below screening criteria in all samples analysed. No significant concentrations of persistent pesticides or herbicides were detected in any of the samples collected.
- The screening criteria used in the evaluation of the contaminant concentrations were appropriately conservative and suitable for assessment of the continued use of the site for health-care purposes.
- Based on the findings of the desktop review and site investigation it is concluded that the Subject Site is suitable for the proposed redevelopment. No contamination or potential sources of contamination were identified that is likely to have an impact on the proposed health-care land use.

7.2. Recommendations

- Based on the findings of the desktop review and site investigation it can be stated with a reasonable level of confidence that the Subject Site is suitable for the intended redevelopment and land use.

8. REFERENCES

Australian Standard. (2017). *Guide to hazardous paint management, Part 2: Lead paint in residential, public and commercial buildings.* Canberra: Austraslian Government.

NEPC. (1999). *National Environment Protection (Assessment of Site Contamination) Measure (as amended, 2013).* National Environment Protection Council.

NSW EPA. (1995). *Contaminated Sites: Sampling Guidelines.* NSW Environmental Protection Agency.

NSW EPA. (2014). *Waste Classification Guidelines - Part 1: Classifying Waste, EPA2014/0796.* Sydney: NSW Environmental Protection Authority.

NSW EPA. (2014a). *Resource Recovery Order under Part 9, Clause 93 of the Protection of the Environment Operations (Waste) Regulation 2014, The excavated natural material order 2014.* Sydney: NSW Environment Protection Authoroty.

NSW EPA. (2020). *Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites.* NSW Environmental Protection Agency.

SafeWork NSW. (2019). *Code of Practice: How to Safely Remove Asbestos.* Sydney: NSW Government.

WaterNSW. (2023). *Real Time Data.* Retrieved February 27, 2023, from Water NSW: https://realtimedata.waternsw.com.au/water.stm

barnson.

APPENDIX A

Development Plans

DRAFT ONLY - NOT TO BE CONSTRUCTED

LOCALITY PLAN.

hillvue road, south tamworth nsw 2340

lot 2, dp1264030

DRAWING SCHEDULE.

A 00	COVER SHEET	REV C	DATED 26.07.2023
A 01	SITE PLAN	REV C	DATED 26.07.2023
A 02	3D PERSPECTIVES	REV A	DATED 26.07.2023
A 03	MEDICAL CENTRE PLAN	REV C	DATED 26.07.2023
A 04	WELL BEING CENTRE PLAN	REV C	DATED 26.07.2023
A 05	ALLIED HEALTH SERVICES	REV C	DATED 26.07.2023

PROJECT DESCRIPTION.

For the purpose of the Building Code of Australia, Vol. 1, 2019, the development may be described as follows:

classification - BCA 'part A6'
The medical service building has been classified as a 'Class 9a' building - health care building'
The Professional tenancies building has been classified as a 'Class 9a' building - health care building'
The Well being Centre has been classified as a 'Class 9b' building - assembly building

rise in stories - BCA 'part C1.2'
The building has a rise in stories of one.

effective height - BCA 'schedule 3 definitions'
The building has an effective height of zero, ie less than 25.0m.

type of construction required - BCA 'part A6, part C1.1 - table C1.1'
Class 9b building - Type 'C' construction. The building has been deemed 'conditioned' excluding the toilets & airlocks.

climate zone - BCA 'schedule 3 definitions'
The building is located within climate zone 4.

GENERAL NOTES.

In addition to the National Construction Code series, Building Code of Australia Vol. 1, 2019, the Plumbing Code of Australia, 2019 & the building regulations applicable to the state of New South Wales, the following applicable Australian Standards & codes of practice are to be adhered to through the documentation & construction works;

AS1668 – Mechanical ventilation & air conditioning in Buildings
AS3000 – Electrical installations; buildings, structures & premises (known as the saa wiring rules)
AS1428.1 – General requirements for access – buildings
AS2890.6 – Off-street parking; mandatory requirements
AS1680.0 – Interior lighting - safe movement
Children (Education & Care Services) Regulation 2011

These drawings shall be read in conjunction with all architectural & other consultants drawings & specifications & with such other written instructions as may be issued during the course of the contract. All discrepancies shall be referred to 'Barnson Pty Ltd' for a decision before proceeding with the work.

All dimensions are in millimetres unless stated otherwise & levels are expressed in metres. Figured dimensions are to be taken in preference to scaled dimensions unless otherwise stated. All dimensions are nominal, and those relevant to setting out & off-site work shall be verified by the contractor before construction & fabrication.

PROPOSED MEDICAL CENTRE DEVELOPMENT

HILLVUE ROAD, SOUTH TAMWORTH NSW 2340
LOT 2 - DP1264030

barnson.
DESIGN . PLAN . MANAGE

Project.
PROPOSED MEDICAL CENTRE DEVELOPMENT
Site Address.
HILLVUE ROAD, SOUTH TAMWORTH NSW 2340
LOT 2 - DP1264030
Client.
TAMWORTH ABORIGINAL MEDICAL SERVICE

Drawing Title.
COVER SHEET

Scale. As indicated @ A1
Sheet. 01 of 06
Project No. 40924
Drawn. LO
Checked. KG
Revision. C

Drawing No.
40924-A00

01 SITE LAYOUT

Scale 1 : 500 @ A1

0 5000 10000 20000 50000

ISSUED FOR GRANT APPLICATION

barnson.
DESIGN . PLAN . MANAGE

BARNSON PTY LTD

address. Suite 8, 11 White Street
Tamworth NSW 2340
phone. 1300 BARNSON (1300 227 676)
email. generalenquiry@barnson.com.au
web. barnson.com.au

Rev.	Date.	Amendment.
A	12.05.2023	PRELIMINARY
B	29.05.2023	CONCEPT
C	26.07.2023	ISSUED FOR GRANT APPLICATION

Project.
PROPOSED MEDICAL CENTRE DEVELOPMENT
Site Address.
HILLVUE ROAD, SOUTH TAMWORTH NSW 2340
LOT 2 - DP1264030
Client.
TAMWORTH ABORIGINAL MEDICAL SERVICE

Drawing Title.
SITE PLAN

Scale. As indicated @ A1
Sheet. 02 of 06
Project No. 40924
Drawn. LO
Checked. KG
Revision. C

Drawing No.
40924-A01

ISSUED FOR GRANT APPLICATION

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DESIGN . PLAN . MANAGE

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Tamworth NSW 2340
phone. 1300 BARNSON (1300 227 676)
email. generalenquiry@barnson.com.au
web. barnson.com.au

Rev.	Date.	Amendment.
A	26.07.2023	ISSUED FOR GRANT APPLICATION

Project.
PROPOSED MEDICAL CENTRE DEVELOPMENT
Site Address.
HILLVUE ROAD, SOUTH TAMWORTH NSW 2340
LOT 2 - DP1264030
Client.
TAMWORTH ABORIGINAL MEDICAL SERVICE

Drawing Title.
3D PERSPECTIVES

Scale. @ A1
Sheet. 03 of 06
Project No. 40924
Drawn. LO
Checked. KG
Revision. A

Drawing No.
40924-
A02

03 MEDICAL CENTRE FLOOR PLAN

Scale 1 : 150 @ A1

0 1500 3000 6000 15000

N

AREAS

MEDICAL CENTRE GROSS FLOOR AREA	2400m2
EXTERNAL PAVEMENT + INTERNAL COURTYARDS	1450m2

STAFF NUMBERS

CLINICAL WING 20 consult rooms, 4 Dental Rooms, 1 pathology office, 1 office	subtotal = 26 staff
ADMINISTRATION Executive offices (6), Open Office (12), Admin office (3), Reception (4)	sub total = 25 staff
COUNSELLING WING 8 Consult rooms, 1 Managers office	subtotal = 9 staff
	Total = 60 staff

ISSUED FOR GRANT APPLICATION

barnson.
DESIGN . PLAN . MANAGE

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email. generalenquiry@barnson.com.au
web. barnson.com.au

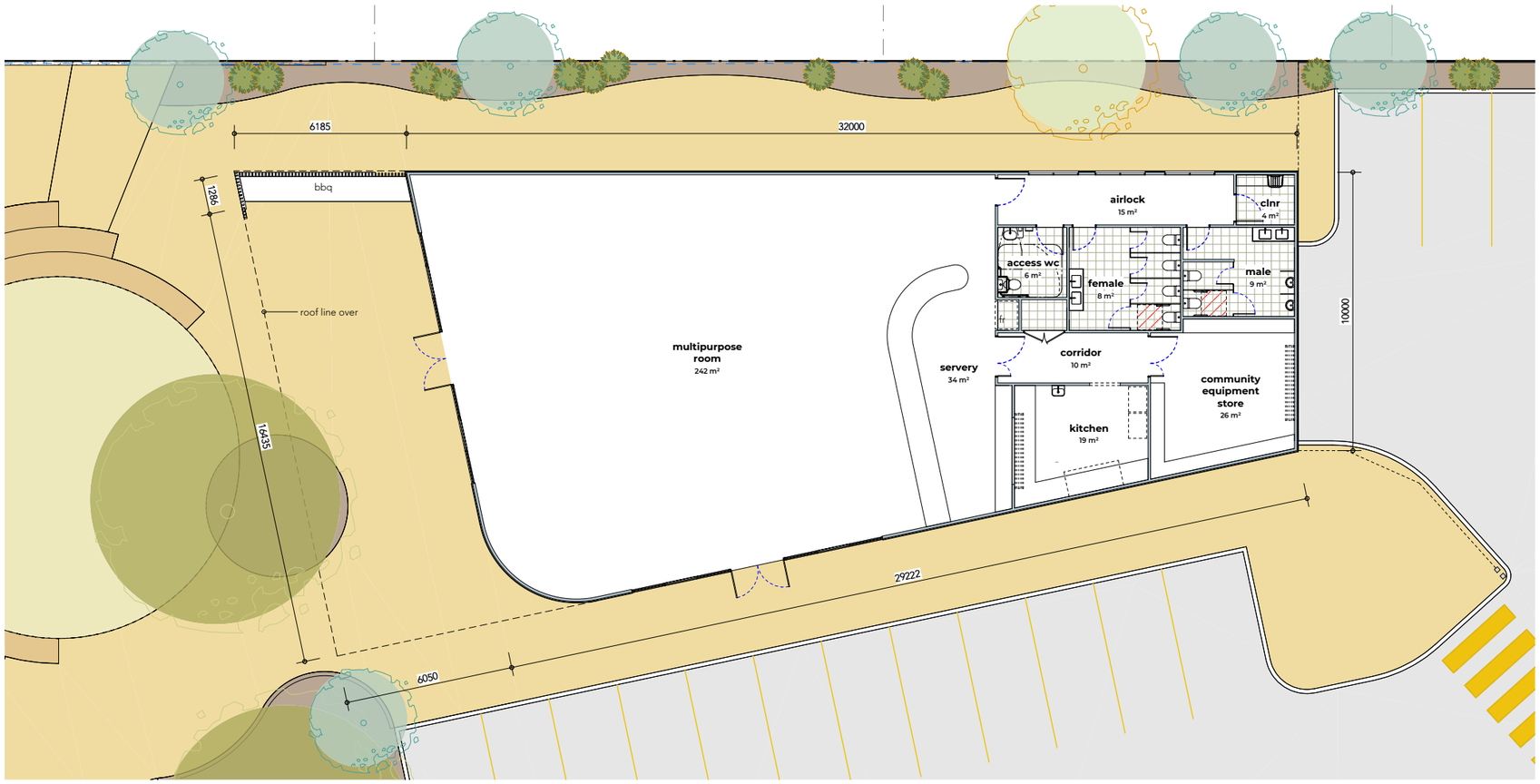
Rev.	Date.	Amendment.
A	12.05.2023	PRELIMINARY
B	29.05.2023	CONCEPT
C	26.07.2023	ISSUED FOR GRANT APPLICATION

Project.
PROPOSED MEDICAL CENTRE DEVELOPMENT
Site Address.
HILLVUE ROAD, SOUTH TAMWORTH NSW 2340
LOT 2 - DP1264030
Client.
TAMWORTH ABORIGINAL MEDICAL SERVICE

Drawing Title.
MEDICAL CENTRE PLAN

Scale. As indicated @ A1
Sheet. 04 of 06
Project No. 40924
Drawn. LO
Checked. KG
Revision. C

Drawing No.
40924-A03



03 WELL-BEING CENTRE FLOOR PLAN

Scale 1 : 100 @ A1

0 1000 2000 4000 10000

ISSUED FOR GRANT APPLICATION

barnson.
DESIGN . PLAN . MANAGE

BARNSON PTY LTD

address. Suite 8, 11 White Street
Tamworth NSW 2340
phone. 1300 BARNSON (1300 227 676)
email. generalenquiry@barnson.com.au
web. barnson.com.au

Rev.	Date.	Amendment.
A	12.05.2023	PRELIMINARY
B	29.05.2023	CONCEPT
C	26.07.2023	ISSUED FOR GRANT APPLICATION

Project.
PROPOSED MEDICAL CENTRE DEVELOPMENT
Site Address.
HILLVUE ROAD, SOUTH TAMWORTH NSW 2340
LOT 2 - DP1264030
Client.
TAMWORTH ABORIGINAL MEDICAL SERVICE

Drawing Title.
WELL BEING CENTRE PLAN

Scale.	1 : 100 @ A1	Drawn.	LO
Sheet.	05 of 06	Checked.	KG
Project No.	40924	Revision.	C

Drawing No.
40924-
A04

04 ALLIED HEALTH SERVICES - FLOOR PLAN

Scale 1 : 100 @ A1

0 1000 2000 4000 10000

ISSUED FOR GRANT APPLICATION

barnson.
DESIGN . PLAN . MANAGE

BARNSON PTY LTD

address. Suite 8, 11 White Street
Tamworth NSW 2340
phone. 1300 BARNSON (1300 227 676)
email. generalenquiry@barnson.com.au
web. barnson.com.au

Rev.	Date.	Amendment.
A	12.05.2023	PRELIMINARY
B	29.05.2023	CONCEPT
C	26.07.2023	ISSUED FOR GRANT APPLICATION

Project.
PROPOSED MEDICAL CENTRE DEVELOPMENT
Site Address.
HILLVUE ROAD, SOUTH TAMWORTH NSW 2340
LOT 2 - DP1264030
Client.
TAMWORTH ABORIGINAL MEDICAL SERVICE

Drawing Title.
ALLIED HEALTH SERVICES

Scale.	1 : 100 @ A1	Drawn.	LO
Sheet.	06 of 06	Checked.	KG
Project No.	40924	Revision.	C

Drawing No.
40924-A05

barnson.

APPENDIX B

Historical Information

PATON STREET
NORTHCOTT CLOSE
ANTHONY ROAD
SUSANNE ROAD
PETRA AVENUE
WOODWARD AVENUE
ANTHONY ROAD
JENKIN STREET
SOUTH TAMWORTH PRIMARY SCHOOL
PT. 1·037 ha GRANT
PT. 1·037 ha GT.
253 m² GT
PT. 1·037ha GT
WILLIS STREET
SOUTH TAMWORTH PUBLIC SCHOOL
WITHIN PROCLAIMED SURVEY AREA
GAZ. 18-10-1968 Fol 4164
KATHLEEN STREET
ANNE STREET
DEGANCE STREET
TAMWORTH HIGH SCHOOL
LAROOL STREET
MARGARET STREET
ROBYN STREET
JEAN ST
MARIE ST
PATRICIA AVE
DIANE STREET
PETRA STREET
DAVID STREET
HOBBS LANE
ROBERT STREET
PLAN DP247932 NOT ACTED ON 29/1/01
LINKS AVENUE
OAK STREET
ELM STREET
WILLOW STREET
CROYDON AVENUE
CORIMANDEL ST
BARSDEN PARK
CENTRAL AVE
COORONG STREET
WONGALA STREET
THOMSON ST
MILLS ST
CRESCENT
HILLVUE ROAD
HILLVUE
RESERVOIR ST
PAUL ST
JONTHAN ST
ERWIN ST
CAMPBELL STREET
WARREN STREET
BRUCE STREET
SKYE LANE
VERA STREET
HEUGH STREET
CROCKET ST
EDWARD ST
CHURCHILL ST
EDGEROY STREET
WOODSTOCK STREET
CAMBRIDGE STREET
COBLEY AVE
BAIRD CRES
LUMEAH ST
JOAN ST
MELROSE ST
BEGONIA ST
FLORIDA ST
CLIVE AVENUE
OLIVE AVENUE
LYDIA STREET
HILDA LANE
MAY LANE
HYMAN PARK
PUBLIC RESERVE (63²)
70401 (H)
PT. 1268 km² GRANT
ALTONA PARK

30027

TAMWORTH T9152-41

N.S.W. AUSTRALIA

1:2000 URBAN CADASTRAL SERIES

METRES 10 20 0 40 80 120 160 METRES

THIS MAP IS CONTINUOUSLY UPDATED

DATE OF UPDATING 11.10.91

KEY TO ADJOINING SHEETS

34	13	14
62	41	42
64	43	44

T8252

KEY TO LOCALITIES

TAMWORTH SOUTH

CORNER VALUES (ISG)

1557500mN

291000mE 292500mE

1556250mN

KEY TO LOCAL GOVERNMENT AREAS

CITY OF TAMWORTH

KEY TO PARISH AND COUNTY

CALALA

COUNTY OF PARRY

ACCURACY: Conforms to National Mapping Council standards.
CONTROL: State Trigonometrical Survey.
PROJECTION: Transverse Mercator in 2° zones.
GRID: Integration Survey Grid, Zone 56-1, Central Meridian 151°E.

TITLE CONVERSION ACTION NUMBER C1234
PRIMARY APPN (NO PLAN) A
IVA ACTION E
COMPILATION C
HISTORICAL H
WITHIN PROC. SURVEY AREA
GT. BDIES (NOT CURRENT PARCEL)
R.P. ACT LAND BDIES.
Parish boundary
County boundary
City, Municipal and Shire boundary
Consolidation boundary
Easement
Portion number 101
Allotment number "
Crown Section number 13
Lot number 57
Private Section number 2
Deposited and Filed Plan number 220631
Unregistered Deposited Plan number 233137
Strata Plan number SP 2694

REFERENCE TO CROWN PARCEL

POR.	VOL. FOL. / GRANTEE	PLAN
1268 km² GT.	AUSTRALIAN AGRICULTURAL COMPANY 20-11-1847.	
1·037 ha GT	10547 18	
25·3 m² GT	10425 25	
LOT 1 D.P. 247932		
LOT 1 D.P. 254176	13351 126	
LOT 1 D.P. 256613	13772 15	

PRODUCED BY THE
CENTRAL MAPPING AUTHORITY,
DEPARTMENT OF LANDS, N.S.W.
FIRST EDITION 1973

PREPARED: 29/9/77
EXAMINED: 19.10.77

FEET CHAINS 1:2000

LINKS 1:2000 METRES

TAMWORTH 9152-41-A

NOTES

NO.	POR.	PARTICULARS
(1)	N.E.	583084 - WITHDRAWN.
(2)	N.E.	RESUMED FOR HOUSING PURPOSES. GAZ. 18-3-1977, FOL. 1047. F47290 N.P.W.
(3)	N.E.	511537 (H) 584152 (H)
(4)	S.E.	AFFECTED BY PROCLAIMATION UNDER SEC. 340C L.G.A. 1919. GAZ. 9-9-1966, FOL. 3756.
(5)	S.E.	AFFECTED BY PROCLAIMATION UNDER SEC. 340C L.G.A. 1919, GAZ. 9-6-1967, FOL. 2062.
(6)	N.E.	RESUMED FOR HIGH SCHOOL GAZ. 22-7-1960, FOL. 2256. - C42489
(7)	N.E.	525414 - WITHDRAWN, 164720 (H) - C42490
(8)	W	221539 - WITHDRAWN
(9)	S	DEDICATED AS RESERVE FOR ~~PUBLIC RECREATION~~ DRAINAGE PURPOSES GAZ. 5-5-1961, FOL. 1293.
(10)	S.W.	DEDICATED PUBLIC HIGHWAY SEC. 81 R.W. ACT 1912, GAZ. 5-7-1957, FOL. 2084.
(11)	N.E.	152226 (H)
(12)	S.W.	DEDICATED AS PUBLIC HIGHWAY, GAZ. 1-7-1960, FOL. 2071.
(13)	W	380178 - ROAD.
(14)	N	LOT 44 - 28232
(15)	N.E.	512332 (H)
(16)	S.E.	20905 (H), 501967 (H)
(17)	N.E.	588990 (H)
(18)	NE	F 26165
(19)	N.W.	CLOSED ROAD GAZ. 22-9-1978 FOL. 4088
20	NE	LOT 8 - 223116
21	NW	LOT. 65 - 238150
22	N.W	LOT. 31 - 215743
23	N E	LOT 1 - 606139
24	N.W.	LOT 63 - 238150
25	NW	LOT 66 - 238150
26	NW	LOT 71 - 238150
27	NW	LOT 55 - 238150
28	NW	LOT 67 - 238150
29	N.E.	LOT 20 IN 15714
(30)	N.E	LOT 440 - 618929
(31)	N	LOT 45 - 28232
(32)	N.E.	533017 (H)
(33)	N.W.	LOT 5 - 23706
(34)	NW	LOT 59 - 238150
(35)	NW	CROWN TITLE INFORMATION - LOT 1 D.P. 256613
(36)	N.E.	LOT 38, SEC. G IN 20599
(37)	E	LOT 391 - 622246 (C)
(38)	NW	LOT 62 - 238150
(39)	NW	LOT 57 - 238150
(40)	E	LOT 93 - 15714
(41)	W	LOT 58, 238150
42	NW	LOT 501 - 610187 (C)
43	N	533475 (K) - ACQUISITION
44	C	LOT 48 - SEC E - 20599
45	NE	LOT 151 - 602828
46	NW	LOT 48 - 238150
47	S	LOT 1 - SEC J - 30697
48	NE	607389 (H)
49	D4	EXTENSION OF CITY BOUNDARY - GAZ. 20-12-57 FOL. 4198-9
50	E3	CLOSED ROAD - GAZ. 11-6-65 FOL. 1858 R27283 1603 VOL. 10547 FOL. 18
51	E5,6 D5,6 C5,6	975065 (C) (H)
52	E3	LOTS 41, 42 & 43 - 28232
53	B4	LOT 22 - 584685
54	01	LOT 38 - 238150
55	E5	508263 (H). C22937.
(56)	D2	238150 (H)
(57)	D2	LOT 64 - 238150
58	E1	249744 (H)
59	E6	LOT 4 - 511537
60	E6	644221 (C) - EASEMENT
61	E6	LOT 1 - 511537
62	E6	LOT 21 - 584153
63	D4	PUBLIC RESERVE IN D.P. 20599 LOT 39 VESTED IN COUNCIL VIDE GAZ. 13-11-1987 FOL. 6361
64	C4	GAZ. 11-9-1987 FOL. 5299
65	E5	SP 40017 (~~UNDEDICATED~~)
66	E6	SP 40438 (~~UNDEDICATED~~)
67	E2	SP 42304
68	E2	SP 45921
69	C5	SP 46045
70	C5	DP 839007
71	D5	CG 4526.
72	C6	SP 48686 (LOTS 1-5)
73	D1	DP 845717 (LOTS 30-31)
74	B3	DP 854385 (LOTS 8-9)
75	B3	PATHWAY ~~DEDICATED~~ 12 WD DEDICATED BY DP 22546
76	B3,C3	SEE NOTE (9), NOW LOT A in DP 36322
77	C2	389275 (H)
78	B6	PATHWAY(S) 6.046 wide dedicated by DPs 22316 & 22743 respectively
79	E6	C59980
80	D6	DP 859685 (LOTS 111 - 112).
81	EC	SP 52902 LOTS 1-3)
82	D2	DP 133570 (C) - D.P. 133570 CANCELLED CREATED IN ERROR.
83	D6	DP 876159 (LOTS 191-192)
84	D6	SP 56864 (LOTS 1-2)
85	D5	C73499
86	D1	SP 58017 (LOTS 1-12)
87	D1	DP 881251 (LOT 1)
88	D1	DP 881526 (LOTS 10-12)
89	D1	D.P. 1009239 - LOTS 13-16.
90	C-D1	DP 1015322 - CLOSED ROAD UNDER THE ROADS ACT, 1993.
91	NE	Strata Plan 20763 is terminated. See 6732524
92	D1	LOT 1 D.P. 1015322 CLOSED ROAD SEE GAZ. 24.11.2000 FOL. 11976 (7290672)
93	E6	C85503
94	D_1-E_2	SP 68816 (LOTS 1-5)

LOT 1 D.P. 1015322 closed Road See Gaz. 24.11.2000 Fol. 11976 (7290672)

D650648 11.4.47.
Shire of Peel

M.M.

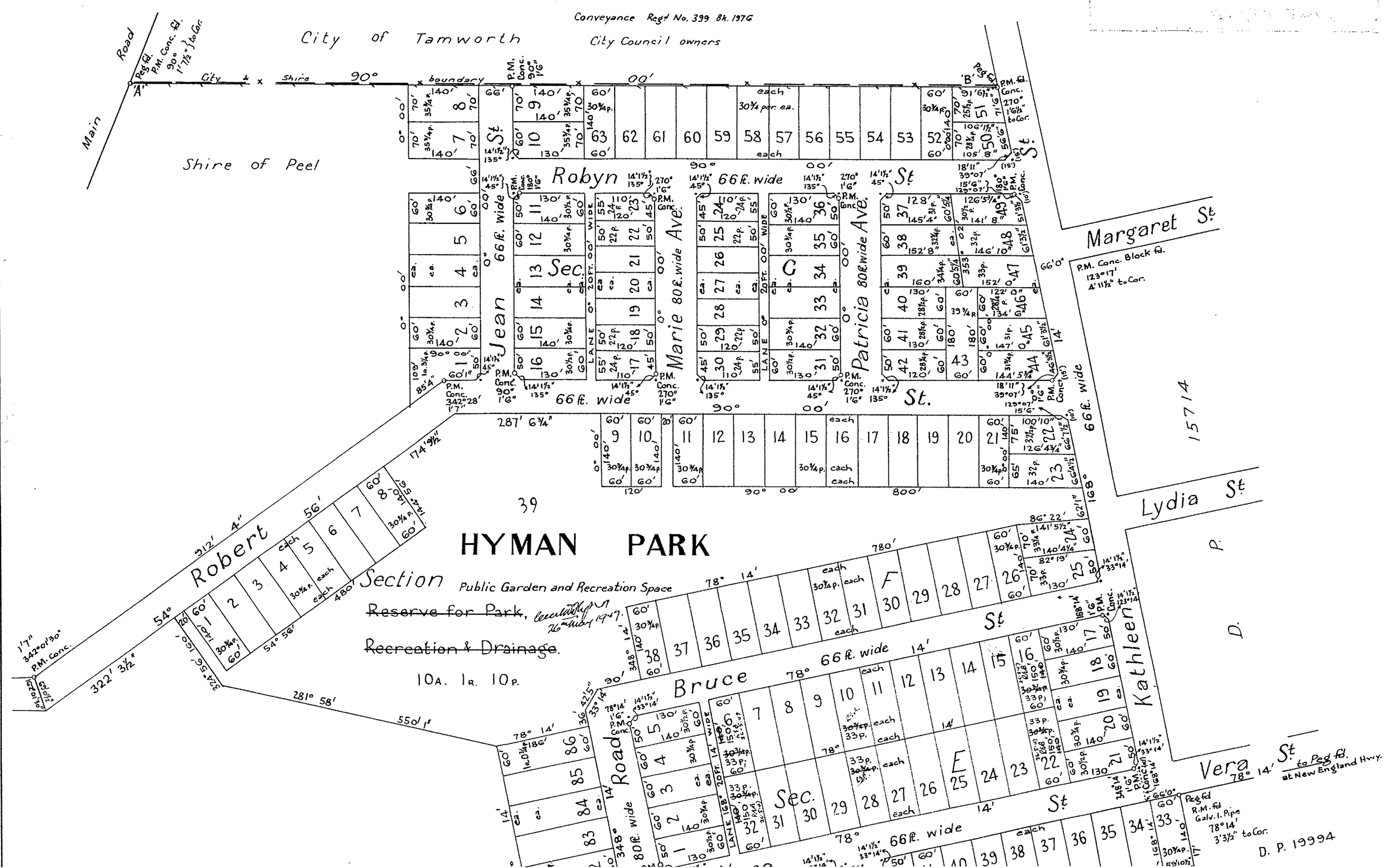
PLAN

of HILLVUE Residential Sections being part of C. of T. vol. 4185 fol. 85

Parish of Calala | *County of Parry*

Scale — 150 ft. to 1 in.

DEP 3rd — PLAN No. 20599 (E) — July 47

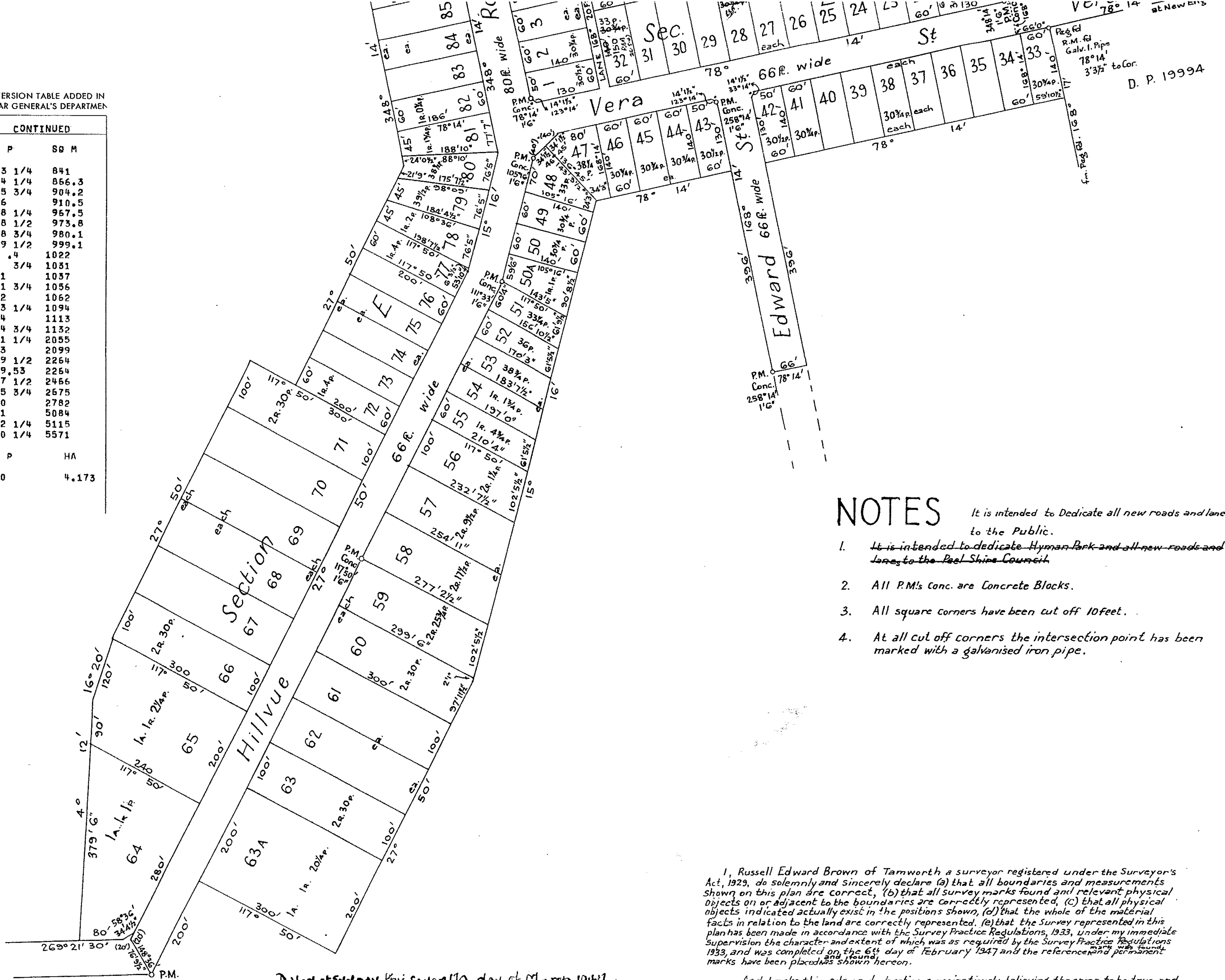


CONVERSION TABLE ADDED IN REGISTRAR GENERAL'S DEPARTMENT

DP 20599 CONTINUED

AC	RD	P	SQ M
-	-	33 1/4	841
-	-	34 1/4	866.3
-	-	35 3/4	904.2
-	-	36	910.5
-	-	38 1/4	967.5
-	-	38 1/2	973.8
-	-	38 3/4	980.1
-	-	39 1/2	999.1
-	1	.4	1022
-	1	3/4	1031
-	1	1	1037
-	1	1 3/4	1056
-	1	2	1062
-	1	3 1/4	1094
-	1	4	1113
-	1	4 3/4	1132
-	2	1 1/4	2055
-	2	3	2099
-	2	9 1/2	2264
-	2	9.53	2264
-	2	17 1/2	2466
-	2	25 3/4	2675
-	2	30	2782
1	1	1	5084
1	1	2 1/4	5115
1	1	20 1/4	5571

AC	RD	P	HA
10	1	10	4.173



NOTES

It is intended to Dedicate all new roads and lanes to the Public.

1. ~~It is intended to dedicate Hyman Park and all new roads and lanes to the Peel Shire Council.~~ 26th May 1947
2. All P.M.'s Conc. are Concrete Blocks.
3. All square corners have been cut off 10feet.
4. At all cut off corners the intersection point has been marked with a galvanised iron pipe.

I, Russell Edward Brown of Tamworth a surveyor registered under the Surveyor's Act, 1929, do solemnly and sincerely declare (a) that all boundaries and measurements shown on this plan are correct, (b) that all survey marks found and relevant physical objects on or adjacent to the boundaries are correctly represented, (c) that all physical objects indicated actually exist in the positions shown, (d) that the whole of the material facts in relation to the land are correctly represented. (e) that the Survey represented in this plan has been made in accordance with the Survey Practice Regulations, 1933, under my immediate supervision the character and extent of which was as required by the Survey Practice Regulations 1933, and was completed on the 6th day of February 1947 and the reference and permanent marks were found and 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.

R.E. Brown
Surveyor Registered under the Surveyor's Act, 1929.

Subscribed and declared before me at Tamworth this 8th day of February 1947.
A. E. Taylor J.P. Justice of Peace.

R.E. Brown
Surveyor Registered under the Surveyor's Act 1929.

Resubscribed and redeclared before me at Tamworth this 26th day of May 1947.
J.P.

Dated at Sydney this seventh day of March 1947
Signed for and on behalf of The National Bank of Australasia Limited by its Attorneys William Henry Evans and John Lionel Nave who are personally known to and in the presence of

I, Eric Montague Hyman of Tamworth the Registered Proprietor of the land contained in Certificate of Title Registered Volume 4185 Folio 85 hereby dedicate the public roads and park marked in the above plan to the Peel Shire Council.
Dated at Tamworth this twentieth of February 1947
Signed by the said Eric Montague Hyman in the presence of :- } E. Hyman
Tamworth

Approved by Council and covered by Council Clerk's Certificate
No. 121 of 14.2.1947. The Common Seal of Council was hereunto affixed this 14th day of February 1947 in pursuance of Resolution dated the 14th day of February 1947.

Council Clerk
R.H. Butt President.

Datum line of Azimuth A.B.

DP 20599 (E)[2]

CONVERSION TABLE ADDED IN REGISTRAR GENERAL'S DEPARTMENT

DP 20599 CONTINUED

FEET	INCHES	METRES
90	8 1/2	27.65
91	6 1/2	27.9
97	11 1/2	29.86
100	-	30.48
100	10	30.735
102	5 1/2	31.23
105	8	32.205
106	1 1/2	32.345
110	-	33.53
120	-	36.575
122	-	37.185
126	4 3/4	38.525
126	5 3/4	38.55
128	-	39.015
130	-	39.625
140	-	42.67
140	4 1/4	42.78
141	5 1/2	43.115
141	8	43.18
143	3 1/2	43.675
143	5	43.715
144	5 3/4	44.035
144	9 5/8	44.13
145	4	44.3
146	10	44.755
147	-	44.805
150	-	45.72
152	-	46.33
152	8	46.535
156	10 1/2	47.815
160	-	48.77
170	3	51.89
174	9 1/2	53.28
175	7 1/2	53.53
180	-	54.86
183	7 1/2	55.97
184	4 1/2	56.2
186	-	56.69
188	10	57.56
197	-	60.05
198	7 1/2	60.54
200	-	60.96
210	4	64.11
232	7 1/2	70.9
240	-	73.15
254	11	77.7
277	2 1/2	84.49
280	-	85.34
287	6 3/4	87.65
299	6	91.29
300	-	91.44
322	3 1/2	98.23
379	6	115.67
396	-	120.7
480	-	146.3
550	1	167.67
780	-	237.74
800	-	243.84
2000	-	609.6

AC	RD	P	SQ M
-	-	3.05	77.1
-	-	22	556.4
-	-	24	607
-	-	25 1/2	645
-	-	28 1/4	714.5
-	-	28 1/2	720.8
-	-	28 3/4	727.2
-	-	30 1/2	771.4
-	-	30 3/4	777.8
-	-	31	784.1
-	-	31 3/4	803
-	-	32	809.4
-	-	32 1/2	822
-	-	32 3/4	828.3
-	-	33	834.7

D.P.20599

Conveyance Regd No. 399 Bk. 1976

City of Tamworth

City Council owners

DP 20599 (E)3

Shire boundary

Peel

Robyn St

Jean St

Marie Ave.

Patricia Ave.

66 ft. wide

80 ft. wide

20 ft. wide

LANE

Margaret St

P.M. Conc. Block f
123°17'
4' 11½" to Cor.

39

HYMAN PARK

Section

Public Garden and Recreation Space

~~Reserve for Park~~, ~~Recreation & Drainage~~.

Recalled by Minister 26th July 1947.

HYMAN PARK

DP 20599 (E)

Section

Public Garden and Recreation Space

~~Reserve for Park~~, declared by Gazette 26th May 1947.

~~Recreation & Drainage~~.

10A. 1R. 10P.

39

Robyn

Jean 66ft. Wide

Sec. 13

Marie 80ft. Wide Ave.

20 FT. 00' WIDE LANE

66 ft. Wide

Sec. C

Patricia 80ft. Wide Ave.

St.

66 ft. Wide

287' 6¾"

174' 9½"

90° 00'

Sec. F

Sec. E

St.

66 ft. Wide

Bruce

Road 14' Wide

80 ft.

Sec.

Vera

66 ft. Wide

St.

66 ft. Wide

Vera

Section

Hillview

66ft. Wide

DP 20599 (E)

HEIGHT DIFFERENCE SCHEDULE			
FROM	TO	HEIGHT DIFFERENCE	METHOD
SSM 69415	SSM 8331	+ 2.043	DIFFERENTIAL LEVELING
SSM 8331	SSM 196076	- 3.407	DIFFERENTIAL LEVELING
SSM 196076	SSM 69415	+ 1.364	DIFFERENTIAL LEVELING
HEIGHT DATUM : AHD 71			

HEIGHT SCHEDULE					
MARK	AHD VALUE	CLASS	ORDER	HEIGHT DATUM VALIDATION	STATE
SSM 69415	400.545	LC	L3	SCIMS ADOPTED	FOUND
SSM 8331	402.588	LB	L2	FROM SCIMS - DATUM VALIDATION	FOUND
SSM 196076	399.181	LD	N/A	N/A	PLACED
DATE OF SCIMS AHD VALUES: 24.1.2018 HEIGHT DATUM: AHD71					

SHORT LINE TABLE

No.	BEARING	DISTANCE	ARC	RADIUS
1	356° 46'	10.97		
2	41° 46'	12.93		
3	346° 10'	6.6		
4	355° 16'	21.25		
5	348° 12' OA	20.685 OA	20.735 OA	84.17
6	341° 09'	7.23		
7	354° 57'	12.425	12.545	26.13
8	8° 42'	5.8		
9	53° 37'	10.62		
10	143° 37'	10.59		
11	188° 42'	5.725		
12	174° 57'	24.31	24.545	51.13
13	161° 09'	7.445		
14	168° 12'	14.54	14.58	59.17
15	175° 16'	23.235		
16	166° 10'	10.58		
17	176° 48'	2.59		
18	343° 04'	5.63	5.63	84.17
19	266° 46'	15.885		

SURVEY CO-ORDINATION CONNECTIONS

FROM	TO	BEARING	DISTANCE
SSM 69415	SSM 196076	179° 00' 55"	406.274

COORDINATE SCHEDULE						
MARK	MGA CO-ORDINATES EASTING	MGA CO-ORDINATES NORTHING	CLASS	ORDER	METHOD	STATE
SSM 69415	301 198.601	6 556 751.923	C	3	FROM SCIMS	FOUND
SSM 8331	301 087.684	6 556 679.620	C	3	FROM SCIMS	FOUND
SSM 8327	301 524.873	6 556 237.127	A	1	FROM SCIMS	FOUND
SSM 196076	301 205.579	6 556 345.699	D	U	EDM TRAVERSE	PLACED
DATE OF COORDINATES: 24 JANUARY 2018 MGA ZONE: 56 MGA DATUM: GDA94						
COMBINED SCALE FACTOR: 1.000019						

SSM 69415 FD (NTS)
56° 54' 04" 132.399 MGA (GROUND)
56° 54' 03" 132.395 SURVEY
SSM 8331 FD (NTS)
163° 09' 30" 171.85
1 DP 20599 SEC G
RM CB FD 351° 00' 0.485 (DP 20599)
171° 00' 21.095
RM GIP PL 278° 189° 14' 1.845 98° 40.0
RM GIP PL 190° 10' 2.065
233.53 31' (20.115 WIDE)
41.58
31 DP 20599 SEC G
PATRICIA AVENUE (24.385 WIDE)
45° 32' 4.305
RM CB FD 278° 32' 0.455 (DP 20599)
MGA SCIMS
30"* 53.275* 6.065
RECENT STEEL GRILL FENCE
ROBERT STREET (20.115 WIDE)
30" 6.095*
OLD METAL FENCE 42.67* 31' 30"*
D P 9 10 11 2 0 5 SEC F 9 9 21 23
42.67* 31' 30"* 42.67* 31' 30"* 42.67* 31' 30"*
8° 8° 188° 135° 135°
98° 36.575*
20' 20' 31' 243.84*
30"*
KATHLEEN STREET (20.115 WIDE)
ROBERT 27' 153° 42.67* 28' 30"* 146.3* 27'
D P 1 1 3 1 7 5 5 37
243° 6.095* 153° 42.67* 28"* 48.77* 28"* 243°
DAVID STREET (VARIABLE WIDTH)
NAIL PL 27.13 161° 11' 30"
HILLVUE (25 WIDE & VARIABLE) ROAD
27.34 341° 11' 30" 342° 60.76 08'
NAIL PL 30.385 162° 30.385 08'
RM GIP PL 244° 14' 5.66
PUBLIC RESERVE
PT 1 (2.07 ha) TOTAL 2.13 ha (BY DEDN)
* DENOTES DIMENSION BY DP 20599
2 1.601 ha (BY DEDN)
* DENOTES DIMENSION BY DP 20599
FAIRLY NEW METAL FENCE
25.0 71° 09' 25.0 85° 16' (1.8) (1.5) 15.07 (1.1) 266°
OLD STEEL MESH FENCE
42.71 356° 46' 10" 42.67*
NAIL PL RM GIP PL 0° 46' 0.775
PT 1 (599.7m²) 38
86° 237.74* 45'
43.115* 18.925* 46" 356° 46"
94° 53' 30"* 2 3 DP 515992 1
26
DP 20599 SEC F
277.33 46' (20.115 WIDE) 289.52 46'
10" 10"
RM SSM 196076 PL 33° 28' 0.86
12.365
BRUCE STREET
20.115 356° 46'
RM CB FD 176° 46' 0.455 (DP 20599)
17 20599
THOMPSON CRESCENT (15.24 WIDE)
290° 167.66* 29' 30"*
A DP 36322
RM DH&W FD 215° 24' 2.515 (DP 854385) (NOW GONE) RM GIP PL 251° 51' 5.02
NEW CHAIN LINK FENCE
56.69*
86° 45' 30"* FAIRLY NEW PALING FENCE
86 DP 20599 SEC E
86° 24.385
RM GONE (DP 854385) RM NOT FD (DP 20599)
5 D P SEC E
TO SSM 196076
288° 46' 48" 337.244
622.028 MGA (GROUND) 622.031 SURVEY
HILLVUE (24.385 WIDE) ROAD 50" 46' 88.44 356°
1 DP 1061131
RM CB FD 86° 46' 0.455 (DP 20599)
PM 8327 FD (NTS)

SURVEYOR Name: ANDREW PETER SWANE Date: 08 FEBRUARY 2018 Reference: L2140	**PLAN OF SUBDIVISION OF LOT 39 SECTION F DP 20599**	LGA: TAMWORTH REGIONAL Locality: SOUTH TAMWORTH Reduction Ratio 1:1250 Lengths are in metres.	Registered 7/08/2020	DP1264030

DWG. No. 2140D01

ePlan

PLAN FORM 6 (2017) | **DEPOSITED PLAN ADMINISTRATION SHEET** | Sheet 1 of 3 sheet(s)

Office Use Only

Registered: 7/08/2020

Title System: TORRENS

Office Use Only

DP1264030

PLAN OF SUBDIVISION OF LOT 39 SECTION F DP 20599

LGA: **TAMWORTH REGIONAL**

Locality: **SOUTH TAMWORTH**

Parish: **CALALA**

County: **PARRY**

Survey Certificate

I, ANDREW PETER SWANE

of Brown and Krippner Pty. Ltd. PO Box 260 Tamworth 2340

a surveyor registered under the *Surveying and Spatial Information Act 2002*, certify that:

~~*(a) The land shown in the plan was surveyed in accordance with the *Surveying and Spatial Information Regulation 2017*, is accurate and the survey was completed on: ....., or~~

*(b) The part of the land shown in the plan (*being/~~*excluding~~** HILLVUE ROAD) was surveyed in accordance with the *Surveying and Spatial Information Regulation 2017*, the part surveyed is accurate and the survey was completed on: 08 FEB 2018, the part not surveyed was compiled in accordance with that Regulation, or

*(c) The land shown in this plan was compiled in accordance with the *Surveying and Spatial Information Regulation 2017*.

Datum Line: SSM 8331 - PM 8327

Type: *Urban/~~*Rural~~

The terrain is *Level-Undulating /~~*Steep Mountainous.~~

Signature: Dated: 15.2.18

Surveyor Identification No: 1387

Surveyor registered under the *Surveying and Spatial Information Act 2002*

* Strike out inappropriate words.

** Specify the land actually surveyed or specify any land shown in the plan that is not the subject of the survey.

Crown Lands NSW/Western Lands Office Approval

I.....(Authorised Officer) in approving this plan certify that all necessary approvals in regard to the allocation of the land shown herein have been given.

Signature:.....

Date:.....

File Number:.....

Office:.....

Subdivision Certificate

I, Lucy WALKER

*Authorised Person/~~*General Manager/*Accredited Certifier~~, certify that the provisions of s.109J of the *Environmental Planning and Assessment Act 1979* have been satisfied in relation to the proposed subdivision, new road or reserve set out herein.

Signature: Dated:

Accreditation number: —

Consent Authority: Tamworth Regional Council

Date of Endorsment: 19/06/2018

Subdivision Certificate number: Sub2018-0040

File number: SF8529

* Strike through if inapplicable.

Plans used in the preparation of survey/compilation

DP 20599

DP 854385

Statements of intention to dedicate public roads, create public reserves and drainage reserves, acquire/resume land.

IT IS INTENDED TO DEDICATE THE EXTENSION OF HILLVUE ROAD 25 WIDE & VARIABLE TO THE PUBLIC AS PUBLIC ROAD.

SURVEYOR'S REFERENCE: L2140

Signatures, Seals and Section 88B Statements should appear on PLAN FORM 6A

Drawing No. 2140D01

ePlan

PLAN FORM 6A (2017) **DEPOSITED PLAN ADMINISTRATION SHEET** Sheet 2 of 3 sheet(s)

Office Use Only

Registered: 7/08/2020

Office Use Only

DP1264030

PLAN OF SUBDIVISION OF LOT 39 SECTION F DP 20599

This sheet is for the provision of the following information as required:

- A schedule of lots and addresses-See 60(c) *SSI Regulation 2017*
- Statements of intention to create and release affecting interests in accordance with section 88B *Conveyancing Act 1919*
- Signatures and seals- see 195D *Conveyancing Act 1919*
- Any information which cannot fit in the appropriate panel of sheet 1 of the administration sheets.

Subdivision Certificate number: Sub2018-0040

Date of Endorsement: 19/06/2018

Executed on behalf of TAMWORTH REGIONAL COUNCIL by its duly Authorised Delegate pursuant to s.377 Local Government Act 1993

I certify that I am an eligible witness and that the delegate signed in my presence

LUCY WALKER
Print Name of Delegate

Signature of Witness

Signature of Delegate

Carolyn Tickle
Name of Witness

ACTING DIRECTOR PLANNING & COMPLIANCE
Authority of Delegate

430 Peel Street

Tamworth
Address of Witness

SCHEDULE OF STREET ADDRESSES

LOT	STREET NO	STREET NAME	STREET TYPE	LOCALITY
1	N/A	HILLVUE	ROAD	SOUTH TAMWORTH
2	N/A	HILLVUE	ROAD	SOUTH TAMWORTH

If space is insufficient use additional annexure sheet

SURVEYOR'S REFERENCE: L2140

Drawing No. 2140D01

ePlan

PLAN FORM 6A (2017) **DEPOSITED PLAN ADMINISTRATION SHEET**

Office Use Only

Registered: 7/08/2020

Office Use Only

DP1264030

PLAN OF SUBDIVISION OF LOT 39 SECTION F DP 20599

This sheet is for the provision of the following information as required:

- A schedule of lots and addresses-See 60(c) *SSI Regulation 2017*
- Statements of intention to create and release affecting interests in accordance with section 88B *Conveyancing Act 1919*
- Signatures and seals- see 195D *Conveyancing Act 1919*
- Any information which cannot fit in the appropriate panel of sheet 1 of the administration sheets.

Subdivision Certificate number: SUB 2018-0040

Date of Endorsement: 19-06-2018

Certificate of Currency

I, Andrew Peter Swane

of Brown and Krippner Pty. Ltd. PO Box 260 Tamworth 2340

a surveyor registered under the *Surveying and Spatial Information Act 2002*, certify that, from the date of the completion of the survey shown on the survey certificate:

(a) there are no changes to the boundaries of the land to which the survey relates (*the subject land*), and the definition of those boundaries in the plan of survey remains consistent with surrounding plans, or if not, the plan of survey has been updated;

(b) 2 or more of the permanent survey marks used in the survey remain in place, or if not, the plan of survey has been updated;

(c) all reference marks placed in respect of the survey remain in place, or if not, the reference marks have been replaced and the plan of survey has been updated; and

(d) there has been no change to the occupations and other improvements relevant to the boundaries of the subject land since the completion of the survey, or if not, the plan of survey has been updated.

Signature ..... Dated: 6.4.20

Surveyor Identification No: 2061

If space is insufficient use additional annexure sheet

SURVEYOR'S REFERENCE: L2140

Drawing No. 2140D01

01/05/1976

13/03/1984

08/07/1989

27/11/1993

01/08/1998

04/07/2014


Robert St
Robert St
Robert St
Robert St
Robert St And Marie St
Jean St
Marie St
Patricia Ave
Margaret St
Olive Ln
May Ln
Diane St
Hillvue Rd
Hillvue Rd
Hillvue Rd
Kathleen St
Kathleen St
Olive Ln
Olive Ln
Lydia St
Bruce St
Bruce St
Bruce St
Vera St
Vera St
Skye Ln
Hyman Park
25A
21-23
66-74
11-13

29/12/2016


Robert St
Robert St
Robert St
Robert St
Robert St
Robert St And Marie St
Jean St
Marie St
Patricia Ave
Kathleen St
Margaret St
Olive Ln
May Ln
Lydia St
Hillvue Rd
Hyman Park
25A
Bruce St
Bruce St
Bruce St
Hilda Ln
Olive Ln
Vera St
Vera St
Vera St
Kathleen St
Olive Ln
Hillvue Rd

barnson.

APPENDIX C

Chain of Custody and Laboratory Report

barnson.
DESIGN | PLAN | MANAGE

Unit 4 / 108-110 Market Street
Mudgee, NSW 2850
1300 BARNSON (1300 227 676)
generalenquiry@barnson.com.au

CHAIN OF CUSTODY AND ANALYTICAL REQUEST

Job Number	40924	Date	9 October 2023
Laboratory	ALS Mudgee	Report to	Nardus Potgieter npotgieter@barnson.com.au
Sample Temperature on Receipt		Notes	
15 -18 °C	Signature:		

Sample ID	Sample Description	Sample Date	Sample type	Analysis request				
				1	2	3	4	5
BH-1	BH-1 Surface soil	08/10/2023	Soil	X				
BH-2	BH-2 Surface soil	08/10/2023	Soil	X				
BH-3	BH-3 Surface soil	08/10/2023	Soil	X				
BH-4	BH-4 Surface soil	08/10/2023	Soil	X				
BH-5	BH-5 Surface soil	08/10/2023	Soil	X				
BH-6	BH-6 Surface soil	08/10/2023	Soil	X				
BH-7	BH-7 Surface soil	08/10/2023	Soil	X				
BH-8	BH-8 Surface soil	08/10/2023	Soil	X				
BH-10	BH-10 Surface soil	08/10/2023	Soil	X				
BH-A	BH-A fill	08/10/2023	Soil		X			
BH-B	BH-B fill	08/10/2023	Soil		X			

Analysis request		Method Code
1	TRH (C6-C40) / BTEXN / PAH / OC / PCB / 8 Metals	S-8
2	Asbestos – in 50g Soil (Grab sample) includes presence/absence for free fibres	EA200G
3		
4		
5		

client drop off

Relinquished by / Affiliation	Accepted by / Affiliation	Date
/ Barnson	/ ALS Mudgee	9 October 2023 1:00 PM Rebecca esky

Environmental Division
Mudgee
Work Order Reference
ME2301836

Telephone : 02 6372 6735

CERTIFICATE OF ANALYSIS

Work Order	: **ME2301836**	Page	: 1 of 12
Client	: **BARNSON**	Laboratory	: Environmental Division Mudgee
Contact	: Nardus Potgieter	Contact	: Mary Monds (ALS Mudgee)
Address	: Unit 4 108-110 Market Street MUDGEE NSW 2850	Address	: 1/29 Sydney Road Mudgee NSW Australia 2850
Telephone	: 0429 464 067	Telephone	: +61 2 6372 6735
Project	: Soil	Date Samples Received	: 09-Oct-2023 13:00
Order number	: ----	Date Analysis Commenced	: 10-Oct-2023
C-O-C number	: ----	Issue Date	: 16-Oct-2023 18:27
Sampler	: Client Sampler		
Site	: ----		
Quote number	: SY/053/14		
No. of samples received	: 11		
No. of samples analysed	: 11		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Alana Smylie	Team Leader - Asbestos	Newcastle - Asbestos, Mayfield West, NSW
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	BH-1 BH-1 Surface Soil	BH-2 BH-2 Surface Soil	BH-3 BH-3 Surface Soil	BH-4 BH-4 Surface Soil	BH-5 BH-5 Surface Soil
			Sampling date / time	08-Oct-2023 00:00	08-Oct-2023 00:00	08-Oct-2023 00:00	08-Oct-2023 00:00	08-Oct-2023 00:00
Compound	CAS Number	LOR	Unit	ME2301836-001	ME2301836-002	ME2301836-003	ME2301836-004	ME2301836-005
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**7.5**	**9.1**	**8.5**	**10.9**	**6.5**
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	**5**	**5**	<5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	**26**	**22**	**21**	**33**	**16**
Copper	7440-50-8	5	mg/kg	**39**	**32**	**43**	**50**	**43**
Lead	7439-92-1	5	mg/kg	**46**	**15**	**17**	**12**	**15**
Nickel	7440-02-0	2	mg/kg	**16**	**20**	**17**	**30**	**17**
Zinc	7440-66-6	5	mg/kg	**119**	**135**	**80**	**89**	**66**
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	**0.08**	<0.05	<0.05	<0.05	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg	**0.16**	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg	**0.16**	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH-1 BH-1 Surface Soil	BH-2 BH-2 Surface Soil	BH-3 BH-3 Surface Soil	BH-4 BH-4 Surface Soil	BH-5 BH-5 Surface Soil
				Sampling date / time	08-Oct-2023 00:00	08-Oct-2023 00:00	08-Oct-2023 00:00	08-Oct-2023 00:00	08-Oct-2023 00:00
Compound	CAS Number	LOR	Unit		ME2301836-001	ME2301836-002	ME2301836-003	ME2301836-004	ME2301836-005
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-29-3	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ **Benzo(a)pyrene TEQ (half LOR)**	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	**0.6**	**0.6**
^ **Benzo(a)pyrene TEQ (LOR)**	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg		<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH-1 BH-1 Surface Soil	BH-2 BH-2 Surface Soil	BH-3 BH-3 Surface Soil	BH-4 BH-4 Surface Soil	BH-5 BH-5 Surface Soil
				Sampling date / time	08-Oct-2023 00:00	08-Oct-2023 00:00	08-Oct-2023 00:00	08-Oct-2023 00:00	08-Oct-2023 00:00
Compound	CAS Number	LOR	Unit		ME2301836-001	ME2301836-002	ME2301836-003	ME2301836-004	ME2301836-005
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	<10
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	<50
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	<100
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		<50	<50	<50	<50	<50
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	50	mg/kg		<50	<50	<50	<50	<50
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
^ **Sum of BTEX**	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ **Total Xylenes**	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	<0.5
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	<1
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**81.7**	**99.9**	**81.7**	**76.4**	**86.0**
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		**119**	**132**	**107**	**108**	**119**
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		**99.9**	**120**	**92.7**	**95.0**	**127**
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**74.9**	**74.6**	**72.8**	**74.8**	**74.8**
2-Chlorophenol-D4	93951-73-6	0.5	%		**75.9**	**76.2**	**76.1**	**78.3**	**76.4**
2.4.6-Tribromophenol	118-79-6	0.5	%		**75.0**	**70.2**	**70.3**	**71.0**	**67.6**
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**87.9**	**86.9**	**85.6**	**89.2**	**87.3**
Anthracene-d10	1719-06-8	0.5	%		**88.5**	**88.3**	**86.0**	**90.8**	**89.9**
4-Terphenyl-d14	1718-51-0	0.5	%		**97.1**	**95.7**	**95.5**	**101**	**97.7**
EP080S: TPH(V)/BTEX Surrogates									

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH-1 BH-1 Surface Soil	BH-2 BH-2 Surface Soil	BH-3 BH-3 Surface Soil	BH-4 BH-4 Surface Soil	BH-5 BH-5 Surface Soil
				Sampling date / time	08-Oct-2023 00:00	08-Oct-2023 00:00	08-Oct-2023 00:00	08-Oct-2023 00:00	08-Oct-2023 00:00
Compound	CAS Number	LOR	Unit		ME2301836-001	ME2301836-002	ME2301836-003	ME2301836-004	ME2301836-005
					Result	Result	Result	Result	Result
EP080S: TPH(V)/BTEX Surrogates - Continued									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**81.7**	**78.6**	**89.9**	**81.7**	**87.3**
Toluene-D8	2037-26-5	0.2	%		**94.4**	**87.2**	**95.5**	**89.9**	**94.6**
4-Bromofluorobenzene	460-00-4	0.2	%		**109**	**104**	**97.9**	**94.3**	**96.8**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	BH-6 BH-6 Surface Soil	BH-7 BH-7 Surface Soil	BH-8 BH-8 Surface Soil	BH-10 BH-10 Surface Soil	BH-A BH-A Surface Soil
			Sampling date / time	08-Oct-2023 00:00	08-Oct-2023 00:00	08-Oct-2023 00:00	08-Oct-2023 00:00	08-Oct-2023 00:00
Compound	CAS Number	LOR	Unit	ME2301836-006	ME2301836-007	ME2301836-008	ME2301836-009	ME2301836-010
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**8.0**	**9.7**	**3.7**	**7.6**	**----**
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	**----**	**----**	**----**	**----**	**No**
Asbestos (Trace)	1332-21-4	-	-	**----**	**----**	**----**	**----**	**No**
Asbestos Type	1332-21-4	-	--	**----**	**----**	**----**	**----**	**-**
Sample weight (dry)	----	0.01	g	**----**	**----**	**----**	**----**	**255**
APPROVED IDENTIFIER:	----	-	--	**----**	**----**	**----**	**----**	**J. WILLIAMS**
Synthetic Mineral Fibre	----	-	--	**----**	**----**	**----**	**----**	**No**
Organic Fibre	----	-	--	**----**	**----**	**----**	**----**	**No**
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	**9**	**----**
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	**----**
Chromium	7440-47-3	2	mg/kg	**26**	**17**	**18**	**24**	**----**
Copper	7440-50-8	5	mg/kg	**36**	**24**	**18**	**40**	**----**
Lead	7439-92-1	5	mg/kg	**17**	**18**	**9**	**14**	**----**
Nickel	7440-02-0	2	mg/kg	**23**	**14**	**12**	**25**	**----**
Zinc	7440-66-6	5	mg/kg	**88**	**68**	**45**	**71**	**----**
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	**----**
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	**----**
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	**----**
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	**----**
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	**----**
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	**----**
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	**----**
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	**----**
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	**----**
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	**----**
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	**----**
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	**----**
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	**----**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH-6 BH-6 Surface Soil	BH-7 BH-7 Surface Soil	BH-8 BH-8 Surface Soil	BH-10 BH-10 Surface Soil	BH-A BH-A Surface Soil
				Sampling date / time	08-Oct-2023 00:00	08-Oct-2023 00:00	08-Oct-2023 00:00	08-Oct-2023 00:00	08-Oct-2023 00:00
Compound	CAS Number	LOR	Unit		ME2301836-006	ME2301836-007	ME2301836-008	ME2301836-009	ME2301836-010
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
Dieldrin	60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
Endrin	72-20-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	----
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Phenanthrene	85-01-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Fluoranthene	206-44-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Pyrene	129-00-0	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Chrysene	218-01-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH-6 BH-6 Surface Soil	BH-7 BH-7 Surface Soil	BH-8 BH-8 Surface Soil	BH-10 BH-10 Surface Soil	BH-A BH-A Surface Soil
				Sampling date / time	08-Oct-2023 00:00	08-Oct-2023 00:00	08-Oct-2023 00:00	08-Oct-2023 00:00	08-Oct-2023 00:00
Compound	CAS Number	LOR	Unit		ME2301836-006	ME2301836-007	ME2301836-008	ME2301836-009	ME2301836-010
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg		**0.6**	**0.6**	**0.6**	**0.6**	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg		**1.2**	**1.2**	**1.2**	**1.2**	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	<10	<10	<10	----
C10 - C14 Fraction	----	50	mg/kg		<50	<50	<50	<50	----
C15 - C28 Fraction	----	100	mg/kg		<100	<100	<100	<100	----
C29 - C36 Fraction	----	100	mg/kg		<100	<100	<100	<100	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	<10	<10	<10	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg		<10	<10	<10	<10	----
>C10 - C16 Fraction	----	50	mg/kg		<50	<50	<50	<50	----
>C16 - C34 Fraction	----	100	mg/kg		<100	<100	<100	<100	----
>C34 - C40 Fraction	----	100	mg/kg		<100	<100	<100	<100	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg		<50	<50	<50	<50	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	<50	<50	<50	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	----
Toluene	108-88-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
^ Sum of BTEX	----	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	----
^ Total Xylenes	----	0.5	mg/kg		<0.5	<0.5	<0.5	<0.5	----
Naphthalene	91-20-3	1	mg/kg		<1	<1	<1	<1	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		**86.2**	**90.8**	**95.6**	**84.5**	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		**104**	**114**	**121**	**108**	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		**98.2**	**78.6**	**99.4**	**88.3**	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH-6 BH-6 Surface Soil	BH-7 BH-7 Surface Soil	BH-8 BH-8 Surface Soil	BH-10 BH-10 Surface Soil	BH-A BH-A Surface Soil
				Sampling date / time	08-Oct-2023 00:00	08-Oct-2023 00:00	08-Oct-2023 00:00	08-Oct-2023 00:00	08-Oct-2023 00:00
Compound	CAS Number	LOR	Unit		ME2301836-006	ME2301836-007	ME2301836-008	ME2301836-009	ME2301836-010
					Result	Result	Result	Result	Result
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**73.8**	**74.8**	**72.9**	**73.0**	**----**
2-Chlorophenol-D4	93951-73-6	0.5	%		**74.5**	**75.4**	**74.7**	**74.2**	**----**
2.4.6-Tribromophenol	118-79-6	0.5	%		**68.5**	**68.8**	**67.7**	**70.0**	**----**
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**86.8**	**87.9**	**86.9**	**85.8**	**----**
Anthracene-d10	1719-06-8	0.5	%		**87.6**	**88.8**	**88.5**	**88.5**	**----**
4-Terphenyl-d14	1718-51-0	0.5	%		**95.2**	**98.7**	**98.6**	**97.0**	**----**
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**110**	**90.1**	**101**	**101**	**----**
Toluene-D8	2037-26-5	0.2	%		**119**	**98.7**	**109**	**105**	**----**
4-Bromofluorobenzene	460-00-4	0.2	%		**122**	**102**	**111**	**114**	**----**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	BH-B BH-B Surface Soil	----	----	----	----
			Sampling date / time	08-Oct-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	ME2301836-011	--------	--------	--------	--------
				Result	----	----	----	----
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	**No**	**----**	**----**	**----**	**----**
Asbestos (Trace)	1332-21-4	-	-	**No**	**----**	**----**	**----**	**----**
Asbestos Type	1332-21-4	-	--	**-**	**----**	**----**	**----**	**----**
Sample weight (dry)	----	0.01	g	**133**	**----**	**----**	**----**	**----**
APPROVED IDENTIFIER:	----	-	--	**J. WILLIAMS**	**----**	**----**	**----**	**----**
Synthetic Mineral Fibre	----	-	--	**No**	**----**	**----**	**----**	**----**
Organic Fibre	----	-	--	**No**	**----**	**----**	**----**	**----**

Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Sample ID - Sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	BH-ABH-A Surface Soil - 08-Oct-2023 00:00	A soil sample.
EA200: Description	BH-BBH-B Surface Soil - 08-Oct-2023 00:00	A soil sample.

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	39	149
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	147
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	35	143
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	63	125
Toluene-D8	2037-26-5	67	124
4-Bromofluorobenzene	460-00-4	66	131

Inter-Laboratory Testing

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry) 9854 (Biology).

(SOIL) EA200: AS 4964 - 2004 Identification of Asbestos in Soils

Analysis conducted by ALS Sydney, NATA accreditation no. 825, site no. 10911 (Chemistry) 14913 (Biology).

(SOIL) EA055: Moisture Content (Dried @ 105-110°C)

(SOIL) EP066: Polychlorinated Biphenyls (PCB)

(SOIL) EP066S: PCB Surrogate

(SOIL) EG005(ED093)T: Total Metals by ICP-AES

(SOIL) EG035T: Total Recoverable Mercury by FIMS

(SOIL) EP080/071: Total Petroleum Hydrocarbons

(SOIL) EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions

(SOIL) EP080: BTEXN

(SOIL) EP080S: TPH(V)/BTEX Surrogates

(SOIL) EP075(SIM)B: Polynuclear Aromatic Hydrocarbons

(SOIL) EP075(SIM)S: Phenolic Compound Surrogates

(SOIL) EP075(SIM)T: PAH Surrogates

(SOIL) EP068A: Organochlorine Pesticides (OC)

(SOIL) EP068T: Organophosphorus Pesticide Surrogate

(SOIL) EP068S: Organochlorine Pesticide Surrogate