GCA

Geotechnical Consultants Australia

Buildform Projects Pty Ltd

Preliminary Site Investigation

Proposed Subdivision at:

112 Milperra Road

Revesby NSW 2212

Lots A & B/-/DP385068

E22188-1-RevA

18th November 2022

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Report Distribution

Preliminary Site Investigation

Address: 112 Milperra Road Revesby NSW 2212

GCA Report No.: E22188-1-Rev A

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Geotechnical Consultants Australia Pty Ltd (GCA) were appointed by Mr. Tony Jabbour of Buildform Projects Pty Ltd (the client) to undertake a Preliminary Site Investigation (PSI) for the site located at No. 112 Milperra Road Revesby NSW 2212 (the site). The site is legally identified as Lots A & B/-/DP385068 and has an area of approximately 3,526m^2. The site is currently zoned as IN1 - General Industrial.

GCA understands that the proposed development for this site includes:

1) Subdivision of site into two (2) lots.

The objective of this PSI was to provide a preliminary assessment of potentially contaminating activities which may have impacted the site. The scope of work undertaken includes:

- A site inspection to identify potential sources of contamination;
- Soil sampling to identify any contaminants (if present);
- Historical investigations relating to the site (if any);
- Local Council records and planning certificates;
- Review of the NSW Environment Protection Authority (EPA) environmental contaminated lands register and Protection of the Environment Operations (POEO) Act public register;
- Dial-Before-You-Dig enquiry for an evaluation into local underground services and assets;
- Review of local geological and hydrogeological information, including an evaluation of the WaterNSW registered groundwater bore database; and
- Acid Sulphate Soils (ASS) data maps.

A site investigation was undertaken on the 26th October 2022 by GCA environmental consultants. During the site inspection, a soil investigation program was undertaken with a judgemental approach in accessing locations across the site to identify areas of contamination.

Twelve (12) soil samples (including two (2) field duplicate) were obtained from the fill layer (0-0.15m bgl) across the site area. Additional samples were collected from each location in 500mL bags for asbestos analysis.

The samples were submitted to a National Association of Testing Authorities, Australia (NATA) accredited laboratories for analysis of Chemicals of Potential Concern (CoPC) that may have impacted the site during historical or present activities.

Identified impacted soils included three (3) location (BH3, BH4 and BH10) that Asbestos in the form of ACM, Asbestos Fines (AF) and Fibrous Asbestos (FA) were identified in exceedance of the NEPM HSL-D Assessment Criteria. Additionally, Asbestos including AF and FA was identified in three (3) other samples (BH1, BH5 and BH6) below NEPM HSL-D Assessment Criteria. Lead exceeded the NEPM HIL-D Assessment Criteria in BH4 only. All other analytes were below the NEPM Assessment Criteria for Commercial/Industrial (D) sites.

Based on the site investigation and analytical results, GCA considers that the there is potential for Asbestos contamination to exist on the site. The site requires Detailed Site Investigation (DSI) to confirm the distribution and concentration of the Lead and Asbestos contamination.

Asbestos samples should be evenly distributed across the site area and be collected at twice the rate of Table 2 of the NSW EPA, *Contaminated Land Guidelines*, *Sampling Design Part 1 – Application*, 2022. Based on the outcome of the additional investigation the soil should be managed under a remediation action plan (RAP).

Therefore, GCA finds that the site can be made suitable for the proposed subdivision and land use, providing that the recommendations within Section 14 of this report are undertaken.

1. Introduction

Geotechnical Consultants Australia Pty Ltd (GCA) were appointed by Mr. Tony Jabbour of Buildform Projects Pty Ltd (the client) to undertake a Preliminary Site Investigation (PSI) for the site located at No. 112 Milperra Road Revesby NSW 2212 (the site). The site is legally identified as Lots A & B/-/DP385068 and has an area of approximately 3,526m^2. The site is currently zoned as IN1 - General Industrial.

GCA understands that the proposed development for this site includes:

1) Subdivision of site into two (2) lots.

This PSI report was aimed to provide a preliminary assessment of potentially contaminating activities which may have impacted the site. This report is prepared in accordance with the State Environmental Planning Policy (Resilience and Hazard) 2021 and follows the format outlined in NSW EPA "*Consultants Reporting on Contaminated Lands: Contaminated Land Guidelines*" (2020). In addition, GCA will provide recommendations if further investigation on site is required.

A site inspection was undertaken on 26th October 2022. A soil sampling program, reporting and site photographs were conducted on this day with reference to the relevant regulatory criteria. Further information of the inspection is described in Section 4 of this report.

2. Scope of Work

The PSI has been prepared in general accordance with the following regulatory framework:

- NSW Environmental Protection Authority (EPA) "Consultants Reporting on Contaminated Lands: *Contaminated Land Guidelines*" (2020);
- NSW EPA, *Contaminated Land Guidelines*, *Sampling Design Part 1 – Application*, 2022;
- NSW EPA, *Contaminated Land Guidelines*, *Sampling Design Part 2 – Interpretation*, 2022;
- State Environment Protection Policy (Resilience and Hazard) 2021; and
- National Environmental Protection (Assessment of Site Contamination) Measure – National Environmental Protection Council 2013.

The scope of works required to complete the PSI includes:

- A site inspection for evidence of sources of potential contamination onsite and neighbouring properties;
- Soil sampling to identify any contaminants (if present);
- Historical investigations relating to the site (if any);
- Local Council records and planning certificates;
- Review of NSW EPA environmental contaminated lands register and Protection of the Environment Operations (POEO) Act public register;
- Dial-Before-You-Dig enquiry for an evaluation into local underground services and assets;
- Review of local geological and hydrogeological information, including an evaluation of the WaterNSW registered groundwater bore database;
- Acid Sulphate Soils (ASS) data maps;
- Establish whether data gaps may exist within the investigation;
- Development of a Conceptual Site Model (CSM) to identify the connections between potential sources of contamination, exposure pathways, and human/ecological receptors; and
- Recommendations for additional investigations (if any), based on the identified data gaps and findings of the PSI.

3. Site Details

Table 1: Site Details

Address	112 Milperra Road Revesby NSW 2212
Deposited Plan	Lots A & B/-/DP385068
Zoning	IN1 - General Industrial
Locality Map	**Figure 1**
Site Plan	**Figure 2**
Area (approx.)	3,526m^2

Table 2: Surrounding Land Use

Direction from Site	Land Use
North	Milperra Road
East	Commercial properties
South	Commercial properties
West	Commercial properties

4. Site Condition

A qualified environmental consultant inspected the site on the 26th October 2022. Site photographs are provided in **Appendix A**. Observations noted during the inspection are summarised below:

- The site was a rectangular shaped lot located to the south of Milperra Road;
- The site was used as a parking lot for rental cars;
- The site contained a strip garden to the front near Milperra Road;
- The site was divided in half using metal fencing;
- The eastern portion of the site was contained a building structure used as office area near Milperra Road;
- The eastern portion was also contained two (2) metal awnings within the southern side used for car servicing and carwash;
- The western portion contained a metal structure used as office area near Milperra Road;
- The grand cover of the site was consisted of concrete slab across the majority of the site except for a small portion to the south-west;
- The concrete slab across the site was old and deteriorated;
- A storage container was present within the south-western portion of the site;
- The soil underlying the site consisted of a mixed Silty Sand and gravel fill layer;
- There was no distinct change in elevation across the site area; and
- Small oil patches were observed on the concrete slab.

The surrounding sites within a 500m radius include commercial properties and Bankstown Harness Racing & Agricultural Society (approx. 50m north). The local topography surrounding the site gently slopes towards an un-named stormwater canal (approx. 150m to the south-west).

5. Site History

5.1 Historical Aerial Images

The site was owned by private individuals from 1920 to 1946, thereafter the ownership changed to an industrial unit (Electro Plater) until 2002. Moreover, various leases and sub leases shown on historical folio.

A review of historical aerial images indicates that the land use of the site appeared to be residential from 1955 to 1965. From at least 1965 onwards the site appeared to have been commercial/industrial land use.

Table 3. Historical Site Details

Year	Site and Surrounding Area
1943	The site was free of structures and was mildly vegetated. The surrounding area was comprised low density residential properties vacant landscapes.
1955	The site was contained two residential dwellings within the northern portion. The southern portion of the site was contained a few sheds. The surrounding area was increased in residential developments.
1965	The vegetation across the site had been cleared. A few building structures had been constructed within the southern portion of the site. The surrounding area was increased in commercial developments to the east and west.
2005	The structures within the site had been largely demolished. The site was contained two sheds within the central portion and a building structure within the north-eastern portion. The site was being used as a parking lot. The surrounding residential dwellings had been demolished. The surrounding area was increased in commercial developments.
2009	The structures within the central portion of the site had been demolished. Three overground tanks were present within south-eastern portion of the site. The surrounding area was remained unchanged.
2015	Two new sheds had been built within the south-eastern portion of the site. The surrounding area was increased in commercial developments to the northeast of the site.
2022	The site area had little or no change. The surrounding area is improved in commercial developments.

5.2 Historical Ownership

Table 4. Historical Ownership of the Site

Year	Proprietor(s)
	(Lot A DP 385068)
13 Sep 2002 to date	James Michael Dwyer Angela Theresa Dwyer
01 Dec 1989	Percy Maxwell Smidt, electro plater
(01 Dec 1989 to date)	*(various leases shown on Historical Folio A/385068 (attached))*
	(Lot A DP 385068 – Area 26 ¼ Perches – CTVol 6794 Fol 40)
01 Aug 1957	Percy Maxwell Smidt, electro plater
30 Mar 1954	Colin Hugh James Dudley, truck driver
	(Lot 179 DP 7866 – Area 3 Roods 19 ¼ Perches – CTVol 3143 Fol 176)
30 Jan 1946	Percy Maxwell Smidt, electro plater
20 May 1929	Hartley Lee, butcher
20 May 1929	Public Trustee
17 Jul 1923	Elizabeth Lee, wife of Hartley Lee, butcher
24 Dec 1920	Public Trustee
	(Lot B DP 385068)
13 Sep 2002 to date	James Michael Dwyer Angela Theresa Dwyer
06 Dec 1989	Percy Maxwell Smidt, electro plater
(06 Dec 1989 to date)	(various leases and sub leases shown on Historical Folio B/385068 (attached))
	(Lot B DP 385068 – Area 2 Roods 33 Perches – CTVol 6788 Fol 162)
18 Mar 1954	Percy Maxwell Smidt, electro plater
	(Lot 179 DP 7866 – Area 3 Roods 19 ¼ Perches – CTVol 3143 Fol 176)
30 Jan 1946	Percy Maxwell Smidt, electro plater
20 May 1929	Hartley Lee, butcher
20 May 1929	Public Trustee
17 Jul 1923	Elizabeth Lee, wife of Hartley Lee, butcher
24 Dec 1920	Public Trustee

5.3 Section 10.7 (2) Planning Certificate

A Section 10.7 Planning Certificate describes how a property may be used and the restrictions on development. The Planning Certificate is issued under Section 149 of the Environmental Planning and Assessment Act 1979. At the time of reporting, GCA could not get access to the Planning Certificate.

5.4 NSW EPA Contaminated Land Register

A search within the NSW EPA contaminated land register was undertaken for the subject site. No results were identified for this site. One (1) result was identified 166m SW of the site as follows:

Thetis Pty Ltd - Bituminous Products

Address: 33-35 Violet STREET, REVESBY

The land was declared as "significantly contaminated land" (Declaration No. 21103) and has been the subject of a Voluntary Management Proposal.

Notice recipient	Notice type & number	Status	Date
Thetis Pty Ltd	Amendment or Repeal of Order or Notice 20204420	Current	Issued 07 Apr 2020
Thetis Pty Ltd	Approved Voluntary Management Proposal 20191719	Current	Issued 10 Oct 2019 Amended 07 Apr 2020
Not Applicable	Declaration of Remediation Site 21103 Map	Current	Issued 23 Jan 2007

5.5 Protection of the Environment Operations Act (POEO) Public Register

A search within the NSW EPA contaminated land register was undertaken for the subject site. No results were identified for this site. One (1) recent result was identified 450m NW of the site as follows:

Number	Name	Location	Type	Status	Issued date
21265	BDC RECYCLING PTY LTD	263 Milperra Road, REVESBY, NSW 2212	POEO licence	Issued	21 Feb 2020

5.6 SafeWork NSW Hazardous Goods

A SafeWork search was not undertaken for the site. Historical images show possibly three overground petroleum tanks was present onsite between years at least November 2009 until May 2013.

5.7 Product Spill and Loss History

The site inspection carried out found no evidence to suggest major chemical contamination impact on the site.

5.8 Dial Before You Dig

A Dial-Before-You-Dig request suggests the potential for underground services and assets to be impacted or act as a portal to transport contamination offsite.

5.9 PFAS Investigation Program

The NSW Government PFAS Investigation Program map indicates the site is not currently listed or located within 1km of a listed site for PFAS contamination investigation and management programs.

6. Environmental setting

6.1 Local Geology

Data obtained from the Geological Survey of NSW and the Geoscience Australia Stratigraphic Units Database indicate the site is underlain by modern (Quaternary) sediments (Qha), regionally characterised by silty to peaty quartz sand, silt, and clay. Ferruginous and humic cementation in places and common shell layers.

6.2 Soil Landscape

A review of the regional maps by the NSW Department of Planning, Industry and Environment indicates the site is generally located within the Birrong soil landscape. This landscape is normally recognised by level to gently undulating alluvial floodplain draining Wianamatta Group shales. Local relief of this landscape is typically up to 5m, with slopes of usually less than <3%. Soils of this landscape group is generally consisting of deep (>250cm) Yellow Podzolic Soils and Yellow Solodic Soils on older alluvial terraces; deep (>250cm) Solodic Soils and Yellow Solonetz on current floodplain.

6.3 Hydrogeology and Groundwater

The site is located within Bankstown Hydrogeological Landscape (HGL). This HGL is characterised by low hills and rises on Triassic shale and sandstone within the Sydney Basin at Bankstown and Burwood. It is an area of moderate to high rainfall (>800mm) located to the west of the Sydney CBD.

Water predominantly moves laterally through the shale layers (although vertical movement through fracturing does occur) and vertically through inter-bedded sandstone and sandstone fracturing (primary and secondary porosity). Water is likely to move relatively slowly (high residence time) through this landscape due to the low gradient and is therefore likely to accumulate more salt out of the soils and bedrock. The low gradient also provides greater opportunity for discharges to occur.

Groundwater systems are local with short to intermediate flow lengths and are loosely defined by topographic catchments. Water quality within these systems is brackish to saline. Water table depths are intermediate (2–6m).

A groundwater bore search was conducted on the 2nd October 2022 and one (1) bore (GW113186) was found within a 500m radius of the site. No material description was available for this well.

It was beyond the scope of works to study the groundwater flow direction. However, based on the regional topography, groundwater is expected to flow southwest towards an un-named stormwater canal.

6.4 Topography

The regional topography surrounding the site has a gentle sloping (<5%) towards the southwest.

6.5 Site Drainage

Site drainage is likely to be consistent with the local topography. Stormwater is likely collected by pit and pipe drainage flowing into the municipal stormwater system, which likely flows towards an un-named stormwater canal located approximately 150m southwest of the site.

6.6 Acid Sulphate Soils

To determine whether there is a potential for ASS to be present at the site, information was reviewed utilising the NSW Department of Planning, Industry and Environment eSPADE map viewer. The ASS risk maps show the chance of acid sulphate soil occurrence.

This search indicated that there is “no known occurrence” of ASS underlying the soil at this site.

7. Areas of Environmental Concern

Based on the above information, the potential Areas of Environmental Concern (AEC) and their associated Contaminants of Potential Concern (CoPC) for the site were identified.

Table 5. AEC and Associated CoPC

AEC	Potentially Contaminating/ Hazardous Activity	CoPC	Likelihood of Site Impact	Comments
Entire site	Importation of fill material from unknown origin historical activities including carparking Demolition of previous onsite structures	Metals, TRH, BTEX, PAH, OCPs, OPPs, Asbestos, Phenols	High	Based on site observations, the presence of imported fill material is possible. Historical operations may have given rise to contamination event/s.
Onsite structures	Hazardous materials	ACM, SMF, ODS, Lead (paint and/or dust), PCBs	Low	Considering the age of onsite structures (post 2005) presence of these CoPCs are unlikely.

Abbreviations: Asbestos Containing Materials (ACM), Hazardous Materials Survey (HMS), Benzene Toluene Ethylbenzene and Xylene (BTEX), Ozone Depleting Substances (ODS), Polychlorinated Biphenyls (PCBs), Total Recoverable Hydrocarbons (TRH), Synthetic Mineral Fibres (SMF), Polycyclic Aromatic Hydrocarbons (PAH), Organochlorine Pesticides (OCPs), Organophosphorus Pesticides (OPPs).

8. Conceptual Site Model

A Conceptual Site Model (CSM) has been developed and presented below and provides a representation of the potential risks associated with the connections between the following elements:

- Potential contamination sources and their associated CoPCs;
- Potential human receptors that may be impacted by the site contamination are current and future site users including occupants to the dwellings/infrastructures onsite, site workers and the general public within the immediate vicinity of the site;
- Potential environmental receptors to the site including but not limited to: groundwater and surface water bodies, residual soils at and/or nearby the site.
- Potential exposure pathways; and
- Whether source-pathway-receptor connections are complete based on current and future site conditions.

Table 6. Conceptual Site Model

Potential Sources	Potential Receptor	Potential Exposure Pathway	Complete Connection	Risk	Justification/Control Measures
Contaminated soil from importation of uncontrolled fill across the site Contaminated soil from historical operations Onsite car parking Storage of petroleum products ACM, lead-based paint and other trace metals from the demolition of historical residential dwellings and sheds (1955)	Site occupants, workers, general public, ecological receptors	Dermal contact, inhalation/ ingestion of particulates, vapour intrusion.	Limited (current)	Moderate	Exposure to potentially contaminated soils is limited due to sealed surfaces. Historical operations may have given rise to contamination events.
			Limited (future)	Low	If present, impacted soils are likely to be disposed of offsite.
	Natural soils	Migration of contamination from fill layer/ topsoil to underlying natural soils.	Limited (current)	Moderate	Migration through fill layer to natural soils is possible.
			Limited (future)	Low	If present, impacted soils are likely to be disposed of offsite.
	Un-named stormwater canal (150m SW)	Migration of impacted groundwater and surface water run-off.	Limited (current)	Moderate	The local topography surrounding the site falls towards an un-named stormwater canal (150m SW). It is likely surface waters from the site reach this waterway.
			No (future)	Low	If present, contaminated soils and groundwater are likely to be remediated.
	Underlying aquifer	Leaching and migration of contaminants through groundwater infiltration.	Limited (current)	Low	Due to existing sealed surfaces, leachability of CoPC is limited.
			Limited (future)	Low	If present, contaminated soil and/or groundwater is likely to be remediated.

9. Assessment Criteria

The following soil assessment criteria were adopted for the investigation.

9.1 NEPM Health Investigation Level D (HIL-D) – Commercial/Industrial

HILs are scientific, risk-based guidance levels to be used as in the primary stage of assessing soil contamination to evaluate the potential risks to human health from chronic exposure to contaminants. HILs are applicable to a broad range of metals and organic substances, and generally apply to depths up to 3m below the surface. Tier 1 HILs are divided into sub-criteria. The sub-criteria appropriate to the site is HIL D –Commercial/Industrial.

Table 7. HIL-D

NEPM Assessment Criteria	NEPM 2013 Commercial/Industrial Soil HIL-D, mg/kg
Pesticides	
HCB	80
Heptachlor	50
Chlordane	530
Aldrin & Dieldrin	45
Endrin	100
DDD+DDE+DDT	3,600
Endosulfan	2,000
Methoxychlor	2,500
Mirex	100
Metals	
Arsenic, As	3,000
Cadmium, Cd	900
Chromium, Cr	3,600
Copper, Cu	240,000
Lead, Pb	1,500
Nickel, Ni	6,000
Zinc, Zn	400,000
Mercury, Hg	730
Polycyclic Aromatic Hydrocarbons	
Carcinogenic PAH (as BaP TEQ)	40
Total PAH (18)	4,000
Polychlorinated biphenyls	
Total PCBs	8

9.2 NEPM Health Screening Level D (HSL-D) – Commercial/Industrial

HSLs have been developed for selected petroleum compounds and fractions and are used for the assessment of potential risks to human health from chronic inhalation and direct contact pathways of petroleum vapour emanating off petroleum contaminated soils (Vapour Risk).

HSLs are guided by land-use scenarios, specific soil physicochemical properties and generally apply to depths below surface to >4m. Tier 1 HSLs are divided into sub-criteria. The sub-criteria appropriate to the site is HSL D – Commercial/Industrial.

Table 8. HSL-D

Assessment Criteria	NEPM 2013 Soil HSL-D for Vapour Intrusion, 0-<1m Depth, Sand, mg/kg
Monocyclic Aromatic Hydrocarbons	
Benzene	3
Toluene	NL
Ethylbenzene	NL
Xylenes	230
Polycyclic Aromatic Hydrocarbons	
Naphthalene	NL
Total Recoverable Hydrocarbons	
TRH C6-C10 - BTEX (F1)	260
TRH >C10-C16 - N (F2)	NL

9.3 NEPM Ecological Investigation Level (EIL) – Commercial/Industrial

Ecological investigation levels (EILs) have been developed to assess the risk for the presence of metals and organic substance in a terrestrial ecosystem. EILs are guided by land-use scenarios, specific soil physicochemical properties and generally apply to the top 2m of soil.

NEPM Soil Quality Guidelines (SQG) for EILs are calculated using the Added Contamination Limit (ACL) to determine the amount of contamination that had to be added to the soil to cause toxicity, including ambient background concentration (ABC).

Table 9. Generic EIL

Assessment Criteria	NEPM 2013 Soil Generic EIL for Commercial/Industrial, mg/kg
Metals	
Arsenic, As	160
Lead, Pb	1800
Pesticides	
DDT	640
Polycyclic Aromatic Hydrocarbons	
Naphthalene	370

9.4 NEPM Ecological Screening Level (ESL) – Commercial/Industrial

ESLs have been developed for selected petroleum hydrocarbons (BTEX, benzo(a)pyrene, TRH F1 and F2) in soil, based on fresh contamination. These parameters are applicable to coarse and fine-grained soil and apply from the surface of the soil to 2m below ground level (bgl), which corresponds with the root and habitat zone for many species.

Table 10. ESL

Assessment Criteria	NEPM 2013 Soil ESL for Urban, Commercial/Industrial, Coarse-Grained Soil, mg/kg
Monocyclic Aromatic Hydrocarbons	
Benzene	75
Toluene	135
Ethylbenzene	165
Xylenes	180
Polycyclic Aromatic Hydrocarbons	
BaPyr (BaP)	0.7
Total Recoverable Hydrocarbons	
TRH C6-C10	215
TRH >C10-C16	170
TRH >C16-C34 (F3)	1700
TRH >C34-C40 (F4)	3300

9.5 NEPM Management Limits – Commercial/Industrial

Management Limits for petroleum have been developed for prevention of explosive vapour accumulation, prevention of the formation of observable Light Non-Aqueous Phase Liquids (LNAPL) and protection against effects on buried infrastructure. Commercial/Industrial limits have been adopted based on the proposed land use.

Table 11. Management Limits

Assessment Criteria	NEPM 2013 Management Limits for Commercial/Industrial Space, Coarse - Grained Soil, mg/kg
Total Recoverable Hydrocarbons	
TRH C6-C10	700
TRH >C10-C16	1,000
TRH >C16-C34 (F3)	3,500
TRH >C34-C40 (F4)	10,000

9.6 NEPM Health Screening Level D (HSL-D) – Commercial/Industrial

The assessed soil must not contain Asbestos Containing Materials (ACM) in the excess of 0.05%w/w and Asbestos Fines (AF) and Fibrous Asbestos (FA) in the excess of 0.001%w/w. Additionally, surface soil within the site must be free of visible ACM, AF and FA.

Table 12. HSL-D for Asbestos

Assessment Criteria	Health Screening Level (%w/w) Commercial/Industrial (D)
Asbestos	
ACM	0.05%w/w
FA and AF (friable asbestos)	0.001%w/w
All forms of asbestos	No visible asbestos for surface soils

10. Sampling and Analysis Plan

10.1 Sampling Rationale

Table 13. Sampling Rationale

Sampling Criteria	Chosen Approach	Justification
Sampling Pattern	Judgmental sampling pattern	This pattern was selected due to the area of the site, access to underlying soil, the AEC and CoPC as well as the potential heterogeneity of any contamination.
Sampling Density	10 primary soil samples from 10 boreholes	This sampling density was selected based on the extent of the potential contaminated area to be detected, feasibility, the site history, distribution of current and historical uses on site, location and condition of structures
Duplicate Samples	2 Duplicates Rate 1:5 sample Duplicate sample: BH1 and BH2	QA/QC sampling was undertaken in general accordance with specifications outlined in Australian Standards (AS) 4482.1-2005, Standard Guide to the Investigation and Sampling of Sites with Potentially Contaminated Soil and NEPM 2013 Schedule B2; *Guideline on Site Characterisation*.
Sampling Depths	One (1) sample per borehole Shallow sample within fill/topsoil layer: 0-0.15m bgl	This depth was selected in compliment with sampling density and to target depths of potential contaminants. Additionally, soil layer thickness was considered when determining these depths.

10.2 Field Sampling Methodology

The concrete slab was cut using concrete core drill. The samples were collected by hand auger to a depth of approximately 0.15m bgl below the concrete slab. Soil samples were collected from shallow fill (0-0.15m bgl) below the surface by clean nitrile gloves and placed in laboratory supplies containers.

The auger was decontaminated with detergent and deionised water between sample pits. Additional samples were collected in 500ml zip bags for analysis of Asbestos. PID screening was undertaken on all soil samples. Samples were stored on ice in an esky while on-site and in transit to a NATA accredited laboratory for the analysis of the CoPC under Chain of Custody (COC) documentation.

Table 14. Sample Details

Sample	Depth (m bgl)	Description	Matrix	PID
BH1/D1	0-0.15	Silty SAND, fine to medium grained, grey to pale grey, with clay, some fine gravel, moist.	Fill	0.0
BH2/D2	0-0.15	Silty SAND, fine to medium grained, grey to pale grey, with clay, some fine gravel, moist.	Fill	0.0
BH3	0-0.15	Silty SAND, fine to medium grained, grey to pale grey, with clay, some fine gravel, moist.	Fill	0.0
BH4	0-0.15	Silty SAND, fine to medium grained, grey to pale grey, with clay, some fine gravel, moist.	Fill	0.0
BH5	0-0.15	Silty SAND, fine to medium grained, grey to pale grey, with clay, some fine gravel, moist.	Fill	0.0
BH6	0-0.15	Silty SAND, fine to medium grained, grey to pale grey, with clay, some fine gravel, moist.	Fill	0.0
BH7	0-0.15	Silty SAND, fine to medium grained, grey to pale grey, with clay, some fine gravel, moist.	Fill	0.0
BH8	0-0.15	Silty SAND, fine to medium grained, grey to pale grey, with clay, some fine gravel, moist.	Fill	0.0
BH9	0-0.15	Silty SAND, fine to medium grained, grey to pale grey, with clay, some fine gravel, moist.	Fill	0.0
BH10	0-0.15	coarse gravels, Silty SAND, fine to medium grained, grey to pale grey, with clay, moist.	Fill	0.0

10.3 Quality Assurance & Quality Control Procedures

Table 15. The Following Procedures Were Undertaken to Ensure the Data Quality for Each Sample

QA/QC	Measure	Purpose
Field	Decontamination procedures	Prevent cross contamination between samples.
	Appropriate preservation and storage measures	Prevent cross contamination and analyte loss for volatile compounds.
	Statement of duplicate frequency	To measure variations in contamination concentration.
	Field instrument calibrations	Ensure valid results from instruments through routine calibration.
Laboratory	Chain-of-custody procedures	A copy of signed chain-of-custody forms acknowledging receipt date, time and temperature and identity of samples included in shipments will ensure validity of results.
	Record of holding times	To ensure samples are analysed with reasonable window of receival to prevent analyte loss for volatile compounds.
	Matrix spikes (MS)	Indicate percentage of recovery of a known concentration for a spike in field sub-sample to measure recovery.
	Laboratory Control Sample (LCS)	Reference used throughout the full method process from extraction to injection to measure recovery of analytes.
	Relative Percentage Differences (RPD)	Calculation of laboratory performance for the analytical method using duplicates.

11. Investigation Results

11.1 Soil Analytical Results

Identified impacted soils included three (3) location (BH3, BH4 and BH10) that Asbestos in the form of ACM, Asbestos Fines (AF) and Fibrous Asbestos (FA) were identified in exceedance of the NEPM HSL-D Assessment Criteria.

Additionally, Asbestos including AF and FA was identified in three (3) other samples (BH1, BH5 and BH6) below NEPM HSL-D Assessment Criteria. Lead exceeded the NEPM HIL-D Assessment Criteria in BH4 only. All other analytes were below the NEPM Assessment Criteria for Commercial/Industrial (D) sites.

11.2 Quality Control (QC) Sampling

QC sampling was undertaken in the form of two (2) duplicate samples. Two (2) field QC samples were collected as field duplicate of BH1 and BH2.

Table 16. QC Sample Response

Sample	Relative Percentage Difference (RPD)
D1	<30%
D2	<30%

12. Data Gaps

- Hazardous materials in onsite structures;
- Extent of Lead and Asbestos contamination within soils; and
- Natural soils were not encountered during sampling at the site.

13. Conclusion

Based on the site investigation and analytical results, GCA considers that the there is potential for Asbestos contamination to exist on the site. The site requires Detailed Site Investigation (DSI) to confirm the distribution and concentration of the Lead and Asbestos contamination.

Asbestos samples should be evenly distributed across the site area and be collected at twice the rate of Table 2 of the NSW EPA, *Contaminated Land Guidelines*, *Sampling Design Part 1 – Application*, 2022. Based on the outcome of the additional investigation the soil should be managed under a Remediation Action Plan (RAP).

GCA finds that the site can be made suitable for the proposed subdivision, providing that the recommendations within Section 14 of this report are undertaken.

14. Recommendations

Based on the information collected and available during this investigation, the following recommendations have been made:

- A Detailed Site Investigation (DSI) should be undertaken to provide greater site characterisation and delineate the extent of the fill layer and identified Lead and Asbestos contamination within the fill.
- Implementation of a Remediation Action Plan (RAP) to address the identified Lead and Asbestos contaminated location(s);
- All structures should undergo a Hazardous Materials Survey (HMS) conducted by a qualified occupational hygienist and/or environmental consultant for the site prior to any demolition or renovation works in accordance with relevant Australian Standards, SafeWork NSW codes of practice and any other applicable requirements;
- The demolition of structures and excavation activity on site be undertaken in accordance with relevant Australian Standards, SafeWork NSW codes of practice and any other applicable requirements;
- Any other soils requiring excavation, onsite reuse and/or removal must be classified in accordance with "Waste Classification Guidelines Part 1: Classifying Waste" NSW EPA (2014); and
- A site specific 'Unexpected Finds Protocol' is to be made available for reference for all occupants and/or site workers in the event unanticipated contamination is discovered.

References

Statutory Requirements

- National Environment Protection Council Act 1994;
- Protection of the Environment and Operation Act 1997;
- The Contaminated Land Management Act 1997;
- Work Health and Safety Act, 2011.

Regulatory Framework

- State Environmental Planning Policy (Resilience and Hazard) 2021;
- NSW EPA, *Contaminated Land Guidelines*, *Sampling Design Part 1 – Application*, 2022;
- NSW EPA, *Contaminated Land Guidelines*, *Sampling Design Part 2 – Interpretation*, 2022;
- NSW EPA, *Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act*, 1997;
- NSW EPA, *Resource Recovery Order under Part 9, Clause 93 of the Protection of the Environment Operations (Waste) Regulation, 2014*;
- NSW EPA, *Consultants Reporting on Contaminated Land: Contaminated Land Guidelines,* 2020;
- NSW EPA, *Contaminated Land Management, Guidelines for the NSW Site Auditor Scheme,* 2017 (3rd Edition);
- NSW EPA, *Waste Classification Guidelines Part 1: Classifying Waste,* 2014;
- NEPC, National Environment Protection (Assessment of Site Contamination) Measures (NEPM), 2013;
- HEPA, PFAS National Environmental Management Plan, Version 2.0, 2020;
- The National Remediation Framework, CRC Care, 2019;
- Protection of the Environment Operations (Waste) Regulations, 2005;
- SafeWork NSW, *Managing Asbestos in or On Soil*, 2014; and
- Work Health and Safety Regulation, 2011.

Limitations

The findings of this report are based on the scope of work outlined in Section 2. GCA performed the services in a manner consistent with the normal level of care and expertise exercised by members of the environmental consulting profession. No warranties, express or implied are made.

The results of this assessment are based upon the information documented and presented in this report. All conclusions and recommendations regarding the site are the professional opinions of GCA personnel involved with the project, subject to the qualifications made above. While normal assessments of data reliability have been made, GCA assumes no responsibility or liability for errors in any data obtained from regulatory agencies, statements from sources outside of GCA, or developments resulting from situations outside the scope of this project.

The results of this assessment are based on the site conditions identified at the time of the site inspection and validation sampling. GCA will not be liable to revise the report to account for any changes in site characteristics, regulatory requirements, assessment criteria or the availability of additional information, subsequent to the issue date of this report.

GCA is not engaged in environmental consulting and reporting for the purpose of advertising sales promoting, or endorsement of any client interests, including raising investment capital, recommending investment decisions, or other publicity purposes.

Geotechnical Consultants Australia Pty Ltd (GCA)

Prepared by:

Ehsan Zare
Environmental Consultant

Reviewed by:

Nick Caltabiano
Project Manager

APPENDIX A

Figures and Site Photographic Log

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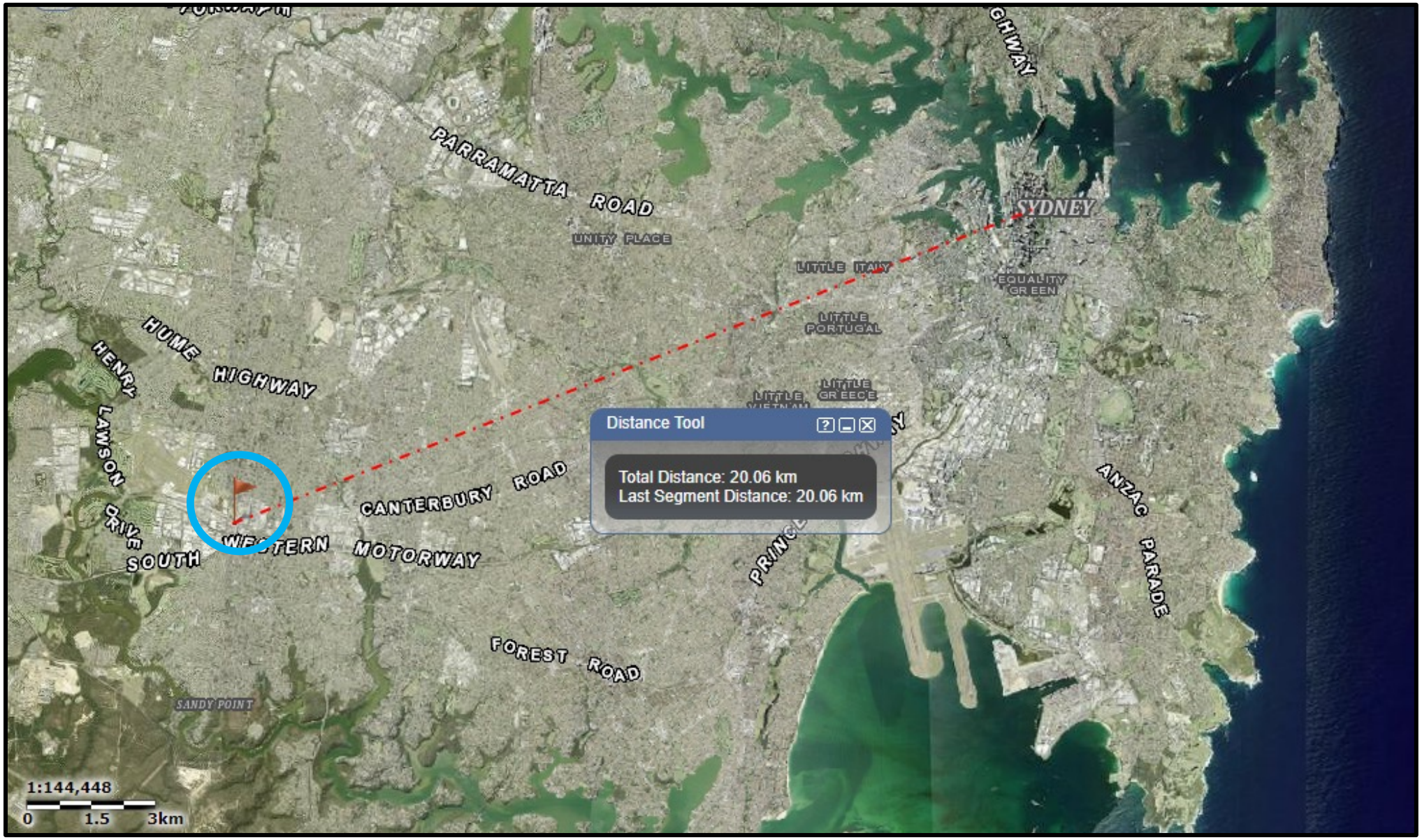
Figure 1. The site is located approximately 20km southwest of Sydney CBD.



Site location

Source: Six Maps 2022

Figure 1	Locality Map
Project	112 Milperra Road, Revesby NSW 2212

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Figure 2. The approximate area of the site is 3,526m^2. Eleven (11) soil samples were obtained from this site including one (1) QA/QC sample.

⊗ Soil Sample Location

Source: Nearmap 2022

Figure 2	Site Area
Project	112 Milperra Road, Revesby NSW 2212

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Figure 3. Aerial image of the site and surrounding area 1943. The site was free of structures and was mildly vegetated. The surrounding area was comprised low density residential properties vacant landscapes.

Source: NSW Historical Imagery 2022

Figure 3	Aerial Image 1943
Project	112 Milperra Road, Revesby NSW 2212

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Figure 4. Aerial image of the site and surrounding area 1955. The site was contained two residential dwellings within the northern portion. The southern portion of the site was contained a few sheds. The surrounding area was increased in residential developments.

Source: NSW Historical Imagery 2022

Figure 4	Aerial Image 1955
Project	112 Milperra Road, Revesby NSW 2212

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Figure 5. Aerial image of the site and surrounding area 1965. The vegetation across the site had been cleared. A few building structures had been constructed within the southern portion of the site. The surrounding area was increased in commercial developments to the east and west.

Source: NSW Historical Imagery 2022

Figure 5	Aerial Image 1965
Project	112 Milperra Road, Revesby NSW 2212

N

Figure 6. Aerial image of the site and surrounding area 2005. The structures within the site had been largely demolished. The site was contained two sheds within the central portion and a building structure within the north-eastern portion. The site was being used as a parking lot. The surrounding residential dwellings had been demolished. The surrounding area was increased in commercial developments.

Source: NSW Historical Imagery 2022

Figure 6	Aerial Image 2005
Project	112 Milperra Road, Revesby NSW 2212

N

Figure 7. Aerial image of the site and surrounding area 2009. The structures within the central portion of the site had been demolished. Three overground tanks were present within south-eastern portion of the site. The surrounding area was remained unchanged.

Source: NSW Historical Imagery 2022

Figure 7	Aerial Image 2009
Project	112 Milperra Road, Revesby NSW 2212

N

Figure 8. Aerial image of the site and surrounding area 2015. Two new sheds had been built within the south-eastern portion of the site. One new structure had been built within the south-western portion of the site. The surrounding area was increased in commercial developments to the northeast of the site.

Source: NSW Historical Imagery 2022

Figure 8	Aerial Image 2015
Project	112 Milperra Road, Revesby NSW 2212

N

Figure 9. Aerial image of the site and surrounding area in 2022. The site area had little or no change. The surrounding area is improved in commercial developments.

Source: Nearmap 2022

Figure 9	Aerial Images: 2022
Project	112 Milperra Road, Revesby NSW 2212

Figure 10. Overview of the site.

Figure 11. North-western portion of the site.

Figure 12. Western portion of the site

Figure 13. Carwash and service area within south-eastern portion of the site.

Figure 14. Storage container within south-western portion of the site.

Figure 15. Storage of old and wrecked cars within western portion of the site.

Figure 16. BH4 sampling.

Figure 17. Fibrocement fragment within BH10.

APPENDIX B

Data Quality Objectives

Data Quality Objectives (DQOs)

The DQOs have been developed in accordance with the NEPM Appendix B of Schedule B2 and provide the type, quantity and quality of data to support decisions regarding the environmental conditions of this site.

Table 17. DQOs

Step 1: State the problem	GCA have identified the following risks to human and environmental receptors: - The proposed development includes the subdivision of the site into two (2) lots. Commercial/Industurial use and any subsequent future development may give rise to contamination events.
Step 2: Identify the decision/goal of the study	GCA considered the site history, the use of this site, and the NEPM Guidelines, when identifying the decisions required for the site to be considered suitable for its continued land use. The decisions required to meet these decisions are as follows: - Was the sampling, analysis and quality plan designed appropriate to achieve the aim? - If present, is on-site contamination capable of migrating off-site? - Are there any unacceptable risks to the future on site or off-site receptors in the soil or groundwater? - Is the site suitable for its continued land use?
Step 3: Identify the information inputs	GCA has identified issues of potential environmental concern; - Appropriate identification of CoPC; - Soil sampling and analysis programs across the site; - Appropriate quality assurance/quality control to enable an evaluation of the reliability of the analytical data; and - Screening sampler analytical results against appropriate assessment criteria for the intended land use.
Step 4: Define the boundaries of the study	The study boundaries are: - Lateral boundary: The legally defined area of the site; - Vertical boundary: The soil interface to the maximum depth reached during soil sampling; and - Temporal boundary: Constrained to a single visit to the site.
Step 5: Develop the analytical approach	The integration of the information from steps 1 – 4 support and justify the proposed analytical approach. The aim is to confirm if the site is suitable for the proposed development. If the PSI identifies; • Any exceedance of the adopted NEPM Commercial/Industrial (D) Assessment Criteria for soil; • Professional opinion that further assessment is required; • Adopted RPD (30% difference) for QC data not met;

	• If analytes are in exceedance of the LOR in method blanks; • if RPDs of matrix spikes, surrogates and laboratory control samples are outside acceptable limits. Further assessment may be required to confirm suitability of the site for use a Commercial/Industrial use.
Step 6: Specify performance or acceptance criteria	For judgemental soil sampling the data must meet the following qualifiers; - Acceptable recovery on all surrogate spikes used in laboratory analyses; - Acceptable analytical method to ensure detection limit appropriate for all analytes; If these conditions are not met, then chemical analysis will require re-testing for all samples with fresh aliquot.
Step 7: Optimise the design for obtaining data	Judgemental sampling pattern within the AEC will provide suitable coverage of the site to produce reliable data in alignment with the Data Quality Indicators (DQIs) to cover precision, accuracy, representativeness, completeness and comparability (PARCC). This sampling pattern will ensure that critical locations are assessed and analysed appropriately for COPC.

APPENDIX C

Laboratory Results and Chain of Custody (NATA)

Table 18. Total Recoverable Hydrocarbon (TRH) analytical results. Values are presented as mg/kg. NL = Not Limiting.

Assessment Criteria		TRH C_6-C_{10}	TRH C_6-C_{10} - BTEX (F1)	TRH >C_{10}-C_{16}	TRH >C_{10}-C_{16} - N (F2)	TRH >C_{16}-C_{34} (F3)	TRH >C_{34}-C_{40} (F4)
NEPM 2013 Commercial/Industrial Soil HSL-D for Vapour Intrusion, 0-<1m depth, Sand, mg/kg			260		NL		
NEPM 2013 Soil ESL for Commercial/Industrial, coarse-grained soil, mg/kg		215		170		1700	3300
NEPM 2013 Management Limits for Commercial/Industrial, coarse-grained soil, mg/kg		700		1000		3500	10000
Sample	Depth (m)	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
BH1	0-0.15	<25	<25	<25	<25	<90	<120
BH2	0-0.15	<25	<25	<25	<25	**100**	<120
BH3	0-0.15	<25	<25	<25	<25	**300**	**260**
BH4	0-0.15	<25	<25	<25	<25	**430**	**140**
BH5	0-0.15	<25	<25	<25	<25	**260**	**260**
BH6	0-0.15	<25	<25	<25	<25	**220**	<120
BH7	0-0.15	<25	<25	<25	<25	**870**	**330**
BH8	0-0.15	<25	<25	<25	<25	**170**	<120
BH9	0-0.15	<25	<25	<25	<25	**140**	<120
BH10	0-0.15	<25	<25	<25	<25	<90	<120
D1	0-0.15	<25	<25	34	34	**100**	<120
D2	0-0.15	<25	<25	<25	<25	**100**	<120

Table 19. Benzene, Toluene, Ethylbenzene and Xylene (BTEX) analytical results. Values are presented as mg/kg. NL = Not Limiting.

Assessment Criteria		Benzene	Toluene	Ethylbenzene	Xylenes
NEPM 2013 Commercial/Industrial Soil HSL-D for Vapour Intrusion, 0-<1m depth, Sand, mg/kg		3	NL	NL	230
NEPM 2013 Soil ESL for Commercial/Industrial, coarse-grained soil, mg/kg		75	135	165	180
Sample	Depth (m)	mg/kg	mg/kg	mg/kg	mg/kg
BH1	0-0.15	<0.1	<0.1	<0.1	<0.3
BH2	0-0.15	<0.1	<0.1	<0.1	<0.3
BH3	0-0.15	<0.1	<0.1	<0.1	<0.3
BH4	0-0.15	<0.1	<0.1	<0.1	<0.3
BH5	0-0.15	<0.1	<0.1	<0.1	<0.3
BH6	0-0.15	<0.1	<0.1	<0.1	<0.3
BH7	0-0.15	<0.1	<0.1	<0.1	<0.3
BH8	0-0.15	<0.1	<0.1	<0.1	<0.3
BH9	0-0.15	<0.1	<0.1	<0.1	<0.3
BH10	0-0.15	<0.1	<0.1	<0.1	<0.3
D1	0-0.15	<0.1	<0.1	<0.1	<0.3
D2	0-0.15	<0.1	<0.1	<0.1	<0.3

Table 20. Polycyclic Aromatic Hydrocarbon (PAH) analytical results.

Assessment Criteria		Naphthalene	Benzo(a)pyrene	Carcinogenic PAH (as BaP TEQ)	Total PAH (18)
NEPM 2013 Commercial/Industrial Soil HSL-D for Vapour Intrusion, 0-<1m depth, Sand, mg/kg		NL			
NEPM 2013 Soil Generic EIL for Commercial/Industrial, mg/kg		370			
NEPM 2013 Soil ESL for Commercial/Industrial for coarse-grained soil, mg/kg			0.7		
NEPM 2013 Commercial/Industrial I Soil HIL-D, mg/kg			1.00 TEF	4	400
Sample	Depth (m)	mg/kg	mg/kg	TEQ (mg/kg)	mg/kg
BH1	0-0.15	0.2	<0.1	<0.3	<0.8
BH2	0-0.15	<0.1	<0.1	<0.3	<0.8
BH3	0-0.15	<0.1	<0.1	<0.3	<0.8
BH4	0-0.15	<0.1	<0.1	<0.3	<0.8
BH5	0-0.15	<0.1	<0.1	<0.3	<0.8
BH6	0-0.15	<0.1	<0.1	<0.3	<0.8
BH7	0-0.15	<0.1	<0.1	<0.3	<0.8
BH8	0-0.15	<0.1	<0.1	<0.3	<0.8
BH9	0-0.15	<0.1	<0.1	<0.3	<0.8
BH10	0-0.15	<0.1	<0.1	<0.3	<0.8
D1	0-0.15	<0.1	<0.1	<0.3	<0.8
D2	0-0.15	<0.1	<0.1	<0.3	<0.8

Table 21. Heavy Metal analytical results. Values are presented as mg/kg.

Assessment Criteria		Arsenic, As	Cadmium, Cd	Chromium, Cr	Copper, Cu	Lead, Pb	Nickel, Ni	Zinc, Zn	Mercury, Hg
NEPM 2013 Commercial/Industrial Soil HIL-D, mg/kg		3000	900	3600	240 000	1500	6000	400 000	730
NEPM 2013 Soil Generic EIL for Commercial/Industrial, mg/kg		160				1800			
Sample	Depth (m)	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
BH1	0-0.15	4	1.0	12	62	100	25	170	<0.05
BH2	0-0.15	6	5.5	100	68	69	35	220	<0.05
BH3	0-0.15	2	18	66	73	23	86	300	<0.05
BH4	0-0.15	4	68	1500	1700	**1500**	280	1700	<0.05
BH5	0-0.15	2	17	50	79	32	52	480	<0.05
BH6	0-0.15	4	68	86	120	76	130	1400	<0.05
BH7	0-0.15	3	31	150	930	210	920	4400	0.26
BH8	0-0.15	5	49	150	170	230	320	1100	0.07
BH9	0-0.15	4	1.6	21	140	48	26	320	0.10
BH10	0-0.15	1	0.9	8.8	110	18	14	120	<0.05
D1	0-0.15	5	1.7	19	91	130	33	300	<0.05
D2	0-0.15	7	3.4	27	63	58	23	230	<0.05

Table 22. Pesticides analytical results. Values are presented as mg/kg.

Assessment Criteria		HCB	Heptachlor	Chlordane	Aldrin & Dieldrin	Endrin	DDT	DDD+DDE +DDT	Endosulfan	Methoxychlor	Mirex
NEPM 2013 Commercial/Industrial Soil HIL-D, mg/kg		80	50	530	45	100		3600	2000	2500	100
NEPM 2013 Soil Generic EIL for Commercial/Industrial, mg/kg							640				
Sample	Depth (m)	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
BH1	0-0.15	<0.1	<0.2	<0.2	<0.3	<0.2	<0.2	<0.6	<0.5	<0.1	<0.1
BH2	0-0.15	<0.1	<0.2	<0.2	<0.3	<0.2	<0.2	<0.6	<0.5	<0.1	<0.1
BH3	0-0.15	<0.1	<0.2	<0.2	<0.3	<0.2	<0.2	<0.6	<0.5	<0.1	<0.1
BH4	0-0.15	<0.1	<0.2	<0.2	<0.3	<0.2	<0.2	<0.6	<0.5	<0.1	<0.1
BH5	0-0.15	<0.1	<0.2	<0.2	<0.3	<0.2	<0.2	<0.6	<0.5	<0.1	<0.1
BH6	0-0.15	<0.1	<0.2	<0.2	<0.3	<0.2	<0.2	<0.6	<0.5	<0.1	<0.1
BH7	0-0.15	<0.1	<0.2	<0.2	<0.3	<0.2	<0.2	<0.6	<0.5	<0.1	<0.1
BH8	0-0.15	<0.1	<0.2	<0.2	<0.3	<0.2	<0.2	<0.6	<0.5	<0.1	<0.1
BH9	0-0.15	<0.1	<0.2	<0.2	<0.3	<0.2	<0.2	<0.6	<0.5	<0.1	<0.1
BH10	0-0.15	<0.1	<0.2	<0.2	<0.3	<0.2	<0.2	<0.6	<0.5	<0.1	<0.1
D1	0-0.15	<0.1	<0.2	<0.2	<0.3	<0.2	<0.2	<0.6	<0.5	<0.1	<0.1
D2	0-0.15	<0.1	<0.2	<0.2	<0.3	<0.2	<0.2	<0.6	<0.5	<0.1	<0.1

Table 23. Asbestos analytical results.

Asbestos		ACM <0.05%w/w	AF, FA <0.001%w/w
Sample	Depth (m)		
BH1	0-0.15	0.02%.	AF = 0.00004%
BH2	0-0.15	Not detected	Not detected
BH3	0-0.15	Not detected	**FA = 0.012%**
BH4	0-0.15	Not detected	**FA+AF = 0.01%**
BH5	0-0.15	Not detected	AF = 0.00004%.
BH6	0-0.15	Not detected	FA+AF = 0.0004%.
BH7	0-0.15	Not detected	Not detected
BH8	0-0.15	Not detected	Not detected
BH9	0-0.15	Not detected	Not detected
BH10	0-0.15	**ACM = 0.11%**	**FA = 0.001%**

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CHAIN OF CUSTODY RECORD

ASET JOB NO: ASET105657/108837/1-10

Name/ Company Name: NEO Consulting

Home/Company Address: 186 Riverstone Parade, Riverstone, NSW, 2765

Contact Ph:

Contact Name: Nick Caltabiano

Job No: N6680

Project Name:

Purchase Order:

Email Results to: admin@neoconsulting.com.au; ehsan@neoconsulting.com.au; sarah@neoconsulting.com.au; Oskar@neoconsulting.com.au; nick@neoconsulting.com.au

	Sample ID	Date	Type	Container	Sample Location	Asbestos in Material	Asbestos in Soil (+/-)	Asbestos WA/ NEPM 500mL	Asbestos Fibre Count	Asbestos in Water	Asbestos in Dust	Lead Analysis
1	BH1	26.10.22	Soil	Bag 500ml				X				
2	BH2	26.10.22	Soil	Bag 500ml				X				
3	BH3	26.10.22	Soil	Bag 500ml				X				
4	BH4	26.10.22	Soil	Bag 500ml				X				
5	BH5	26.10.22	Soil	Bag 500ml				X				
6	BH6	26.10.22	Soil	Bag 500ml				X				
7	BH7	26.10.22	Soil	Bag 500ml				X				
8	BH8	26.10.22	Soil	Bag 500ml				X				
9	BH9	26.10.22	Soil	Bag 500ml				X				
10	BH10	26.10.22	Soil	Bag 500ml				X				

27 OCT 2022

Relinquished By:

Date & Time:

Signature:

Received By: Kim

Date & Time: 27/10/22 4pm

Signature:

Turn around time					Shipment Method
Same Day	24 hrs	48 hrs	3 Days	5 days	

AUSTRALIAN SAFER ENVIRONMENT & TECHNOLOGY PTY LTD

ABN 36 088 095 112

Our ref : ASET105657 / 108837 / 1 - 10
Your ref : N6680
NATA Accreditation No: 14484

28 October 2022

NEO Consulting
186 Riverstone Parade
Riverstone NSW 2765

Attn: Mr Nick Caltabiano

Accredited for compliance with ISO/IEC 17025 -Testing.

Dear Nick

Asbestos Identification
This report presents the results of ten samples, forwarded by NEO Consulting on 27 October 2022, for analysis for asbestos.

1.Introduction: Ten samples forwarded were examined and analysed for the presence of asbestos on 28 October 2022.

2. Methods : The samples were examined under a Stereo Microscope and selected fibres were analysed by Polarized Light Microscopy in conjunction with Dispersion Staining method **(Australian Standard AS4964 - 2004 and Safer Environment Method 1 as the supplementary work instruction) (Qualitative Analysis only).**

The report also provides approximate weights and percentages, categories of asbestos forms appearing in the sample, such as **AF**(Asbestos Fines), **FA**(Friable Asbestos and **ACM** (Asbestos Containing Material), also satisfying the requirements of the NEPM Guidelines).

3. Results : **Sample No. 1. ASET105657 / 108837 / 1. BH1.**
Approx dimensions 10.0 cm x 10.0 cm x 8.1 cm
The sample consisted of a mixture of clayish sandy soil, organic fibres, fibres^ (AF), fibre cement* (ACM), fragments of plastic, aluminium foil, paint flakes, stones and plant matter.
Chrysotile*^ (Approximate estimated weight as ACM = 0.0782g, as AF = 0.00035g), Amosite* (Approximate estimated weight = 0.01713g) asbestos and Crocidolite* (Approximate estimated weight = 0.0353g) asbestos detected.
Approximate total dry weight of soil =806.0g.
Approximate estimated weight of asbestos in soil in the form of ACM = 0.1306g.
Approximate w/w percentage of asbestos in soil in the form of ACM = 0.02%.
Approximate estimated weight of asbestos in soil in the form of AF = 0.00035g.
Approximate w/w percentage of asbestos in soil in the form of AF = 0.00004%.

Sample No. 2. ASET105657 / 108837 / 2. BH2.
Approx dimensions 10.0 cm x 10.0 cm x 6.8 cm
Approximate total dry weight of soil = 679.0g.
The sample consists of a mixture of sandy soil, organic fibres, fragments of glass, plastic, paint flakes, stones and plant matter.
No asbestos detected.

Sample No. 3. ASET105657 / 108837 / 3. BH3.
Approx dimensions 10.0 cm x 10.0 cm x 9.2 cm
The sample consisted of a mixture of clayish sandy soil, organic fibres, fibrous material# (FA), glass, metal, stones and plant matter.
Chrysotile# (Approximate estimated weight = 0.10695g) asbestos detected.
Approximate total dry weight of soil =918.0g.
Approximate estimated weight of asbestos in soil in the form of FA = 0.10695g.
Approximate w/w percentage of asbestos in soil in the form of FA = 0.012%.

Sample No. **4. ASET105657 / 108837 / 4. BH4.**
Approx dimensions 10.0 cm x 10.0 cm x 7.7 cm
The sample consisted of a mixture of clayish sandy soil, organic fibres, fibres^ (AF), fibrous material# (FA), glass, stones and plant matter.
Chrysotile^# (Approximate estimated weight as AF = 0.00063g and as FA = 0.05555g) asbestos detected.
Approximate total dry weight of soil =766.0g.
Approximate estimated weight of asbestos in soil in the form of FA+AF = 0.05618g.
Approximate w/w percentage of asbestos in soil in the form of FA+AF = 0.01%.

Sample No. 5. ASET105657 / 108837 / 5. BH5.
Approx dimensions 10.0 cm x 10.0 cm x 6.9 cm
The sample consisted of a mixture of clayish sandy soil, organic fibres, fibres^ (AF), glass, metal, paint flakes, stones and plant matter.
Chrysotile^ (Approximate estimated weight = 0.00030g) asbestos detected.
Approximate total dry weight of soil =691.0g.
Approximate estimated weight of asbestos in soil in the form of AF = 0.00030g.
Approximate w/w percentage of asbestos in soil in the form of AF = 0.00004%.

Sample No. 6. ASET105657 / 108837 / 6. BH6.
Approx dimensions 10.0 cm x 10.0 cm x 5.0 cm
The sample consisted of a mixture of clayish sandy soil, organic fibres, fibres^ (AF), fibrous material# (FA), glass, metal, stones and plant matter.
Chrysotile^# (Approximate estimated weight as AF = 0.00041g and as FA = 0.00141g) asbestos detected.
Approximate total dry weight of soil =500.0g.
Approximate estimated weight of asbestos in soil in the form of FA+AF = 0.00182g.
Approximate w/w percentage of asbestos in soil in the form of FA+AF = 0.0004%.

Sample No. 7. ASET105657 / 108837 / 7. BH7.
Approx dimensions 10.0 cm x 10.0 cm x 9.1 cm
Approximate total dry weight of soil = 909.0g.
The sample consists of a mixture of sandy soil, organic fibres, fragments of metal and bitumen-like material, stones and plant matter.
No asbestos detected.

Sample No. 8. ASET105657 / 108837 / 8. BH8.
Approx dimensions 10.0 cm x 10.0 cm x 7.9 cm
Approximate total dry weight of soil = 786.0g.
The sample consists of a mixture of sandy soil, organic fibres, fragments of glass, bitumen-like material, stones and plant matter.
No asbestos detected.

Sample No. 9. ASET105657 / 108837 / 9. BH9.
Approx dimensions 10.0 cm x 10.0 cm x 7.5 cm
Approximate total dry weight of soil = 745.0g.
The sample consists of a mixture of sandy soil, organic fibres, fragments of glass, plastic, stones and plant matter.
No asbestos detected.

Sample No. 10. ASET105657 / 108837 / 10. BH10.
Approx dimensions 10.0 cm x 10.0 cm x 9.4 cm
The sample consisted of a mixture of clayish sandy soil, organic fibres, fibre cement *(ACM), fibrous material# (FA), glass, stones and plant matter
Chrysotile*# (Approximate estimated weight as ACM = 1.0113g, as FA = 0.00686g) asbestos detected.
Approximate total dry weight of soil =940.0g.
Approximate estimated weight of asbestos in soil in the form of ACM = 1.0113g.
Approximate w/w percentage of asbestos in soil in the form of ACM = 0.11%.
Approximate estimated weight of asbestos in soil in the form of FA = 0.00686g.
Approximate w/w percentage of asbestos in soil in the form of FA = 0.001%.

Reported by,

Mahen De Silva. BSc, MSc, Grad Dip (Occ Hyg)
Occupational Hygienist / Approved Identifier.
Approved Signatory

WORLD RECOGNISED ACCREDITATION

Accredited for compliance with ISO/IEC 17025 -Testing.

This report is consistent with the analytical procedures and reporting recommendations in the Western Australia Guidelines for the Assessment Remediation and Management of Asbestos contaminated sites in Western Australia and it also satisfies the requirements of the current NEPM Guidelines. NATA Accreditation does not cover the performance of this service.

Disclaimers;

The approximate weights given above can be used only as a guide. They do not represent absolute weights of each kind of asbestos, as it is impossible to extract all loose fibres from soil and other asbestos containing building material samples using this method. However above figures may be used as closest approximations to the exact values in each case. Estimation and/ or reporting of asbestos fibre weights in asbestos containing materials and soil is out of the Scope of the NATA Accreditation. NATA Accreditation only covers the qualitative part of the results reported. This weight disclaimer also covers weight / weight percentages if given.

ACM - Asbestos Containing Material - Products or materials that contain asbestos in an inert bound matrix such as cement or resin. Here taken to be sound material, even as fragments and not fitting through a 7mm X 7 mm sieve.

AF -Includes asbestos free fibres, small fibre bundles and also ACM fragments that pass through a 7mm X 7 mm sieve.

FA **-Friable asbestos material such as severely weathered ACM, and asbestos in the form of loose fibrous material such as insulation products.**

^ denotes loose fibres of relevant asbestos types detected in soil/dust.
*** denotes asbestos detected in ACM in bonded form.**
 # denotes friable asbestos as soft fibro plaster and/ or highly weathered ACM that will easily crumble.
λ denotes samples that have been analysed only in accordance to AS 4964 – 2004.
Ω Sample volume criteria of 500mL have not been satisfied.

The results contained in this report relate only to the sample/s submitted for testing. Australian Safer Environment & Technology accepts no responsibility for whether or not the submitted sample/s is/are representative. Results indicating "No asbestos detected" indicates a reporting limit specified in AS4964 -2004 which is 0.1g/ Kg (0.01%). Any amounts detected at assumed lower level than that would be reported, however those assumed lower levels may be treated as "No asbestos detected" as specified and recommended by AS4964-2004. Trace / respirable level asbestos will be reported only when detected and trace analysis have been performed on each sample as required by AS4964-2004. When loose asbestos fibres/ fibre bundles are detected and reported that means they are larger handpicked fibres/ fibre bundles, and they do not represent respirable fibres. Dust/soil samples are always subjected to trace analysis except where the amounts involved are extremely minute and trace analysis is not possible to be carried out. When trace analysis is not performed on dust samples it will be indicated in the report that trace analysis has not been carried out due to the volume of the sample being extremely minute.

Estimation of asbestos weights involves the use of following assumptions;
Volume of each kind of Asbestos present in broken edges have been visually estimated and its been assumed that volumes remain similar throughout the binding matrix and those volumes are only approximate and not exact. Material densities have been assumed to be similar to commonly found similar materials and may not be exact.

All samples indicating "No asbestos detected" are assumed to be less than 0.001% for friable AF and FA portions detected and 0.01 % for ACM detected unless the approximate weight is given.

CHAIN OF CUSTODY & ANALYSIS REQUEST

SGS Environmental Services Sydney
Unit 16, 33 Maddox Street
Alexandria NSW 2015
Telephone No: (02) 85940400
Facsimile No: (02) 85940499
Email: au.samplereceipt.sydney@sgs.com

Lab ID Number: *(please quote on correspondence)*

Company Name:	Neo Consulting Pty Ltd	Project Name/No:	N6680
Address:	186 Riverstone Parade	Purchase Order No:	QUOTE NUMER: 322722
	Riverstone NSW 2765	Results Required Date:	~~24hr~~ Standard.
		Telephone:	0416680375 Fax:
Contact Name:	Nick Caltabiano	Email Results and invoices to :	nick@neoconsulting, admin@neoconsulting, oskar@neoconsulting, sarah@neoconsulting, eshan@neoconsulting
Quotation No:			

SGS ID	Client Sample ID	Sampling Date/ Time	Matrix (Tick as appropriate): Soil Sample	Water Sample	Other	NO. OF CONTAINERS	ANALYSIS REQUESTED: NEO 1	NEO 2	NEO 3	NEO 4	Asbestos NEPM
1	BH 1	26/11	✓					✓			
2	BH 2	"	✓					✓			
3	BH 3	"	✓					✓			
4	BH 4	"	✓					✓			
5	BH 5	"	✓					✓			
6	BH 6	"	✓					✓			
7	BH 7	"	✓					✓			
8	BH 8	"	✓					✓			
9	BH 9	"	✓					✓			
10	BH 10	"	✓					✓			
11	D1	"	✓					✓			
12	D2	"	✓					✓			

Additional Report Formats

- ☐ NEPM
- ☐ CSV
- ☐ ESDAT
- ☐ DQO
- ☐ GO, Guidelines ---------
- ☐ Others _____

Notes/Guidelines/LOR/ Special instructions

SGS EHS Sydney COC
SE238321

Relinquished By:	Date/Time:	Received By: D. Subaran	Date/Time: 26/10/22 @ 5:20
Relinquished By:	Date/Time:	Received By:	Date/Time:
Samples Intact: (Yes) / No	Temperature: °C	Sample Security Sealed: Yes / No	Hazards: *e.g. may contain Asbestos*

Comments / Subcontracting details:

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Admin
Client	NEO CONSULTING PTY LTD
Address	PO BOX 279 RIVERSTONE NSW 2765
Telephone	0416 680 375
Facsimile	(Not specified)
Email	admin@neoconsulting.com.au
Project	**N6680**
Order Number	**N6680**
Samples	12

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE238321 R0**
Date Received	26/10/2022
Date Reported	2/11/2022

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

SIGNATORIES

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Chemist

Dong LIANG
Metals/Inorganics Team Leader

Kamrul AHSAN
Senior Chemist

Ly Kim HA
Organic Section Head

Shane MCDERMOTT
Inorganic/Metals Chemist

VOC's in Soil [AN433] Tested: 28/10/2022

PARAMETER	UOM	LOR	BH 1 SOIL - 26/10/2022 SE238321.001	BH 2 SOIL - 26/10/2022 SE238321.002	BH 3 SOIL - 26/10/2022 SE238321.003	BH 4 SOIL - 26/10/2022 SE238321.004	BH 5 SOIL - 26/10/2022 SE238321.005
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene (VOC)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	BH 6 SOIL - 26/10/2022 SE238321.006	BH 7 SOIL - 26/10/2022 SE238321.007	BH 8 SOIL - 26/10/2022 SE238321.008	BH 9 SOIL - 26/10/2022 SE238321.009	BH 10 SOIL - 26/10/2022 SE238321.010
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Naphthalene (VOC)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1

PARAMETER	UOM	LOR	D1 SOIL - 26/10/2022 SE238321.011	D2 SOIL - 26/10/2022 SE238321.012
Benzene	mg/kg	0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1
Total Xylenes	mg/kg	0.3	<0.3	<0.3
Total BTEX	mg/kg	0.6	<0.6	<0.6
Naphthalene (VOC)	mg/kg	0.1	<0.1	<0.1

Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 28/10/2022

PARAMETER	UOM	LOR	BH 1 SOIL - 26/10/2022 SE238321.001	BH 2 SOIL - 26/10/2022 SE238321.002	BH 3 SOIL - 26/10/2022 SE238321.003	BH 4 SOIL - 26/10/2022 SE238321.004	BH 5 SOIL - 26/10/2022 SE238321.005
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	BH 6 SOIL - 26/10/2022 SE238321.006	BH 7 SOIL - 26/10/2022 SE238321.007	BH 8 SOIL - 26/10/2022 SE238321.008	BH 9 SOIL - 26/10/2022 SE238321.009	BH 10 SOIL - 26/10/2022 SE238321.010
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25

PARAMETER	UOM	LOR	D1 SOIL - 26/10/2022 SE238321.011	D2 SOIL - 26/10/2022 SE238321.012
TRH C6-C9	mg/kg	20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 28/10/2022

PARAMETER	UOM	LOR	BH 1 SOIL - 26/10/2022 SE238321.001	BH 2 SOIL - 26/10/2022 SE238321.002	BH 3 SOIL - 26/10/2022 SE238321.003	BH 4 SOIL - 26/10/2022 SE238321.004	BH 5 SOIL - 26/10/2022 SE238321.005
TRH C10-C14	mg/kg	20	<20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	**56**	**170**	**290**	**120**
TRH C29-C36	mg/kg	45	<45	**70**	**230**	**210**	**240**
TRH C37-C40	mg/kg	100	<100	<100	**160**	<100	**160**
TRH >C10-C16	mg/kg	25	<25	<25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	**100**	**300**	**430**	**260**
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	**260**	**140**	**260**
TRH C10-C36 Total	mg/kg	110	<110	**130**	**410**	**500**	**360**
TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	**560**	**570**	**520**

PARAMETER	UOM	LOR	BH 6 SOIL - 26/10/2022 SE238321.006	BH 7 SOIL - 26/10/2022 SE238321.007	BH 8 SOIL - 26/10/2022 SE238321.008	BH 9 SOIL - 26/10/2022 SE238321.009	BH 10 SOIL - 26/10/2022 SE238321.010
TRH C10-C14	mg/kg	20	<20	**28**	<20	<20	<20
TRH C15-C28	mg/kg	45	**150**	**600**	**84**	**90**	<45
TRH C29-C36	mg/kg	45	**100**	**430**	**130**	**69**	<45
TRH C37-C40	mg/kg	100	<100	**200**	<100	<100	<100
TRH >C10-C16	mg/kg	25	<25	**51**	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	**51**	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	**220**	**870**	**170**	**140**	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	**330**	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	**250**	**1100**	**210**	**160**	<110
TRH >C10-C40 Total (F bands)	mg/kg	210	**220**	**1300**	<210	<210	<210

PARAMETER	UOM	LOR	D1 SOIL - 26/10/2022 SE238321.011	D2 SOIL - 26/10/2022 SE238321.012
TRH C10-C14	mg/kg	20	**34**	**22**
TRH C15-C28	mg/kg	45	**60**	**50**
TRH C29-C36	mg/kg	45	**60**	**73**
TRH C37-C40	mg/kg	100	<100	<100
TRH >C10-C16	mg/kg	25	**34**	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	**34**	<25
TRH >C16-C34 (F3)	mg/kg	90	**100**	**100**
TRH >C34-C40 (F4)	mg/kg	120	<120	<120
TRH C10-C36 Total	mg/kg	110	**150**	**150**
TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 28/10/2022

PARAMETER	UOM	LOR	BH 1 SOIL - 26/10/2022 SE238321.001	BH 2 SOIL - 26/10/2022 SE238321.002	BH 3 SOIL - 26/10/2022 SE238321.003	BH 4 SOIL - 26/10/2022 SE238321.004	BH 5 SOIL - 26/10/2022 SE238321.005
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	**0.1**	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	**0.1**	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	**0.1**	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	**0.1**	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8

PARAMETER	UOM	LOR	BH 6 SOIL - 26/10/2022 SE238321.006	BH 7 SOIL - 26/10/2022 SE238321.007	BH 8 SOIL - 26/10/2022 SE238321.008	BH 9 SOIL - 26/10/2022 SE238321.009	BH 10 SOIL - 26/10/2022 SE238321.010
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1	**0.2**	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	**0.2**	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	**0.2**	**0.1**
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8	<0.8	<0.8

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 28/10/2022 (continued)

PARAMETER	UOM	LOR	D1 SOIL - 26/10/2022 SE238321.011	D2 SOIL - 26/10/2022 SE238321.012
Naphthalene	mg/kg	0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	**0.1**
Anthracene	mg/kg	0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	**0.1**
Pyrene	mg/kg	0.1	<0.1	**0.1**
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	**0.1**
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8

OC Pesticides in Soil [AN420] Tested: 28/10/2022

PARAMETER	UOM	LOR	BH 1 SOIL - 26/10/2022 SE238321.001	BH 2 SOIL - 26/10/2022 SE238321.002	BH 3 SOIL - 26/10/2022 SE238321.003	BH 4 SOIL - 26/10/2022 SE238321.004	BH 5 SOIL - 26/10/2022 SE238321.005
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	<1	<1	<1	<1
Total OC VIC EPA	mg/kg	1	<1	<1	<1	<1	<1

OC Pesticides in Soil [AN420] Tested: 28/10/2022 (continued)

PARAMETER	UOM	LOR	BH 6 SOIL - 26/10/2022 SE238321.006	BH 7 SOIL - 26/10/2022 SE238321.007	BH 8 SOIL - 26/10/2022 SE238321.008	BH 9 SOIL - 26/10/2022 SE238321.009	BH 10 SOIL - 26/10/2022 SE238321.010
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	<1	<1	<1	<1
Total OC VIC EPA	mg/kg	1	<1	<1	<1	<1	<1

OC Pesticides in Soil [AN420] Tested: 28/10/2022 (continued)

PARAMETER	UOM	LOR	D1 SOIL - 26/10/2022 SE238321.011	D2 SOIL - 26/10/2022 SE238321.012
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	<1
Total OC VIC EPA	mg/kg	1	<1	<1

OP Pesticides in Soil [AN420] Tested: 28/10/2022

PARAMETER	UOM	LOR	BH 1 SOIL - 26/10/2022 SE238321.001	BH 2 SOIL - 26/10/2022 SE238321.002	BH 3 SOIL - 26/10/2022 SE238321.003	BH 4 SOIL - 26/10/2022 SE238321.004	BH 5 SOIL - 26/10/2022 SE238321.005
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	<1.7	<1.7	<1.7

PARAMETER	UOM	LOR	BH 6 SOIL - 26/10/2022 SE238321.006	BH 7 SOIL - 26/10/2022 SE238321.007	BH 8 SOIL - 26/10/2022 SE238321.008	BH 9 SOIL - 26/10/2022 SE238321.009	BH 10 SOIL - 26/10/2022 SE238321.010
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	<1.7	<1.7	<1.7

PARAMETER	UOM	LOR	D1 SOIL - 26/10/2022 SE238321.011	D2 SOIL - 26/10/2022 SE238321.012
Dichlorvos	mg/kg	0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 28/10/2022

PARAMETER	UOM	LOR	BH 1 SOIL - 26/10/2022 SE238321.001	BH 2 SOIL - 26/10/2022 SE238321.002	BH 3 SOIL - 26/10/2022 SE238321.003	BH 4 SOIL - 26/10/2022 SE238321.004	BH 5 SOIL - 26/10/2022 SE238321.005
Arsenic, As	mg/kg	1	4	6	2	4	2
Cadmium, Cd	mg/kg	0.3	1.0	5.5	18	68	17
Chromium, Cr	mg/kg	0.5	12	100	66	1500	50
Copper, Cu	mg/kg	0.5	62	68	73	1700	79
Lead, Pb	mg/kg	1	100	69	23	1500	32
Nickel, Ni	mg/kg	0.5	25	35	86	280	52
Zinc, Zn	mg/kg	2	170	220	300	1700	480

PARAMETER	UOM	LOR	BH 6 SOIL - 26/10/2022 SE238321.006	BH 7 SOIL - 26/10/2022 SE238321.007	BH 8 SOIL - 26/10/2022 SE238321.008	BH 9 SOIL - 26/10/2022 SE238321.009	BH 10 SOIL - 26/10/2022 SE238321.010
Arsenic, As	mg/kg	1	4	3	5	4	1
Cadmium, Cd	mg/kg	0.3	68	31	49	1.6	0.9
Chromium, Cr	mg/kg	0.5	86	150	150	21	8.8
Copper, Cu	mg/kg	0.5	120	930	170	140	110
Lead, Pb	mg/kg	1	76	210	230	48	18
Nickel, Ni	mg/kg	0.5	130	920	320	26	14
Zinc, Zn	mg/kg	2	1400	4400	1100	320	120

PARAMETER	UOM	LOR	D1 SOIL - 26/10/2022 SE238321.011	D2 SOIL - 26/10/2022 SE238321.012
Arsenic, As	mg/kg	1	5	7
Cadmium, Cd	mg/kg	0.3	1.7	3.4
Chromium, Cr	mg/kg	0.5	19	27
Copper, Cu	mg/kg	0.5	91	63
Lead, Pb	mg/kg	1	130	58
Nickel, Ni	mg/kg	0.5	33	23
Zinc, Zn	mg/kg	2	300	230

Mercury in Soil [AN312] Tested: 28/10/2022

PARAMETER	UOM	LOR	BH 1 SOIL - 26/10/2022 SE238321.001	BH 2 SOIL - 26/10/2022 SE238321.002	BH 3 SOIL - 26/10/2022 SE238321.003	BH 4 SOIL - 26/10/2022 SE238321.004	BH 5 SOIL - 26/10/2022 SE238321.005
Mercury	mg/kg	0.05	<0.05	<0.05	<0.05	<0.05	<0.05

PARAMETER	UOM	LOR	BH 6 SOIL - 26/10/2022 SE238321.006	BH 7 SOIL - 26/10/2022 SE238321.007	BH 8 SOIL - 26/10/2022 SE238321.008	BH 9 SOIL - 26/10/2022 SE238321.009	BH 10 SOIL - 26/10/2022 SE238321.010
Mercury	mg/kg	0.05	<0.05	**0.26**	**0.07**	**0.10**	<0.05

PARAMETER	UOM	LOR	D1 SOIL - 26/10/2022 SE238321.011	D2 SOIL - 26/10/2022 SE238321.012
Mercury	mg/kg	0.05	<0.05	<0.05

Moisture Content [AN002] Tested: 28/10/2022

PARAMETER	UOM	LOR	BH 1 SOIL - 26/10/2022 SE238321.001	BH 2 SOIL - 26/10/2022 SE238321.002	BH 3 SOIL - 26/10/2022 SE238321.003	BH 4 SOIL - 26/10/2022 SE238321.004	BH 5 SOIL - 26/10/2022 SE238321.005
% Moisture	%w/w	1	17.5	12.5	17.1	19.3	8.7

PARAMETER	UOM	LOR	BH 6 SOIL - 26/10/2022 SE238321.006	BH 7 SOIL - 26/10/2022 SE238321.007	BH 8 SOIL - 26/10/2022 SE238321.008	BH 9 SOIL - 26/10/2022 SE238321.009	BH 10 SOIL - 26/10/2022 SE238321.010
% Moisture	%w/w	1	21.0	19.8	15.6	14.7	7.8

PARAMETER	UOM	LOR	D1 SOIL - 26/10/2022 SE238321.011	D2 SOIL - 26/10/2022 SE238321.012
% Moisture	%w/w	1	18.4	13.4

METHOD	METHODOLOGY SUMMARY
AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN040/AN320	A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
AN040	A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analysis by ASS or ICP as per USEPA Method 200.8.
AN312	Mercury by Cold Vapour AAS in Soils: After digestion with nitric acid, hydrogen peroxide and hydrochloric acid , mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser . Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500
AN403	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the NEPM 1999 (2013), >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). F2 is reported directly and also corrected by subtracting Naphthalene (from VOC method AN433) where available.
AN403	Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC /MS because of the potential for volatiles loss. Total Recoverable Hydrocarbons - Silica (TRH-Si) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents .
AN403	The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken . This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependent on the use of specific cleanup /fractionation techniques. Reference USEPA 3510B, 8015B.
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D). Total PAH calculated from individual analyte detections at or above the limit of reporting .
AN420	SVOC Compounds: Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols in soils, sediments and waters are determined by GCMS /ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN433	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
**	Indicative data, theoretical holding time exceeded.	NVL	Not validated.	LOR	Limit of Reporting.
***	Indicates that both * and ** apply.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received.
Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calculated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the " Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.
Note that in terms of units of radioactivity:

a. 1 Bq is equivalent to 27 pCi
b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au/en-qb/environment-health-and-safety.

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STATEMENT OF QA/QC PERFORMANCE

SE238321 R0

CLIENT DETAILS

Contact	Admin
Client	NEO CONSULTING PTY LTD
Address	PO BOX 279 RIVERSTONE NSW 2765
Telephone	0416 680 375
Facsimile	(Not specified)
Email	admin@neoconsulting.com.au
Project	**N6680**
Order Number	**N6680**
Samples	12

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE238321 R0**
Date Received	26 Oct 2022
Date Reported	02 Nov 2022

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document.
This QA/QC Statement must be read in conjunction with the referenced Analytical Report.
The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met with the exception of the following:

Duplicate	Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES	2 items
Matrix Spike	Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES	1 item
	TRH (Total Recoverable Hydrocarbons) in Soil	1 item

SAMPLE SUMMARY

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	SGS	Sample cooling method	Ice Bricks
Samples received in correct containers	Yes	Sample counts by matrix	12 Soil
Date documentation received	26/10/2022	Type of documentation received	COC
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	19.5°C	Sufficient sample for analysis	Yes
Turnaround time requested	Standard		

HOLDING TIME SUMMARY

SE238321 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH 1	SE238321.001	LB262179	26 Oct 2022	26 Oct 2022	23 Nov 2022	28 Oct 2022	23 Nov 2022	01 Nov 2022
BH 2	SE238321.002	LB262179	26 Oct 2022	26 Oct 2022	23 Nov 2022	28 Oct 2022	23 Nov 2022	01 Nov 2022
BH 3	SE238321.003	LB262179	26 Oct 2022	26 Oct 2022	23 Nov 2022	28 Oct 2022	23 Nov 2022	01 Nov 2022
BH 4	SE238321.004	LB262179	26 Oct 2022	26 Oct 2022	23 Nov 2022	28 Oct 2022	23 Nov 2022	01 Nov 2022
BH 5	SE238321.005	LB262179	26 Oct 2022	26 Oct 2022	23 Nov 2022	28 Oct 2022	23 Nov 2022	01 Nov 2022
BH 6	SE238321.006	LB262179	26 Oct 2022	26 Oct 2022	23 Nov 2022	28 Oct 2022	23 Nov 2022	01 Nov 2022
BH 7	SE238321.007	LB262179	26 Oct 2022	26 Oct 2022	23 Nov 2022	28 Oct 2022	23 Nov 2022	01 Nov 2022
BH 8	SE238321.008	LB262179	26 Oct 2022	26 Oct 2022	23 Nov 2022	28 Oct 2022	23 Nov 2022	01 Nov 2022
BH 9	SE238321.009	LB262179	26 Oct 2022	26 Oct 2022	23 Nov 2022	28 Oct 2022	23 Nov 2022	01 Nov 2022
BH 10	SE238321.010	LB262179	26 Oct 2022	26 Oct 2022	23 Nov 2022	28 Oct 2022	23 Nov 2022	01 Nov 2022
D1	SE238321.011	LB262179	26 Oct 2022	26 Oct 2022	23 Nov 2022	28 Oct 2022	23 Nov 2022	01 Nov 2022
D2	SE238321.012	LB262179	26 Oct 2022	26 Oct 2022	23 Nov 2022	28 Oct 2022	23 Nov 2022	01 Nov 2022

Moisture Content

Method: ME-(AU)-[ENV]AN002

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH 1	SE238321.001	LB262177	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	02 Nov 2022	01 Nov 2022
BH 2	SE238321.002	LB262177	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	02 Nov 2022	01 Nov 2022
BH 3	SE238321.003	LB262177	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	02 Nov 2022	01 Nov 2022
BH 4	SE238321.004	LB262177	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	02 Nov 2022	01 Nov 2022
BH 5	SE238321.005	LB262177	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	02 Nov 2022	01 Nov 2022
BH 6	SE238321.006	LB262177	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	02 Nov 2022	01 Nov 2022
BH 7	SE238321.007	LB262177	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	02 Nov 2022	01 Nov 2022
BH 8	SE238321.008	LB262177	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	02 Nov 2022	01 Nov 2022
BH 9	SE238321.009	LB262177	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	02 Nov 2022	01 Nov 2022
BH 10	SE238321.010	LB262177	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	02 Nov 2022	01 Nov 2022
D1	SE238321.011	LB262177	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	02 Nov 2022	01 Nov 2022
D2	SE238321.012	LB262177	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	02 Nov 2022	01 Nov 2022

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH 1	SE238321.001	LB262175	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	07 Dec 2022	01 Nov 2022
BH 2	SE238321.002	LB262175	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	07 Dec 2022	01 Nov 2022
BH 3	SE238321.003	LB262175	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	07 Dec 2022	01 Nov 2022
BH 4	SE238321.004	LB262175	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	07 Dec 2022	01 Nov 2022
BH 5	SE238321.005	LB262175	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	07 Dec 2022	01 Nov 2022
BH 6	SE238321.006	LB262175	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	07 Dec 2022	01 Nov 2022
BH 7	SE238321.007	LB262175	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	07 Dec 2022	01 Nov 2022
BH 8	SE238321.008	LB262175	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	07 Dec 2022	01 Nov 2022
BH 9	SE238321.009	LB262175	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	07 Dec 2022	01 Nov 2022
BH 10	SE238321.010	LB262175	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	07 Dec 2022	01 Nov 2022
D1	SE238321.011	LB262175	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	07 Dec 2022	01 Nov 2022
D2	SE238321.012	LB262175	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	07 Dec 2022	01 Nov 2022

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH 1	SE238321.001	LB262175	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	07 Dec 2022	01 Nov 2022
BH 2	SE238321.002	LB262175	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	07 Dec 2022	01 Nov 2022
BH 3	SE238321.003	LB262175	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	07 Dec 2022	01 Nov 2022
BH 4	SE238321.004	LB262175	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	07 Dec 2022	01 Nov 2022
BH 5	SE238321.005	LB262175	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	07 Dec 2022	01 Nov 2022
BH 6	SE238321.006	LB262175	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	07 Dec 2022	01 Nov 2022
BH 7	SE238321.007	LB262175	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	07 Dec 2022	01 Nov 2022
BH 8	SE238321.008	LB262175	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	07 Dec 2022	01 Nov 2022
BH 9	SE238321.009	LB262175	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	07 Dec 2022	01 Nov 2022
BH 10	SE238321.010	LB262175	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	07 Dec 2022	01 Nov 2022
D1	SE238321.011	LB262175	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	07 Dec 2022	01 Nov 2022
D2	SE238321.012	LB262175	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	07 Dec 2022	01 Nov 2022

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH 1	SE238321.001	LB262175	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	07 Dec 2022	02 Nov 2022
BH 2	SE238321.002	LB262175	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	07 Dec 2022	02 Nov 2022

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH 3	SE238321.003	LB262175	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	07 Dec 2022	02 Nov 2022
BH 4	SE238321.004	LB262175	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	07 Dec 2022	02 Nov 2022
BH 5	SE238321.005	LB262175	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	07 Dec 2022	02 Nov 2022
BH 6	SE238321.006	LB262175	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	07 Dec 2022	02 Nov 2022
BH 7	SE238321.007	LB262175	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	07 Dec 2022	02 Nov 2022
BH 8	SE238321.008	LB262175	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	07 Dec 2022	02 Nov 2022
BH 9	SE238321.009	LB262175	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	07 Dec 2022	02 Nov 2022
BH 10	SE238321.010	LB262175	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	07 Dec 2022	02 Nov 2022
D1	SE238321.011	LB262175	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	07 Dec 2022	02 Nov 2022
D2	SE238321.012	LB262175	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	07 Dec 2022	02 Nov 2022

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH 1	SE238321.001	LB262178	26 Oct 2022	26 Oct 2022	24 Apr 2023	28 Oct 2022	24 Apr 2023	01 Nov 2022
BH 2	SE238321.002	LB262178	26 Oct 2022	26 Oct 2022	24 Apr 2023	28 Oct 2022	24 Apr 2023	01 Nov 2022
BH 3	SE238321.003	LB262178	26 Oct 2022	26 Oct 2022	24 Apr 2023	28 Oct 2022	24 Apr 2023	01 Nov 2022
BH 4	SE238321.004	LB262178	26 Oct 2022	26 Oct 2022	24 Apr 2023	28 Oct 2022	24 Apr 2023	01 Nov 2022
BH 5	SE238321.005	LB262178	26 Oct 2022	26 Oct 2022	24 Apr 2023	28 Oct 2022	24 Apr 2023	01 Nov 2022
BH 6	SE238321.006	LB262178	26 Oct 2022	26 Oct 2022	24 Apr 2023	28 Oct 2022	24 Apr 2023	01 Nov 2022
BH 7	SE238321.007	LB262178	26 Oct 2022	26 Oct 2022	24 Apr 2023	28 Oct 2022	24 Apr 2023	01 Nov 2022
BH 8	SE238321.008	LB262178	26 Oct 2022	26 Oct 2022	24 Apr 2023	28 Oct 2022	24 Apr 2023	01 Nov 2022
BH 9	SE238321.009	LB262178	26 Oct 2022	26 Oct 2022	24 Apr 2023	28 Oct 2022	24 Apr 2023	01 Nov 2022
BH 10	SE238321.010	LB262178	26 Oct 2022	26 Oct 2022	24 Apr 2023	28 Oct 2022	24 Apr 2023	01 Nov 2022
D1	SE238321.011	LB262178	26 Oct 2022	26 Oct 2022	24 Apr 2023	28 Oct 2022	24 Apr 2023	01 Nov 2022
D2	SE238321.012	LB262178	26 Oct 2022	26 Oct 2022	24 Apr 2023	28 Oct 2022	24 Apr 2023	01 Nov 2022

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH 1	SE238321.001	LB262175	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	07 Dec 2022	01 Nov 2022
BH 2	SE238321.002	LB262175	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	07 Dec 2022	01 Nov 2022
BH 3	SE238321.003	LB262175	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	07 Dec 2022	01 Nov 2022
BH 4	SE238321.004	LB262175	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	07 Dec 2022	01 Nov 2022
BH 5	SE238321.005	LB262175	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	07 Dec 2022	01 Nov 2022
BH 6	SE238321.006	LB262175	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	07 Dec 2022	01 Nov 2022
BH 7	SE238321.007	LB262175	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	07 Dec 2022	01 Nov 2022
BH 8	SE238321.008	LB262175	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	07 Dec 2022	01 Nov 2022
BH 9	SE238321.009	LB262175	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	07 Dec 2022	01 Nov 2022
BH 10	SE238321.010	LB262175	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	07 Dec 2022	01 Nov 2022
D1	SE238321.011	LB262175	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	07 Dec 2022	01 Nov 2022
D2	SE238321.012	LB262175	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	07 Dec 2022	01 Nov 2022

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH 1	SE238321.001	LB262176	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	09 Nov 2022	01 Nov 2022
BH 2	SE238321.002	LB262176	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	09 Nov 2022	01 Nov 2022
BH 3	SE238321.003	LB262176	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	09 Nov 2022	01 Nov 2022
BH 4	SE238321.004	LB262176	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	09 Nov 2022	01 Nov 2022
BH 5	SE238321.005	LB262176	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	09 Nov 2022	01 Nov 2022
BH 6	SE238321.006	LB262176	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	09 Nov 2022	01 Nov 2022
BH 7	SE238321.007	LB262176	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	09 Nov 2022	01 Nov 2022
BH 8	SE238321.008	LB262176	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	09 Nov 2022	01 Nov 2022
BH 9	SE238321.009	LB262176	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	09 Nov 2022	01 Nov 2022
BH 10	SE238321.010	LB262176	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	09 Nov 2022	01 Nov 2022
D1	SE238321.011	LB262176	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	09 Nov 2022	01 Nov 2022
D2	SE238321.012	LB262176	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	09 Nov 2022	01 Nov 2022

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH 1	SE238321.001	LB262176	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	09 Nov 2022	01 Nov 2022
BH 2	SE238321.002	LB262176	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	09 Nov 2022	01 Nov 2022
BH 3	SE238321.003	LB262176	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	09 Nov 2022	01 Nov 2022
BH 4	SE238321.004	LB262176	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	09 Nov 2022	01 Nov 2022

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the

Volatile Petroleum Hydrocarbons in Soil (continued) **Method: ME-(AU)-[ENV]AN433**

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH 5	SE238321.005	LB262176	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	09 Nov 2022	01 Nov 2022
BH 6	SE238321.006	LB262176	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	09 Nov 2022	01 Nov 2022
BH 7	SE238321.007	LB262176	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	09 Nov 2022	01 Nov 2022
BH 8	SE238321.008	LB262176	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	09 Nov 2022	01 Nov 2022
BH 9	SE238321.009	LB262176	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	09 Nov 2022	01 Nov 2022
BH 10	SE238321.010	LB262176	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	09 Nov 2022	01 Nov 2022
D1	SE238321.011	LB262176	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	09 Nov 2022	01 Nov 2022
D2	SE238321.012	LB262176	26 Oct 2022	26 Oct 2022	09 Nov 2022	28 Oct 2022	09 Nov 2022	01 Nov 2022

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil — Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	BH 1	SE238321.001	%	60 - 130%	125
	BH 2	SE238321.002	%	60 - 130%	120
	BH 3	SE238321.003	%	60 - 130%	118
	BH 4	SE238321.004	%	60 - 130%	121
	BH 5	SE238321.005	%	60 - 130%	123
	BH 6	SE238321.006	%	60 - 130%	127
	BH 7	SE238321.007	%	60 - 130%	121
	BH 8	SE238321.008	%	60 - 130%	130
	BH 9	SE238321.009	%	60 - 130%	126
	BH 10	SE238321.010	%	60 - 130%	127
	D1	SE238321.011	%	60 - 130%	125
	D2	SE238321.012	%	60 - 130%	126

OP Pesticides in Soil — Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	BH 1	SE238321.001	%	60 - 130%	94
	BH 2	SE238321.002	%	60 - 130%	92
	BH 3	SE238321.003	%	60 - 130%	98
	BH 4	SE238321.004	%	60 - 130%	94
	BH 5	SE238321.005	%	60 - 130%	92
	BH 6	SE238321.006	%	60 - 130%	94
	BH 7	SE238321.007	%	60 - 130%	94
	BH 8	SE238321.008	%	60 - 130%	92
	BH 9	SE238321.009	%	60 - 130%	92
	BH 10	SE238321.010	%	60 - 130%	112
	D1	SE238321.011	%	60 - 130%	94
	D2	SE238321.012	%	60 - 130%	94
d14-p-terphenyl (Surrogate)	BH 1	SE238321.001	%	60 - 130%	102
	BH 2	SE238321.002	%	60 - 130%	100
	BH 3	SE238321.003	%	60 - 130%	110
	BH 4	SE238321.004	%	60 - 130%	104
	BH 5	SE238321.005	%	60 - 130%	102
	BH 6	SE238321.006	%	60 - 130%	106
	BH 7	SE238321.007	%	60 - 130%	106
	BH 8	SE238321.008	%	60 - 130%	104
	BH 9	SE238321.009	%	60 - 130%	102
	BH 10	SE238321.010	%	60 - 130%	118
	D1	SE238321.011	%	60 - 130%	106
	D2	SE238321.012	%	60 - 130%	104

PAH (Polynuclear Aromatic Hydrocarbons) in Soil — Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	BH 1	SE238321.001	%	70 - 130%	94
	BH 2	SE238321.002	%	70 - 130%	92
	BH 3	SE238321.003	%	70 - 130%	98
	BH 4	SE238321.004	%	70 - 130%	94
	BH 5	SE238321.005	%	70 - 130%	92
	BH 6	SE238321.006	%	70 - 130%	94
	BH 7	SE238321.007	%	70 - 130%	94
	BH 8	SE238321.008	%	70 - 130%	92
	BH 9	SE238321.009	%	70 - 130%	92
	BH 10	SE238321.010	%	70 - 130%	112
	D1	SE238321.011	%	70 - 130%	94
	D2	SE238321.012	%	70 - 130%	94
d14-p-terphenyl (Surrogate)	BH 1	SE238321.001	%	70 - 130%	102
	BH 2	SE238321.002	%	70 - 130%	100
	BH 3	SE238321.003	%	70 - 130%	110
	BH 4	SE238321.004	%	70 - 130%	104
	BH 5	SE238321.005	%	70 - 130%	102
	BH 6	SE238321.006	%	70 - 130%	106
	BH 7	SE238321.007	%	70 - 130%	106
	BH 8	SE238321.008	%	70 - 130%	104

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued) — Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d14-p-terphenyl (Surrogate)	BH 9	SE238321.009	%	70 - 130%	102
	BH 10	SE238321.010	%	70 - 130%	118
	D1	SE238321.011	%	70 - 130%	106
	D2	SE238321.012	%	70 - 130%	104
d5-nitrobenzene (Surrogate)	BH 1	SE238321.001	%	70 - 130%	102
	BH 2	SE238321.002	%	70 - 130%	96
	BH 3	SE238321.003	%	70 - 130%	112
	BH 4	SE238321.004	%	70 - 130%	100
	BH 5	SE238321.005	%	70 - 130%	100
	BH 6	SE238321.006	%	70 - 130%	96
	BH 7	SE238321.007	%	70 - 130%	96
	BH 8	SE238321.008	%	70 - 130%	96
	BH 9	SE238321.009	%	70 - 130%	102
	BH 10	SE238321.010	%	70 - 130%	110
	D1	SE238321.011	%	70 - 130%	98
	D2	SE238321.012	%	70 - 130%	104

VOC's in Soil — Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH 1	SE238321.001	%	60 - 130%	76
	BH 2	SE238321.002	%	60 - 130%	87
	BH 3	SE238321.003	%	60 - 130%	81
	BH 4	SE238321.004	%	60 - 130%	83
	BH 5	SE238321.005	%	60 - 130%	79
	BH 6	SE238321.006	%	60 - 130%	84
	BH 7	SE238321.007	%	60 - 130%	92
	BH 8	SE238321.008	%	60 - 130%	76
	BH 9	SE238321.009	%	60 - 130%	87
	BH 10	SE238321.010	%	60 - 130%	86
	D1	SE238321.011	%	60 - 130%	85
	D2	SE238321.012	%	60 - 130%	87
d4-1,2-dichloroethane (Surrogate)	BH 1	SE238321.001	%	60 - 130%	71
	BH 2	SE238321.002	%	60 - 130%	84
	BH 3	SE238321.003	%	60 - 130%	85
	BH 4	SE238321.004	%	60 - 130%	86
	BH 5	SE238321.005	%	60 - 130%	82
	BH 6	SE238321.006	%	60 - 130%	81
	BH 7	SE238321.007	%	60 - 130%	91
	BH 8	SE238321.008	%	60 - 130%	82
	BH 9	SE238321.009	%	60 - 130%	89
	BH 10	SE238321.010	%	60 - 130%	86
	D1	SE238321.011	%	60 - 130%	86
	D2	SE238321.012	%	60 - 130%	87
d8-toluene (Surrogate)	BH 1	SE238321.001	%	60 - 130%	75
	BH 2	SE238321.002	%	60 - 130%	87
	BH 3	SE238321.003	%	60 - 130%	87
	BH 4	SE238321.004	%	60 - 130%	86
	BH 5	SE238321.005	%	60 - 130%	88
	BH 6	SE238321.006	%	60 - 130%	82
	BH 7	SE238321.007	%	60 - 130%	94
	BH 8	SE238321.008	%	60 - 130%	80
	BH 9	SE238321.009	%	60 - 130%	92
	BH 10	SE238321.010	%	60 - 130%	90
	D1	SE238321.011	%	60 - 130%	86
	D2	SE238321.012	%	60 - 130%	86

Volatile Petroleum Hydrocarbons in Soil — Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH 1	SE238321.001	%	60 - 130%	76
	BH 2	SE238321.002	%	60 - 130%	87
	BH 3	SE238321.003	%	60 - 130%	81
	BH 4	SE238321.004	%	60 - 130%	83

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Volatile Petroleum Hydrocarbons in Soil (continued) — **Method: ME-(AU)-[ENV]AN433**

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH 5	SE238321.005	%	60 - 130%	79
	BH 6	SE238321.006	%	60 - 130%	84
	BH 7	SE238321.007	%	60 - 130%	92
	BH 8	SE238321.008	%	60 - 130%	76
	BH 9	SE238321.009	%	60 - 130%	87
	BH 10	SE238321.010	%	60 - 130%	86
	D1	SE238321.011	%	60 - 130%	85
	D2	SE238321.012	%	60 - 130%	87
d4-1,2-dichloroethane (Surrogate)	BH 1	SE238321.001	%	60 - 130%	71
	BH 2	SE238321.002	%	60 - 130%	84
	BH 3	SE238321.003	%	60 - 130%	85
	BH 4	SE238321.004	%	60 - 130%	86
	BH 5	SE238321.005	%	60 - 130%	82
	BH 6	SE238321.006	%	60 - 130%	81
	BH 7	SE238321.007	%	60 - 130%	91
	BH 8	SE238321.008	%	60 - 130%	82
	BH 9	SE238321.009	%	60 - 130%	89
	BH 10	SE238321.010	%	60 - 130%	86
	D1	SE238321.011	%	60 - 130%	86
	D2	SE238321.012	%	60 - 130%	87
d8-toluene (Surrogate)	BH 1	SE238321.001	%	60 - 130%	75
	BH 2	SE238321.002	%	60 - 130%	87
	BH 3	SE238321.003	%	60 - 130%	87
	BH 4	SE238321.004	%	60 - 130%	86
	BH 5	SE238321.005	%	60 - 130%	88
	BH 6	SE238321.006	%	60 - 130%	82
	BH 7	SE238321.007	%	60 - 130%	94
	BH 8	SE238321.008	%	60 - 130%	80
	BH 9	SE238321.009	%	60 - 130%	92
	BH 10	SE238321.010	%	60 - 130%	90
	D1	SE238321.011	%	60 - 130%	86
	D2	SE238321.012	%	60 - 130%	86

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result
LB262179.001	Mercury	mg/kg	0.05	<0.05

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB262175.001		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
		Alpha BHC	mg/kg	0.1	<0.1
		Lindane	mg/kg	0.1	<0.1
		Heptachlor	mg/kg	0.1	<0.1
		Aldrin	mg/kg	0.1	<0.1
		Beta BHC	mg/kg	0.1	<0.1
		Delta BHC	mg/kg	0.1	<0.1
		Heptachlor epoxide	mg/kg	0.1	<0.1
		Alpha Endosulfan	mg/kg	0.2	<0.2
		Gamma Chlordane	mg/kg	0.1	<0.1
		Alpha Chlordane	mg/kg	0.1	<0.1
		p,p'-DDE	mg/kg	0.1	<0.1
		Dieldrin	mg/kg	0.2	<0.2
		Endrin	mg/kg	0.2	<0.2
		Beta Endosulfan	mg/kg	0.2	<0.2
		p,p'-DDD	mg/kg	0.1	<0.1
		p,p'-DDT	mg/kg	0.1	<0.1
		Endosulfan sulphate	mg/kg	0.1	<0.1
		Endrin Aldehyde	mg/kg	0.1	<0.1
		Methoxychlor	mg/kg	0.1	<0.1
		Endrin Ketone	mg/kg	0.1	<0.1
		Isodrin	mg/kg	0.1	<0.1
		Mirex	mg/kg	0.1	<0.1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	118

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB262175.001		Dichlorvos	mg/kg	0.5	<0.5
		Dimethoate	mg/kg	0.5	<0.5
		Diazinon (Dimpylate)	mg/kg	0.5	<0.5
		Fenitrothion	mg/kg	0.2	<0.2
		Malathion	mg/kg	0.2	<0.2
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
		Bromophos Ethyl	mg/kg	0.2	<0.2
		Methidathion	mg/kg	0.5	<0.5
		Ethion	mg/kg	0.2	<0.2
		Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
	Surrogates	2-fluorobiphenyl (Surrogate)	%	-	96
		d14-p-terphenyl (Surrogate)	%	-	106

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result
LB262175.001	Naphthalene	mg/kg	0.1	<0.1
	2-methylnaphthalene	mg/kg	0.1	<0.1
	1-methylnaphthalene	mg/kg	0.1	<0.1
	Acenaphthylene	mg/kg	0.1	<0.1
	Acenaphthene	mg/kg	0.1	<0.1
	Fluorene	mg/kg	0.1	<0.1
	Phenanthrene	mg/kg	0.1	<0.1
	Anthracene	mg/kg	0.1	<0.1
	Fluoranthene	mg/kg	0.1	<0.1
	Pyrene	mg/kg	0.1	<0.1
	Benzo(a)anthracene	mg/kg	0.1	<0.1
	Chrysene	mg/kg	0.1	<0.1
	Benzo(a)pyrene	mg/kg	0.1	<0.1

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB262175.001		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1
		Benzo(ghi)perylene	mg/kg	0.1	<0.1
		Total PAH (18)	mg/kg	0.8	<0.8
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	106
		2-fluorobiphenyl (Surrogate)	%	-	96
		d14-p-terphenyl (Surrogate)	%	-	106

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result
LB262178.001	Arsenic, As	mg/kg	1	<1
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.5	<0.5
	Copper, Cu	mg/kg	0.5	<0.5
	Nickel, Ni	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Zinc, Zn	mg/kg	2	<2.0

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result
LB262175.001	TRH C10-C14	mg/kg	20	<20
	TRH C15-C28	mg/kg	45	<45
	TRH C29-C36	mg/kg	45	<45
	TRH C37-C40	mg/kg	100	<100
	TRH C10-C36 Total	mg/kg	110	<110

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB262176.001	Monocyclic Aromatic Hydrocarbons	Benzene	mg/kg	0.1	<0.1
		Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
	Polycyclic VOCs	Naphthalene (VOC)	mg/kg	0.1	<0.1
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	108
		d8-toluene (Surrogate)	%	-	121
		Bromofluorobenzene (Surrogate)	%	-	102
	Totals	Total BTEX	mg/kg	0.6	<0.6

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB262176.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	108

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE238321.010	LB262179.014	Mercury	mg/kg	0.05	<0.05	<0.05	200	0
SE238357.006	LB262179.023	Mercury	mg/kg	0.05	<0.05	<0.05	200	0

Moisture Content

Method: ME-(AU)-[ENV]AN002

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE238321.010	LB262177.011	% Moisture	%w/w	1	7.8	6.4	44	19
SE238357.006	LB262177.020	% Moisture	%w/w	1	37.7	33.2	33	13

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE238321.010	LB262175.014		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Lindane	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor	mg/kg	0.1	<0.1	<0.1	200	0
			Aldrin	mg/kg	0.1	<0.1	<0.1	200	0
			Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Delta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Dieldrin	mg/kg	0.2	<0.2	<0.2	200	0
			Endrin	mg/kg	0.2	<0.2	<0.2	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	200	0
			Isodrin	mg/kg	0.1	<0.1	<0.1	200	0
			Mirex	mg/kg	0.1	<0.1	<0.1	200	0
			Total CLP OC Pesticides	mg/kg	1	<1	<1	200	0
			Total OC VIC EPA	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.19	0.18	30	4
SE238357.006	LB262175.023		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Lindane	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor	mg/kg	0.1	<0.1	<0.1	200	0
			Aldrin	mg/kg	0.1	<0.1	<0.1	200	0
			Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Delta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Dieldrin	mg/kg	0.2	<0.2	<0.2	125	0
			Endrin	mg/kg	0.2	<0.2	<0.2	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

OC Pesticides in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE238357.006	LB262175.023		p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	200	0
			Isodrin	mg/kg	0.1	<0.1	<0.1	200	0
			Mirex	mg/kg	0.1	<0.1	<0.1	200	0
			Total CLP OC Pesticides	mg/kg	1	<1	<1	200	0
			Total OC VIC EPA	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.19	0.19	30	3

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE238321.010	LB262175.014		Dichlorvos	mg/kg	0.5	<0.5	<0.5	200	0
			Dimethoate	mg/kg	0.5	<0.5	<0.5	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	200	0
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	200	0
			Malathion	mg/kg	0.2	<0.2	<0.2	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	200	0
			Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	200	0
			Methidathion	mg/kg	0.5	<0.5	<0.5	200	0
			Ethion	mg/kg	0.2	<0.2	<0.2	200	0
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	200	0
			Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.6	0.5	30	20
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.6	0.5	30	13
SE238357.006	LB262175.023		Dichlorvos	mg/kg	0.5	<0.5	<0.5	200	0
			Dimethoate	mg/kg	0.5	<0.5	<0.5	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	200	0
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	200	0
			Malathion	mg/kg	0.2	<0.2	<0.2	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	200	0
			Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	200	0
			Methidathion	mg/kg	0.5	<0.5	<0.5	200	0
			Ethion	mg/kg	0.2	<0.2	<0.2	200	0
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	200	0
			Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	30	14
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	10

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE238321.010	LB262175.014	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Acenaphthylene	mg/kg	0.1	<0.1	<0.1	200	0
		Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
		Fluorene	mg/kg	0.1	<0.1	<0.1	200	0
		Phenanthrene	mg/kg	0.1	<0.1	<0.1	200	0
		Anthracene	mg/kg	0.1	<0.1	<0.1	200	0
		Fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
		Pyrene	mg/kg	0.1	0.1	<0.1	173	10
		Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
		Chrysene	mg/kg	0.1	<0.1	<0.1	200	0
		Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
		Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
		Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE238321.010	LB262175.014		Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=0	mg/kg	0.2	<0.2	<0.2	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	mg/kg	0.3	<0.3	<0.3	134	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	mg/kg	0.2	<0.2	<0.2	175	0
			Total PAH (18)	mg/kg	0.8	<0.8	<0.8	200	10
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.6	0.5	30	10
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.6	0.5	30	20
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.6	0.5	30	13
SE238357.006	LB262175.023		Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthylene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluorene	mg/kg	0.1	<0.1	<0.1	200	0
			Phenanthrene	mg/kg	0.1	<0.1	<0.1	200	0
			Anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Chrysene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=0	mg/kg	0.2	<0.2	<0.2	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	mg/kg	0.3	<0.3	<0.3	134	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	mg/kg	0.2	<0.2	<0.2	175	0
			Total PAH (18)	mg/kg	0.8	<0.8	<0.8	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.6	30	16
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.5	30	14
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	10

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE238321.010	LB262178.014	Arsenic, As	mg/kg	1	1	2	90	41
		Cadmium, Cd	mg/kg	0.3	0.9	0.6	70	35
		Chromium, Cr	mg/kg	0.5	8.8	8.1	36	9
		Copper, Cu	mg/kg	0.5	110	140	30	26
		Nickel, Ni	mg/kg	0.5	14	14	34	1
		Lead, Pb	mg/kg	1	18	19	35	3
		Zinc, Zn	mg/kg	2	120	140	32	16
SE238357.006	LB262178.023	Arsenic, As	mg/kg	1	8	4	46	59 ②
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.5	16	8.8	34	56 ②
		Copper, Cu	mg/kg	0.5	13	16	33	17
		Nickel, Ni	mg/kg	0.5	2.5	2.5	50	1
		Lead, Pb	mg/kg	1	34	31	33	8
		Zinc, Zn	mg/kg	2	84	97	32	14

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE238321.010	LB262175.014		TRH C10-C14	mg/kg	20	<20	<20	200	0
			TRH C15-C28	mg/kg	45	<45	<45	200	0
			TRH C29-C36	mg/kg	45	<45	<45	200	0
			TRH C37-C40	mg/kg	100	<100	<100	200	0
			TRH C10-C36 Total	mg/kg	110	<110	<110	200	0
			TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	200	0
		TRH F Bands	TRH >C10-C16	mg/kg	25	<25	<25	200	0
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

TRH (Total Recoverable Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN403

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE238321.010	LB262175.014	TRH F Bands	TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0
SE238357.006	LB262175.023		TRH C10-C14	mg/kg	20	<20	23	125	14
			TRH C15-C28	mg/kg	45	46	<45	132	2
			TRH C29-C36	mg/kg	45	82	78	86	5
			TRH C37-C40	mg/kg	100	<100	<100	200	0
			TRH C10-C36 Total	mg/kg	110	130	<110	126	15
			TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	194	0
		TRH F Bands	TRH >C10-C16	mg/kg	25	27	31	116	14
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	27	31	116	14
			TRH >C16-C34 (F3)	mg/kg	90	100	97	121	4
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE238321.010	LB262176.014	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
		Hydrocarbons	Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene (VOC)	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.6	9.0	50	4
			d8-toluene (Surrogate)	mg/kg	-	9.0	9.5	50	6
			Bromofluorobenzene (Surrogate)	mg/kg	-	8.6	8.9	50	3
		Totals	Total Xylenes	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0
SE238357.006	LB262176.023	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
		Hydrocarbons	Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene (VOC)	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	7.9	7.8	50	1
			d8-toluene (Surrogate)	mg/kg	-	8.1	8.3	50	2
			Bromofluorobenzene (Surrogate)	mg/kg	-	7.8	8.0	50	3
		Totals	Total Xylenes	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX	mg/kg	0.6	<0.6	<0.6	200	0

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE238321.010	LB262176.014		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.6	9.0	30	4
			d8-toluene (Surrogate)	mg/kg	-	9.0	9.5	30	6
			Bromofluorobenzene (Surrogate)	mg/kg	-	8.6	8.9	30	3
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0
SE238357.006	LB262176.023		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	7.9	7.8	30	1
			d8-toluene (Surrogate)	mg/kg	-	8.1	8.3	30	2
			Bromofluorobenzene (Surrogate)	mg/kg	-	7.8	8.0	30	3
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB262179.002	Mercury	mg/kg	0.05	0.19	0.2	70 - 130	94

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB262175.002		Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	112
		Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	112
		Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	111
		Dieldrin	mg/kg	0.2	0.2	0.2	60 - 140	108
		Endrin	mg/kg	0.2	0.2	0.2	60 - 140	115
		p,p'-DDT	mg/kg	0.1	0.2	0.2	60 - 140	85
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.18	0.15	40 - 130	118

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB262175.002		Dichlorvos	mg/kg	0.5	1.5	2	60 - 140	76
		Diazinon (Dimpylate)	mg/kg	0.5	1.8	2	60 - 140	91
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.7	2	60 - 140	85
		Ethion	mg/kg	0.2	2.0	2	60 - 140	101
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	98
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	100

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB262175.002		Naphthalene	mg/kg	0.1	4.5	4	60 - 140	112
		Acenaphthylene	mg/kg	0.1	4.4	4	60 - 140	110
		Acenaphthene	mg/kg	0.1	4.4	4	60 - 140	111
		Phenanthrene	mg/kg	0.1	4.2	4	60 - 140	104
		Anthracene	mg/kg	0.1	4.2	4	60 - 140	104
		Fluoranthene	mg/kg	0.1	4.0	4	60 - 140	99
		Pyrene	mg/kg	0.1	4.7	4	60 - 140	117
		Benzo(a)pyrene	mg/kg	0.1	4.2	4	60 - 140	105
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.6	0.5	40 - 130	110
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	98
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	100

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB262178.002	Arsenic, As	mg/kg	1	310	318.22	80 - 120	98
	Cadmium, Cd	mg/kg	0.3	3.9	4.81	70 - 130	81
	Chromium, Cr	mg/kg	0.5	36	38.31	80 - 120	93
	Copper, Cu	mg/kg	0.5	300	290	80 - 120	103
	Nickel, Ni	mg/kg	0.5	180	187	80 - 120	94
	Lead, Pb	mg/kg	1	87	89.9	80 - 120	96
	Zinc, Zn	mg/kg	2	260	273	80 - 120	96

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB262175.002		TRH C10-C14	mg/kg	20	41	40	60 - 140	103
		TRH C15-C28	mg/kg	45	<45	40	60 - 140	103
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	93
	TRH F Bands	TRH >C10-C16	mg/kg	25	41	40	60 - 140	103
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	103
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	90

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB262176.002	Monocyclic	Benzene	mg/kg	0.1	4.5	5	60 - 140	90
	Aromatic	Toluene	mg/kg	0.1	4.6	5	60 - 140	93
	Hydrocarbons	Ethylbenzene	mg/kg	0.1	4.4	5	60 - 140	88
		m/p-xylene	mg/kg	0.2	8.5	10	60 - 140	85
		o-xylene	mg/kg	0.1	4.5	5	60 - 140	90
	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	9.9	10	70 - 130	99

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB262176.002	Surrogates	d8-toluene (Surrogate)	mg/kg	-	9.8	10	70 - 130	98
		Bromofluorobenzene (Surrogate)	mg/kg	-	9.6	10	70 - 130	96

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB262176.002		TRH C6-C10	mg/kg	25	64	92.5	60 - 140	70
		TRH C6-C9	mg/kg	20	56	80	60 - 140	70
	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	9.9	10	70 - 130	99
		Bromofluorobenzene (Surrogate)	mg/kg	-	9.6	10	70 - 130	96
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	38	62.5	60 - 140	61

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE238321.001	LB262179.004	Mercury	mg/kg	0.05	0.23	<0.05	0.2	99

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE238321.001	LB262175.004		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	-	-
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	-	-
			Lindane	mg/kg	0.1	<0.1	<0.1	-	-
			Heptachlor	mg/kg	0.1	0.2	<0.1	0.2	122
			Aldrin	mg/kg	0.1	0.2	<0.1	0.2	119
			Beta BHC	mg/kg	0.1	<0.1	<0.1	-	-
			Delta BHC	mg/kg	0.1	0.2	<0.1	0.2	119
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	-	-
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	-	-
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	-	-
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	-	-
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	-	-
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	-	-
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	-	-
			Dieldrin	mg/kg	0.2	0.2	<0.2	0.2	115
			Endrin	mg/kg	0.2	0.2	<0.2	0.2	124
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	-	-
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	-	-
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	-	-
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	-	-
			p,p'-DDT	mg/kg	0.1	0.2	<0.1	0.2	101
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	-	-
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	-	-
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	-	-
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	-	-
			Isodrin	mg/kg	0.1	<0.1	<0.1	-	-
			Mirex	mg/kg	0.1	<0.1	<0.1	-	-
			Total CLP OC Pesticides	mg/kg	1	1	<1	-	-
			Total OC VIC EPA	mg/kg	1	1	<1	-	-
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.19	0.19	-	125

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE238321.001	LB262175.004		Dichlorvos	mg/kg	0.5	1.6	<0.5	2	75
			Dimethoate	mg/kg	0.5	<0.5	<0.5	-	-
			Diazinon (Dimpylate)	mg/kg	0.5	1.9	<0.5	2	92
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	-	-
			Malathion	mg/kg	0.2	<0.2	<0.2	-	-
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.8	<0.2	2	87
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	-	-
			Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	-	-
			Methidathion	mg/kg	0.5	<0.5	<0.5	-	-
			Ethion	mg/kg	0.2	2.2	<0.2	2	108
			Azinphos-methyl (Guthion)	mg/kg	0.2	1.6	<0.2	-	-
			Total OP Pesticides*	mg/kg	1.7	9.0	<1.7	-	-
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	-	98
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	-	102

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE238321.001	LB262175.004	Naphthalene	mg/kg	0.1	4.4	<0.1	4	111
		2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
		1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
		Acenaphthylene	mg/kg	0.1	4.3	<0.1	4	108
		Acenaphthene	mg/kg	0.1	4.3	<0.1	4	109
		Fluorene	mg/kg	0.1	<0.1	<0.1	-	-

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE238321.001	LB262175.004		Phenanthrene	mg/kg	0.1	4.1	<0.1	4	103
			Anthracene	mg/kg	0.1	4.1	<0.1	4	102
			Fluoranthene	mg/kg	0.1	3.9	<0.1	4	97
			Pyrene	mg/kg	0.1	4.7	<0.1	4	116
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	-	-
			Chrysene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(a)pyrene	mg/kg	0.1	3.9	<0.1	4	97
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	-	-
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=0	TEQ (mg/kg)	0.2	3.9	<0.2	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR	TEQ (mg/kg)	0.3	4.0	<0.3	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2	TEQ (mg/kg)	0.2	4.0	<0.2	-	-
			Total PAH (18)	mg/kg	0.8	34	<0.8	-	-
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.6	0.5	-	110
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	-	98
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	-	102

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE238321.001	LB262178.004	Arsenic, As	mg/kg	1	48	4	50	89
		Cadmium, Cd	mg/kg	0.3	43	1.0	50	85
		Chromium, Cr	mg/kg	0.5	56	12	50	89
		Copper, Cu	mg/kg	0.5	120	62	50	108
		Nickel, Ni	mg/kg	0.5	74	25	50	98
		Lead, Pb	mg/kg	1	160	100	50	108
		Zinc, Zn	mg/kg	2	250	170	50	156 ⑨

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE238321.001	LB262175.004		TRH C10-C14	mg/kg	20	40	<20	40	100
			TRH C15-C28	mg/kg	45	61	<45	40	133
			TRH C29-C36	mg/kg	45	56	<45	40	105
			TRH C37-C40	mg/kg	100	<100	<100	-	-
			TRH C10-C36 Total	mg/kg	110	160	<110	-	-
			TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	-	-
		TRH F	TRH >C10-C16	mg/kg	25	41	<25	40	103
		Bands	TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	41	<25	-	-
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	40	145 ⑨
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	-	-

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE238321.001	LB262176.004	Monocyclic	Benzene	mg/kg	0.1	3.9	<0.1	5	77
		Aromatic	Toluene	mg/kg	0.1	4.2	<0.1	5	84
		Hydrocarbons	Ethylbenzene	mg/kg	0.1	4.0	<0.1	5	79
			m/p-xylene	mg/kg	0.2	7.6	<0.2	10	76
			o-xylene	mg/kg	0.1	4.2	<0.1	5	84
		Polycyclic	Naphthalene (VOC)	mg/kg	0.1	<0.1	<0.1	-	-
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	9.0	7.1	10	90
			d8-toluene (Surrogate)	mg/kg	-	9.1	7.5	10	91
			Bromofluorobenzene (Surrogate)	mg/kg	-	9.1	7.6	10	91
		Totals	Total Xylenes	mg/kg	0.3	12	<0.3	-	-
			Total BTEX	mg/kg	0.6	24	<0.6	-	-

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE238321.001	LB262176.004		TRH C6-C10	mg/kg	25	70	<25	92.5	75
			TRH C6-C9	mg/kg	20	62	<20	80	78
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	9.0	7.1	10	90
			d8-toluene (Surrogate)	mg/kg	-	9.1	7.5	10	91

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Volatile Petroleum Hydrocarbons in Soil (continued) — **Method: ME-(AU)-[ENV]AN433**

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE238321.001	LB262176.004	Surrogates	Bromofluorobenzene (Surrogate)	mg/kg	-	9.1	7.6	-	91
		VPH F	Benzene (F0)	mg/kg	0.1	3.9	<0.1	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	46	<25	62.5	73

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the

No matrix spike duplicates were required for this job.

id samples expressed on a dry weight basis.

criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found he
ps://www.sgs.com.au/~/media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022 QA QC Plan.pdf

*	NATA accreditation does not cover the performance of this service .
**	Indicative data, theoretical holding time exceeded.
***	Indicates that both * and ** apply.
-	Sample not analysed for this analyte.
IS	Insufficient sample for analysis.
LNR	Sample listed, but not received.
LOR	Limit of reporting.
QFH	QC result is above the upper tolerance.
QFL	QC result is below the lower tolerance.
①	At least 2 of 3 surrogates are within acceptance criteria.
②	RPD failed acceptance criteria due to sample heterogeneity.
③	Results less than 5 times LOR preclude acceptance criteria for RPD.
④	Recovery failed acceptance criteria due to matrix interference.
⑤	Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
⑥	LOR was raised due to sample matrix interference.
⑦	LOR was raised due to dilution of significantly high concentration of analyte in sample.
⑧	Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
⑨	Recovery failed acceptance criteria due to sample heterogeneity.
⑩	LOR was raised due to high conductivity of the sample (required dilution).
†	Refer to relevant report comments for further information.

SAMPLE RECEIPT ADVICE

SE238321

CLIENT DETAILS

Contact	Admin
Client	NEO CONSULTING PTY LTD
Address	PO BOX 279 RIVERSTONE NSW 2765
Telephone	0416 680 375
Facsimile	(Not specified)
Email	admin@neoconsulting.com.au
Project	**N6680**
Order Number	**N6680**
Samples	12

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Wed 26/10/2022
Report Due	Wed 2/11/2022
SGS Reference	**SE238321**

SUBMISSION DETAILS

This is to confirm that 12 samples were received on Wednesday 26/10/2022. Results are expected to be ready by COB Wednesday 2/11/2022. Please quote SGS reference SE238321 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Samples clearly labelled	Yes	Complete documentation received	Yes
Sample container provider	SGS	Sample cooling method	Ice Bricks
Samples received in correct containers	Yes	Sample counts by matrix	12 Soil
Date documentation received	26/10/2022	Type of documentation received	COC
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	19.5°C	Sufficient sample for analysis	Yes
Turnaround time requested	Standard		

Unless otherwise instructed, water and bulk samples will be held for one month from date of report, and soil samples will be held for two months.

COMMENTS

SAMPLE RECEIPT ADVICE

SE238321

CLIENT DETAILS

Client NEO CONSULTING PTY LTD

Project N6680

SUMMARY OF ANALYSIS

No.	Sample ID	OC Pesticides in Soil	OP Pesticides in Soil	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	Total Recoverable Elements in Soil/Waste	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
001	BH 1	30	14	26	7	10	11	7
002	BH 2	30	14	26	7	10	11	7
003	BH 3	30	14	26	7	10	11	7
004	BH 4	30	14	26	7	10	11	7
005	BH 5	30	14	26	7	10	11	7
006	BH 6	30	14	26	7	10	11	7
007	BH 7	30	14	26	7	10	11	7
008	BH 8	30	14	26	7	10	11	7
009	BH 9	30	14	26	7	10	11	7
010	BH 10	30	14	26	7	10	11	7
011	D1	30	14	26	7	10	11	7
012	D2	30	14	26	7	10	11	7

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

SE238321

CLIENT DETAILS

Client NEO CONSULTING PTY LTD

Project N6680

SUMMARY OF ANALYSIS

No.	Sample ID	Mercury in Soil	Moisture Content
001	BH 1	1	1
002	BH 2	1	1
003	BH 3	1	1
004	BH 4	1	1
005	BH 5	1	1
006	BH 6	1	1
007	BH 7	1	1
008	BH 8	1	1
009	BH 9	1	1
010	BH 10	1	1
011	D1	1	1
012	D2	1	1

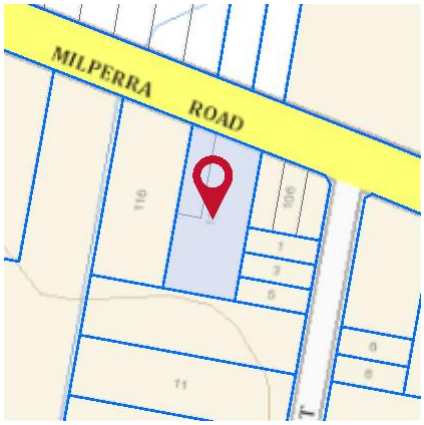
The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

APPENDIX D

Property Report and Relevant Information

Property Report

112 MILPERRA ROAD REVESBY 2212



Property Details

Address:	112 MILPERRA ROAD REVESBY 2212
Lot/Section /Plan No:	A/-/DP385068 B/-/DP385068
Council:	CANTERBURY-BANKSTOWN COUNCIL

Summary of planning controls

Planning controls held within the Planning Database are summarised below. The property may be affected by additional planning controls not outlined in this report. Please contact your council for more information.

Local Environmental Plans	Bankstown Local Environmental Plan 2015 (pub. 5-3-2015)
Land Zoning	IN1 - General Industrial: (pub. 5-3-2015)
Height Of Building	NA
Floor Space Ratio	1:1
Minimum Lot Size	1500 m²
Heritage	NA
Land Reservation Acquisition	NA
Foreshore Building Line	NA
Acid Sulfate Soils	Class 5
Local Provisions	30 km

Detailed planning information

State Environmental Planning Policies which apply to this property

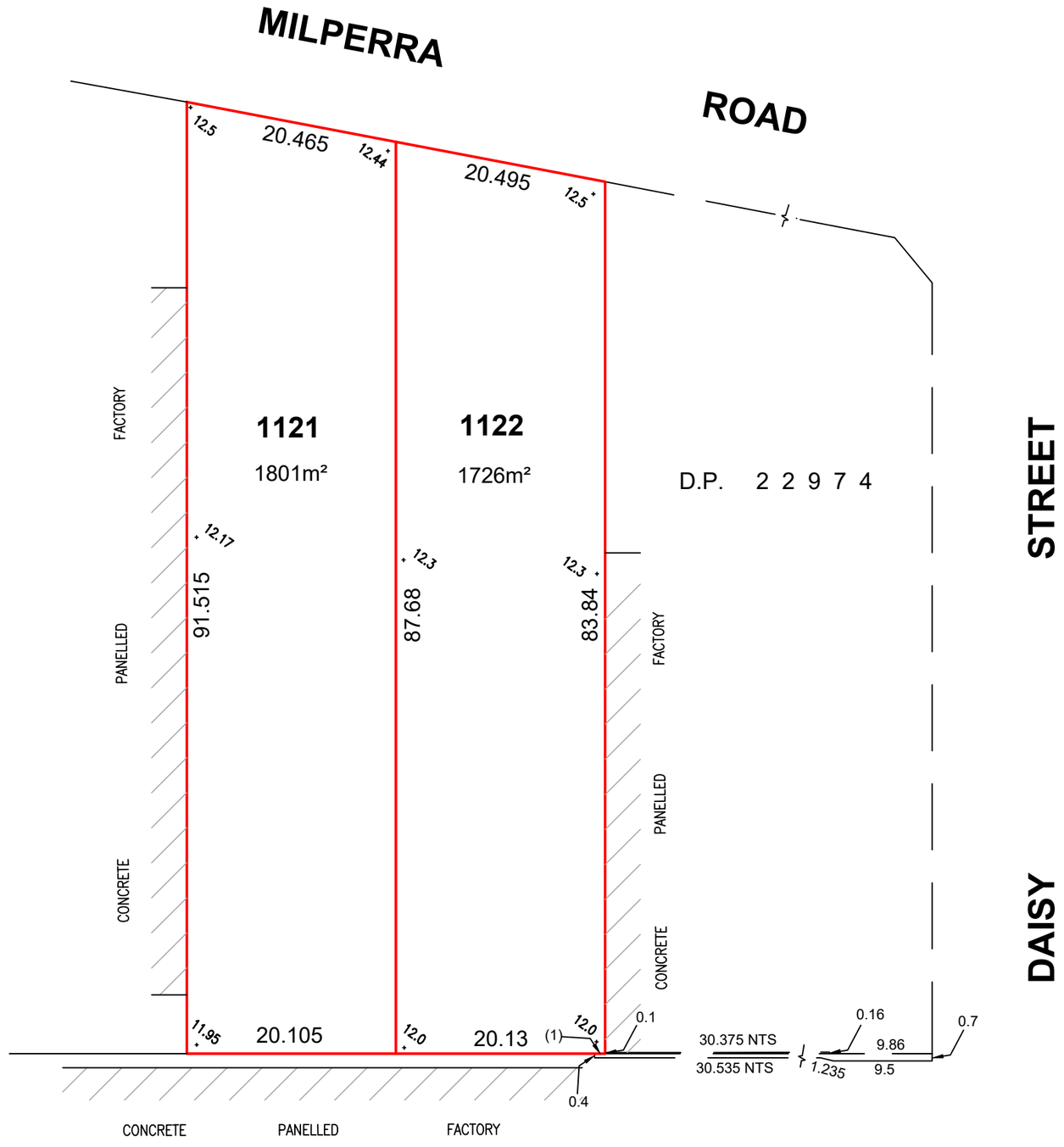
State Environmental Planning Policies can specify planning controls for certain areas and/or types of development. They can also identify the development assessment system that applies and the type of environmental assessment that is required.

- State Environmental Planning Policy (Biodiversity and Conservation) 2021: Excluded (pub. 2-12-2021)
- State Environmental Planning Policy (Biodiversity and Conservation) 2021: Land Application (pub. 2-12-2021)
- State Environmental Planning Policy (Biodiversity and Conservation) 2021: Subject Land (pub. 2-12-2021)
- State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004: Land Application (pub. 25-6-2004)
- State Environmental Planning Policy (Exempt and Complying Development Codes) 2008: Land Application (pub. 12-12-2008)
- State Environmental Planning Policy (Housing) 2021: Land Application (pub. 26-11-2021)
- State Environmental Planning Policy (Industry and Employment) 2021: Land Application (pub. 2-12-2021)
- State Environmental Planning Policy (Planning Systems) 2021: Land Application (pub. 2-12-2021)
- State Environmental Planning Policy (Primary Production) 2021: Land Application (pub. 2-12-2021)
- State Environmental Planning Policy (Resilience and Hazards) 2021: Land Application (pub. 2-12-2021)
- State Environmental Planning Policy (Resources and Energy) 2021: Land Application (pub. 2-12-2021)
- State Environmental Planning Policy (Transport and Infrastructure) 2021: Land Application (pub. 2-12-2021)
- State Environmental Planning Policy No 65—Design Quality of Residential Apartment Development: Land Application (pub. 26-7-2002)

Other matters affecting the property

Information held in the Planning Database about other matters affecting the property appears below. The property may also be affected by additional planning controls not outlined in this report. Please speak to your council for more information

1.5 m Buffer around Classified Roads	Classified Road Adjacent
Local Aboriginal Land Council	GANDANGARA
Regional Plan Boundary	Greater Sydney



NOTES

1. COPYRIGHT. This drawing and/or design is the property of Harrison Friedmann & Associates Pty Ltd and should not be reproduced in part or whole without the written permission of the company.

2. All areas and dimensions have been compiled from plans made available at the Lands Title Office and are subject to final survey.

3. DO NOT SCALE OFF THIS PLAN.Relationships of improvements to boundaries is diagrammatic only. Where clearances are critical they should be confirmed by a further boundary survey.

4. This plan is prepared for developmental application purposes only & is not to be used for any other purpose.

5. Numerous services including optic fibre cable may exist in the area and no services have been shown in our plan.

6. Easements and restrictions may be required with subdivision of this land.

SURVEYOR Name: Robert Gordon Harrison Date: September 1 2022 Reference: 73780RH-SUB1	PLAN OF PROPOSED SUBDIVISION OF LOTS A & B IN D.P. 385068 AT No. 112 MILPERRA ROAD, REVESBY.	LGA: CANTERBURY-BANKSTOWN Locality : REVESBY Reduction Ratio 1: 200 Lengths are in metres	REGISTERED	DRAFT DP

ADVANCE LEGAL SEARCHERS PTY LTD

(ACN 147 943 842)
ABN 82 147 943 842

18/36 Osborne Road,
Manly NSW 2095

Mobile: 0412 169 809
Email: search@alsearchers.com.au

21st October, 2022

NEO CONSULTING PTY LIMITED
P.O. Box 279
RIVERSTONE NSW 2765

Attention: Stephanie Rafin,

RE: **112 Milperra Road,**
Revesby
Job Reference: N6680

Note 1:	**Lot A**	**DP 385068**	(page 1)
Note 2:	**Lot B**	**DP 385068**	(page 4)

Note 1:

Current Search

Folio Identifier A/385068 (title attached)
DP 385068 (plan)
Dated 20th October, 2022
Registered Proprietor:
JAMES MICHAEL DWYER
ANGELA THERESA DWYER

Title Tree
Lot A DP 385068

Folio Identifier A/385068

Certificate of Title Volume 6794 Folio 40

Certificate of Title Volume 3143 Folio 176

****

Index

T – Transfer
(L) – Lease
TA – Transmission Application

****

Summary of Proprietor(s)
Lot A DP 385068

Year	Proprietor(s)	
	(Lot A DP 385068)	
13 Sep 2002 – todate	James Michael Dwyer Angela Theresa Dwyer	T
01 Dec 1989	Percy Maxwell Smidt, electro plater	
(01 Dec 1989 to date)	*(various leases shown on Historical Folio A/385068 (attached))*	*(L)*
	(Lot A DP 385068 – Area 26 ¼ Perches – CTVol 6794 Fol 40)	
01 Aug 1957	Percy Maxwell Smidt, electro plater	T
30 Mar 1954	Colin Hugh James Dudley, truck driver	
	(Lot 179 DP 7866 – Area 3 Roods 19 ¼ Perches – CTVol 3143 Fol 176)	
30 Jan 1946	Percy Maxwell Smidt, electro plater	T
20 May 1929	Hartley Lee, butcher	T
20 May 1929	Public Trustee	TA
17 Jul 1923	Elizabeth Lee, wife of Hartley Lee, butcher	T
24 Dec 1920	Public Trustee	

****

Note 2:

Current Search

Folio Identifier B/385068 (title attached)
DP 385068 (plan)
Dated 20th October, 2022
Registered Proprietor:
JAMES MICHAEL DWYER
ANGELA THERESA DWYER

Title Tree
Lot B DP 385068

Folio Identifier B/385068

Certificate of Title Volume 6788 Folio 162

Certificate of Title Volume 3143 Folio 176

****

Index

T – Transfer
(L) – Lease
TA – Transmission Application

****

Summary of Proprietor(s)
Lot B DP 385068

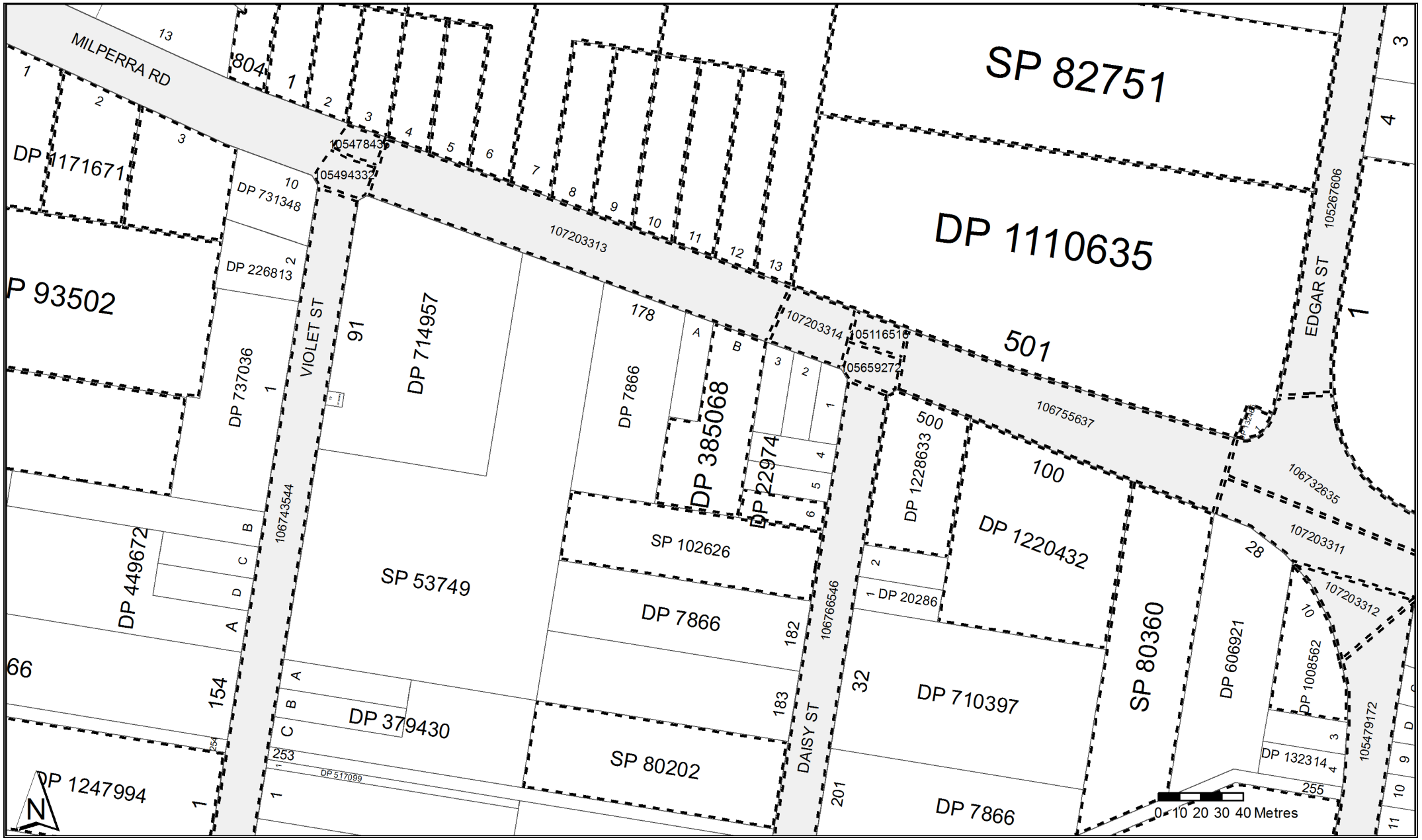
Year	Proprietor(s)	
	(Lot B DP 385068)	
13 Sep 2002 – todate	James Michael Dwyer Angela Theresa Dwyer	T
06 Dec 1989	Percy Maxwell Smidt, electro plater	
(06 Dec 1989 to date)	*(various leases and sub leases shown on Historical Folio B/385068 (attached))*	*(L)*
	(Lot B DP 385068 – Area 2 Roods 33 Perches – CTVol 6788 Fol 162)	
18 Mar 1954	Percy Maxwell Smidt, electro plater	
	(Lot 179 DP 7866 – Area 3 Roods 19 ¼ Perches – CTVol 3143 Fol 176)	
30 Jan 1946	Percy Maxwell Smidt, electro plater	T
20 May 1929	Hartley Lee, butcher	T
20 May 1929	Public Trustee	TA
17 Jul 1923	Elizabeth Lee, wife of Hartley Lee, butcher	T
24 Dec 1920	Public Trustee	

****

Cadastral Records Enquiry Report : Lot B DP 385068

Ref : NOUSER

Locality : REVESBY
Parish : BANKSTOWN
LGA : CANTERBURY-BANKSTOWN
County : CUMBERLAND



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

	Status	Surv/Comp	Purpose
DP22974			
Lot(s): 6			
DP266897	REGISTERED	SURVEY	EASEMENT
DP132465			
Lot(s): 1			
DP1190457	REGISTERED	SURVEY	SURVEY INFORMATION ONLY
DP385068			
Lot(s): B			
DP266897	REGISTERED	SURVEY	EASEMENT
DP589464			
Lot(s): 1			
DP1076418	REGISTERED	SURVEY	REDEFINITION
DP1008562			
Lot(s): 10			
DP132314	HISTORICAL	COMPILATION	DEPARTMENTAL
DP238145	HISTORICAL	SURVEY	ROAD OR MOTORWAY
DP1013222			
Lot(s): 232			
DP718177	HISTORICAL	SURVEY	SUBDIVISION
DP1097574	REGISTERED	SURVEY	EASEMENT
DP1096486			
Lot(s): 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13			
DP1135000	REGISTERED	SURVEY	SUBDIVISION
DP1110635			
Lot(s): 501			
DP132465	HISTORICAL	COMPILATION	DEPARTMENTAL
DP216635	HISTORICAL	SURVEY	SUBDIVISION
DP1053817	REGISTERED	SURVEY	SURVEY INFORMATION ONLY
DP1133371			
Lot(s): 804			
DP213387	HISTORICAL	SURVEY	SUBDIVISION
DP623875	HISTORICAL	COMPILATION	SUBDIVISION
DP1046502	HISTORICAL	SURVEY	CONSOLIDATION
DP1071297	HISTORICAL	SURVEY	SUBDIVISION
DP1077440	HISTORICAL	SURVEY	SUBDIVISION
DP1113055	WITHDRAWN	SURVEY	SUBDIVISION
DP1127669	WITHDRAWN	UNAVAILABLE	SUBDIVISION
DP1171671			
Lot(s): 1, 2, 3			
DP718177	HISTORICAL	SURVEY	SUBDIVISION
DP1013222	HISTORICAL	SURVEY	SUBDIVISION
DP1220432			
Lot(s): 100			
DP369913	HISTORICAL	COMPILATION	UNRESEARCHED
DP568953	HISTORICAL	SURVEY	CONSOLIDATION
DP1123797	HISTORICAL	SURVEY	SUBDIVISION
DP1228633			
Lot(s): 500			
DP20286	HISTORICAL	SURVEY	UNRESEARCHED
DP517500	HISTORICAL	SURVEY	SUBDIVISION
DP1247994			
Lot(s): 1			
DP420066	HISTORICAL	COMPILATION	UNRESEARCHED
SP80202			
DP7866	HISTORICAL	SURVEY	UNRESEARCHED
SP80360			
DP568953	HISTORICAL	SURVEY	CONSOLIDATION
DP1123797	HISTORICAL	SURVEY	SUBDIVISION
SP81329	REGISTERED	COMPILATION	STRATA SUBDIVISION PLAN

	Status	Surv/Comp	Purpose
SP82751			
DP942138	HISTORICAL	COMPILATION	UNRESEARCHED
DP1127405	HISTORICAL	SURVEY	CONSOLIDATION
SP93502			
DP718177	HISTORICAL	SURVEY	SUBDIVISION
DP1013222	HISTORICAL	SURVEY	SUBDIVISION
DP1171671	HISTORICAL	SURVEY	SUBDIVISION
SP102158			
DP7866	HISTORICAL	SURVEY	UNRESEARCHED
DP1257285	HISTORICAL	SURVEY	REDEFINITION
SP102626			
DP7866	HISTORICAL	SURVEY	UNRESEARCHED
DP1268284	HISTORICAL	SURVEY	REDEFINITION
Road			
Polygon Id(s): 105267606, 106732635			
DP1053817	REGISTERED	SURVEY	SURVEY INFORMATION ONLY
Polygon Id(s): 105478436, 105494332, 106743544, 107203313, 107203314			
EX-SUR 75/31 DP983576			
Polygon Id(s): 105116516, 105479172, 105659272, 106755637, 106766546, 107203311, 107203312			
EX-SUR 72/45 DP980335			

Plan	Surv/Comp	Purpose
DP2343	COMPILATION	UNRESEARCHED
DP7866	SURVEY	UNRESEARCHED
DP20286	SURVEY	UNRESEARCHED
DP22974	SURVEY	UNRESEARCHED
DP132314	COMPILATION	DEPARTMENTAL
DP132465	COMPILATION	DEPARTMENTAL
DP200311	SURVEY	SUBDIVISION
DP209901	COMPILATION	SUBDIVISION
DP226813	SURVEY	SUBDIVISION
DP241358	SURVEY	SUBDIVISION
DP379430	COMPILATION	UNRESEARCHED
DP385068	COMPILATION	UNRESEARCHED
DP401469	COMPILATION	UNRESEARCHED
DP449672	COMPILATION	UNRESEARCHED
DP509579	COMPILATION	SUBDIVISION
DP517099	COMPILATION	SUBDIVISION
DP519053	COMPILATION	SUBDIVISION
DP589464	COMPILATION	SUBDIVISION
DP606921	COMPILATION	CONSOLIDATION
DP710397	COMPILATION	CONSOLIDATION
DP714957	COMPILATION	CONSOLIDATION
DP731348	COMPILATION	SUBDIVISION
DP737036	COMPILATION	CONSOLIDATION
DP774391	COMPILATION	CONSOLIDATION
DP1008562	COMPILATION	CONSOLIDATION
DP1013222	SURVEY	SUBDIVISION
DP1096486	COMPILATION	DEPARTMENTAL
DP1110635	SURVEY	CONSOLIDATION
DP1133371	SURVEY	SUBDIVISION
DP1171671	SURVEY	SUBDIVISION
DP1171671	UNRESEARCHED	SUBDIVISION
DP1220432	SURVEY	CONSOLIDATION
DP1228633	COMPILATION	CONSOLIDATION
DP1247994	SURVEY	CONSOLIDATION
SP53749	COMPILATION	STRATA PLAN
SP80202	COMPILATION	STRATA PLAN
SP80360	COMPILATION	STRATA PLAN
SP82751	COMPILATION	STRATA PLAN
SP93502	COMPILATION	STRATA PLAN
SP93502	UNRESEARCHED	STRATA PLAN
SP102158	COMPILATION	STRATA PLAN
SP102626	COMPILATION	STRATA PLAN

F 953040

F 953040

F. P. 385068

Municipality of Bankstown

PLAN

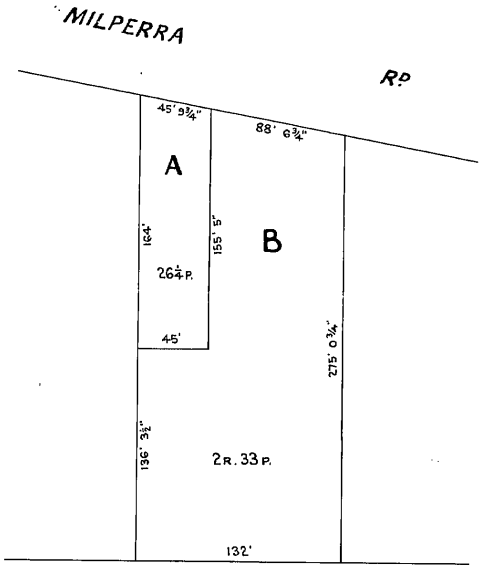
of Subdivision of Lot 179 D.P. 7866

Being the land comprised in Cert. of Title Vo. 3143 Fo. 176

Parish of Bankstown County of Cumberland

Scale 60 feet to an inch

Misc. Plan of Subdn. (R.P.)
Regd. No. 85068



Approved by Council and covered by Town Clerk's Certificate No. .....
dated .....
.....
Town Clerk

This Plan (which is also the Plan covered by my Certificate No. 4095 and dated 20/4/53) was approved by The Council of the Municipality of Bankstown on the 14/4/53
Town Clerk
MUNICIPALITY OF BANKSTOWN.

The new boundary is not intended to be represented by the position of the ground of any fencing or other improvements and is fixed solely by the measurements on the plan from some previously defined boundary. There are no improvements on or adjacent to the new subdivision line.

Transferee

PX

CONVERSION TABLE ADDED IN DEPARTMENT OF LANDS

DP 385068

FEET	INCHES	METRES
16	6	5.029
45	-	13.716
45	9 3/4	13.964
88	6 3/4	26.994
132	-	40.234
136	3 1/2	41.542
155	5	47.371
164	-	49.987
275	0 3/4	83.839

AC	RD	P	SQ M
-	-	26 1/4	663.9
-	2	33	2858

I, Bruce Richard Davies, Registrar General for New South Wales, certify that this negative is a photograph made as a permanent record of a document in my custody this 7th day of March, 1979

1

NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE
20/10/2022 8:33PM

FOLIO: B/385068

First Title(s): SEE PRIOR TITLE(S)
Prior Title(s): VOL 6788 FOL 162

Recorded	Number	Type of Instrument	C.T. Issue
2/9/1989		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
6/12/1989		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
19/9/1996	DP266897	DEPOSITED PLAN	
13/9/2002	8952856	DISCHARGE OF MORTGAGE	
13/9/2002	8952857	TRANSFER	
13/9/2002	8952858	MORTGAGE	EDITION 1
21/2/2017	AK874901	LEASE	
21/2/2017	AK874902	SUB-LEASE	EDITION 2
2/9/2018	AN678864	DEPARTMENTAL DEALING	EDITION 3 CORD ISSUED
16/5/2022	AS125075	CAVEAT	EDITION 4

*** END OF SEARCH ***

advlegs PRINTED ON 20/10/2022

NEW SOUTH WALES LAND REGISTRY SERVICES - TITLE SEARCH

FOLIO: A/385068

SEARCH DATE	TIME	EDITION NO	DATE
20/10/2022	8:33 PM	4	16/5/2022

LAND

LOT A IN DEPOSITED PLAN 385068
LOCAL GOVERNMENT AREA CANTERBURY-BANKSTOWN
PARISH OF BANKSTOWN COUNTY OF CUMBERLAND
TITLE DIAGRAM DP385068

FIRST SCHEDULE

JAMES MICHAEL DWYER
ANGELA THERESE DWYER
AS JOINT TENANTS (T 8952857)

SECOND SCHEDULE (4 NOTIFICATIONS)

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
2 A643074 COVENANT
3 8952858 MORTGAGE TO COMMONWEALTH BANK OF AUSTRALIA
* 4 AS125075 CAVEAT BY DPT MANAGEMENT NO 3 PTY LTD

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

advlegs PRINTED ON 20/10/2022

NEW SOUTH WALES LAND REGISTRY SERVICES - TITLE SEARCH

FOLIO: B/385068

SEARCH DATE	TIME	EDITION NO	DATE
20/10/2022	8:33 PM	4	16/5/2022

LAND

LOT B IN DEPOSITED PLAN 385068
LOCAL GOVERNMENT AREA CANTERBURY-BANKSTOWN
PARISH OF BANKSTOWN COUNTY OF CUMBERLAND
TITLE DIAGRAM DP385068

FIRST SCHEDULE

JAMES MICHAEL DWYER
ANGELA THERESE DWYER
AS JOINT TENANTS (T 8952857)

SECOND SCHEDULE (6 NOTIFICATIONS)

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
2 A643074 COVENANT
3 DP266897 EASEMENT TO DRAIN WATER 0.4,0.7 AND VARIABLE WIDTH APPURTENANT TO THE LAND ABOVE DESCRIBED
4 DP266897 EASEMENT TO DRAIN WATER VARIABLE WIDTH APPURTENANT TO THE LAND ABOVE DESCRIBED
5 8952858 MORTGAGE TO COMMONWEALTH BANK OF AUSTRALIA
* 6 AS125075 CAVEAT BY DPT MANAGEMENT NO 3 PTY LTD

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

advlegs PRINTED ON 20/10/2022

Job No 32949636

Phone: 1100
www.1100.com.au

Caller Details

Contact:	Nick Caltabiano	**Caller Id:**	3063293	**Phone:**	0423 834 874
Company:	Neo Consulting				
Address:	186 Riverstone Parade Riverstone NSW 2765	**Email:**	neo.searches.dbyd@gmail.com		

Dig Site and Enquiry Details

WARNING: The map below only displays the location of the proposed dig site and does not display any asset owners' pipe or cables. The area highlighted has been used only to identify the participating asset owners, who will send information to you directly.

User Reference: Revesby
Working on Behalf of: Private

Enquiry Date:	Start Date:	End Date:
20/10/2022	21/10/2022	04/11/2022

Address:
112 Milperra Road
Revesby NSW 2212

Job Purpose:	Onsite Activities:
Excavation	Vertical Boring

Location of Workplace: Private
Location in Road:

- Check that the location of the dig site is correct. If not you must submit a new enquiry.
- Should the scope of works change, or plan validity dates expire, you must submit a new enquiry.
- Do NOT dig without plans. Safe excavation is your responsibility. If you do not understand the plans or how to proceed safely, please contact the relevant asset owners.

Notes/Description of Works:
Not supplied

Your Responsibilities and Duty of Care

- The lodgement of an enquiry does not authorise the project to commence. You must obtain all necessary information from any and all likely impacted asset owners prior to excavation.
- If plans are not received within 2 working days, contact the asset owners directly & quote their Sequence No.
- ALWAYS perform an onsite inspection for the presence of assets. Should you require an onsite location, contact the asset owners directly. Please remember, plans do not detail the exact location of assets.
- Pothole to establish the exact location of all underground assets using a hand shovel, before using heavy machinery.
- Ensure you adhere to any State legislative requirements regarding Duty of Care and safe digging requirements.
- If you damage an underground asset you MUST advise the asset owner immediately.
- By using this service, you agree to Privacy Policy and the terms and disclaimers set out at **www.1100.com.au**
- **For more information on safe excavation practices, visit www.1100.com.au**

Asset Owner Details

The assets owners listed below have been requested to contact you with information about their asset locations within 2 working days.
Additional time should be allowed for information issued by post. It is **your responsibility** to identify the presence of any underground assets in and around your proposed dig site. Please be aware, that not all asset owners are registered with the Before You Dig service, so it is **your responsibility** to identify and contact any asset owners not listed here directly.
** Asset owners highlighted by asterisks ** require that you visit their offices to collect plans.
# Asset owners highlighted with a hash # require that you call them to discuss your enquiry or to obtain plans.

Seq. No.	Authority Name	Phone	Status
217282986	AARNet Pty Ltd Nsw	1300 275 662	NOTIFIED
217282984	Ausgrid	(02) 4951 0899	NOTIFIED
217282979	Aussie Broadband	(03) 5165 0073	NOTIFIED
217282985	Jemena Gas West	1300 880 906	NOTIFIED
217282981	NBN Co NswAct	1800 687 626	NOTIFIED
217282983	Nextgen NCC - NSW	1800 262 663	NOTIFIED
217282980	Optus and or Uecomm Nsw	1800 505 777	NOTIFIED
217282987	Sydney Water	13 20 92	NOTIFIED
217282982	Telstra NSW Central	1800 653 935	NOTIFIED

END OF UTILITIES LIST

Lodge Your Free Enquiry Online – 24 Hours a Day, Seven Days a Week

Working near nbn™ cables

nbn has partnered with Dial Before You Dig to give you a single point of contact to get information about **nbn** underground services owned by **nbn** and other utility/service providers in your area including communications, electricity, gas and other services. Contact with underground power cables and gas services can result in serious injury to the worker, and damage and costly repairs. You must familiarise yourself with all of the Referral Conditions (meaning the referral conditions referred to in the DBYD Notice provided by **nbn**).

Practice safe work habits

Once the DBYD plans are reviewed, the Five P's of Excavation should be adopted in conjunction with your safe work practices (which must be compliant with the relevant state Electrical Safety Act and Safe Work Australia "Excavation Work Code of Practice", as a minimum) to ensure the risk of any contact with underground **nbn** assets are minimised.

Plan: Plan your job by ensuring the plans received are current and apply to the work to be performed. Also check for any visual cues that may indicate the presence of services not covered in the DBYD plans.

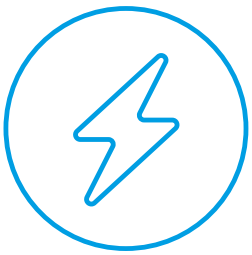
Prepare: Prepare for your job by engaging a DBYD Certified Plant Locator to help interpret plans and identify on-site assets. Contact **nbn** should you require further assistance.

Pothole: Non-destructive potholing (i.e. hand digging or hydro excavation) should be used to positively locate **nbn** underground assets with minimal risk of contact and service damage.

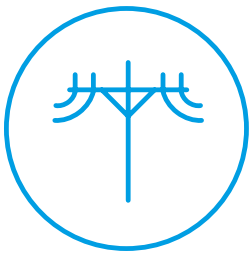
Protect: Protecting and supporting the exposed **nbn** underground asset is the responsibility of the worker. Exclusion zones for **nbn** assets are clearly stated in the plan and appropriate controls must be implemented to ensure that encroachment into the exclusion zone by machinery or activities with the potential to damage the asset is prevented.

Proceed: Proceed only when the appropriate planning, preparation, potholing and protective measures are in place.

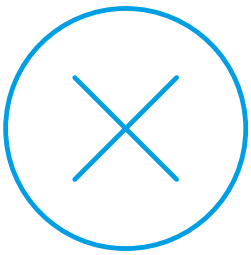
Working near **nbn**™ cables



Identify all electrical hazards, assess the risks and establish control measures.



When using excavators and other machinery, also check the location of overhead power lines.



Workers and equipment must maintain safety exclusion zones around power lines.

Once all work is completed, the excavation should be re-instated with the same type of excavated material unless specified by **nbn**. Please note:

- Construction Partners of **nbn** may require additional controls to be in place when performing excavation activities.
- The information contained within this pamphlet must be used in conjunction with other material supplied as part of this request for information to adequately control the risk of potential asset damage.

Contact

All **nbn**™ network facility damages must be reported online here.
For enquiries related to your DBYD request please call 1800 626 329.

DIAL BEFORE YOU DIG
www.1100.com.au

Sequence Number: 217282980

Date Generated: 20 Oct 2022

For all Optus DBYD plan enquiries –
Email: Fibre.Locations@optus.net.au
For urgent onsite assistance contact 1800 505 777
Optus Limited ACN 052 833 208

Optus Contract Management Team
Unit 9, 677 Springvale Road
Mulgrave, Victoria, 3178

Date: 20 Oct 2022
To: Nick Caltabiano
Company: Neo Consulting
Address: 186 Riverstone Parade
Riverstone, NSW 2765

ENQUIRY DETAILS
Location: 112 Milperra Road, Revesby, NSW 2212
Sequence No.: 217282980
DBYD Reference: 32949636

In relation to your enquiry concerning the above location, Optus advises as follows:

Optus records indicate that there ARE underground Optus FIBRE OPTIC TELECOMMUNICATIONS ASSETS in the vicinity of the above location as per the attached drawing(s).

PLEASE NOTE that any interference with these assets may be considered an offence under the Criminal Code Act 1995 (Cth). Optus reserves the right to seek compensation for loss or damage to its assets including consequential loss.

This reply is valid for a period of 30 days from the date above.

IMPORTANT INFORMATION
Asset location drawings provided by Optus are reference diagrams and are provided as a guide only. The completeness of the information in these drawings cannot be guaranteed. Exact ground cover and alignments cannot be provided with any certainty as these may have altered over time. Depths of telecommunications assets vary considerably as do alignments. It is essential to identify the location of any Optus assets in the vicinity prior to engaging in any works.

All Optus assets in the vicinity of any planned works will need to be electronically located to ascertain their general location. Depending on the scope of planned works in the vicinity, the assets may also need to be physically located.

YOU MUST ENGAGE THE SERVICES OF ONE OF THE OPTUS ASSET ACCREDITED LOCATORS TO CARRY OUT ASSET LOCATION (REFER LIST OF ACCREDITED LOCATORS AT THE END OF THIS OPTUS RESPONSE).

Unless otherwise agreed with Optus, where an on-site asset location is required, the requestor is responsible for all costs associated with the locating service including (where required) physically exposing the Optus asset.

DUTY OF CARE
When working in the vicinity of telecommunications assets you have a legal "Duty of Care" and non-interference that must be observed.

It is your responsibility as the requesting party (as a landowner or any other party involved in the planned works) to design for minimal impact to any existing Optus asset. Optus can assist at the design stage through consultation.

It is also your, as the requesting party (or your representative's), responsibility to:

a) Obtain location drawings (through the Dial Before You Dig process) of any existing Optus assets at a reasonable time before any planned works begin;

b) Have an Optus Accredited Asset Locator identify the general location of the Optus asset and physically locate the asset where planned works may encroach on its alignment; and

c) Contact Optus for further advice where requested to do so by this letter.

DAMAGE TO ANY OPTUS ASSET MUST BE REPORTED TO 1800 500 253 IMMEDIATELY

You, your head contractor and any relevant subcontractor are all responsible for any Optus asset damage as a result of planned activities in the vicinity of Optus assets.

This applies where works commence prior to obtaining Optus drawings, where there is failure to follow instructions or during any construction activities.

Optus reserves the right to recover compensation for loss or damage to its assets including consequential loss. Also, you, your head contractor and any relevant subcontractor may also be liable for prosecution under the Criminal Code Act 1995 (Cth).

ASSET RELOCATIONS

You are not permitted by law to relocate, alter or interfere with any Optus asset under any circumstance. Any unauthorised interference with an Optus asset may lead to prosecution under the Criminal Code Act 1995 (Cth). Enquiries relating to the relocation of Optus assets must be referred to the relevant Optus Damages and Relocations Team (refer to "FURTHER ASSISTANCE").

APPROACH DISTANCES

On receipt of Optus asset location drawings and prior to commencing any planned works near an Optus asset, engage an Optus Accredited Locator to undertake a general location of the Optus asset.

Physical location of the Optus asset by an Optus Accredited Locator will also be required where planned works are within the following approach distances of the general location of the Optus asset:

a) In built up metropolitan areas where road and footpaths are well defined by kerbs or other features a minimum clear distance of 1 meter must be maintained from the general location of the Optus asset.

b) In non-established or unformed metropolitan areas, a minimum clear distance of 3 meters must be maintained from the general location of the Optus asset.

c) In country or rural areas where wider variations may exist between the general and actual location of an Optus asset may exist, then a minimum clear distance of 5 meters must be maintained from the general location of the Optus asset.

If planned works are parallel to the Optus asset, then the Optus asset must be physically located by an Optus Accredited Locator at a minimum of 5 meter intervals along the length of the parallel works prior to work commencing.

Under no circumstances is crossing of any Optus asset permitted without physical location of the asset being carried out by an Optus Accredited Locator. Depending on the asset involved an Optus representative may be required onsite.

The minimum clearances to the physical location of Optus assets for the following specific types of works must be maintained at all times.

Note: Where the clearances in the following table cannot be maintained or where the type of work differs from those listed then advice must be sought from the relevant Optus Damages and Relocations Team (refer to "FURTHER ASSISTANCE").

Type of Works	**Clearance to Physical Location of Optus Asset**
Jackhammers / Pneumatic Breakers	Not within 1 meter.
Light duty Vibrating Plate or Wacker Packer type compactors (not heavy road construction vibrating rollers etc.)	500mm compact clearance cover before a light duty compactor can be used over any Optus conduit. No compaction permitted over Optus direct buried cable without prior approval from Optus.
Boring Equipment (in-line, horizontal and vertical)	Not within 5 meters parallel of the Optus asset location without an Accredited Optus Asset Locator physically exposing the Optus asset and with an Optus representative onsite. Not to cross the Optus asset without an Accredited Optus Asset Locator physically exposing the Optus asset and with an Optus representative onsite.

Type of Works	Clearance to Physical Location of Optus Asset
Heavy vehicle Traffic (over 3 tonnes)	Not to be driven across Optus conduits with less than 600mm of cover. Not to be driven across Optus direct buried cable with less than 1.2 meters of cover. Once off crossings permitted, multiple crossing (e.g. road construction or logging) will require Optus approval. Accredited Optus Asset Locator to physically expose the Optus asset to verify actual depth.
Mechanical Excavators, Farm Ploughing, Vertical Hole installation for water bore or fencing etc.	Not within 1 meter. Accredited Optus Asset Locator to physically expose the Optus asset to verify actual location.

ASSET CLEARANCES AFTER COMPLETION OF WORKS

All Optus pits and manholes must be a minimum of 1 meter from the back of any kerb, 3.5 meters of the road surface without a kerb or not within 15 meters of street intersection.

In urban areas Optus conduit must have the following minimum depth of cover:

- Footway 600mm;
- Roadway 1 meter at drain invert and at road centre crown.

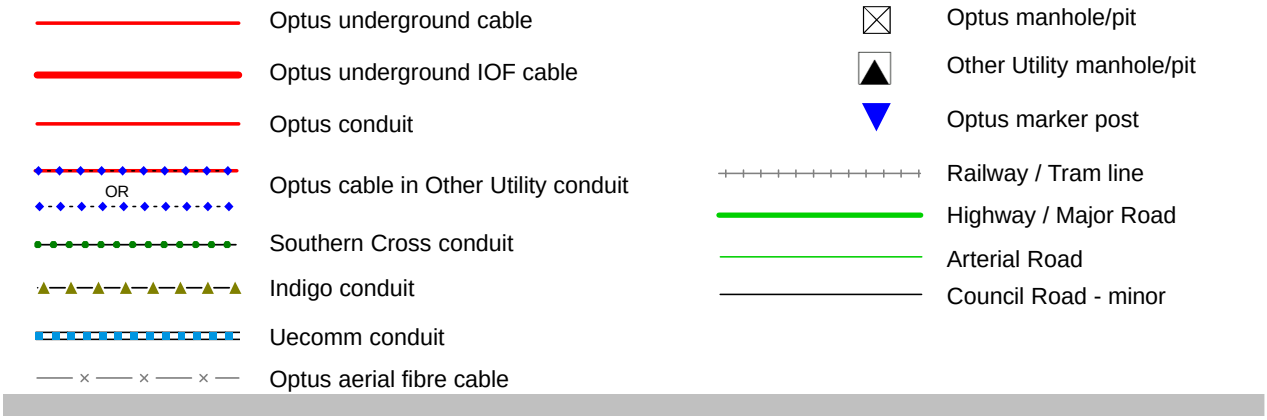
In rural areas Optus conduit must have a minimum depth of cover of 1 meter and direct buried cable 1.2 meters.

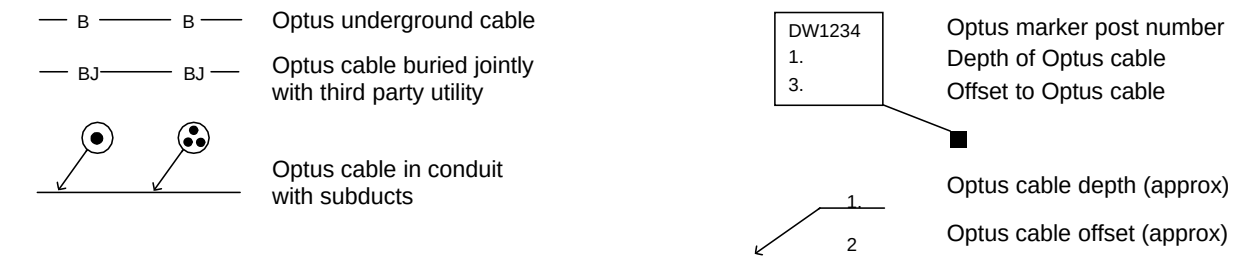
In cases where it is considered that the above clearances cannot be maintained at the completion of works, advice must be sought from the relevant Optus Damages and Relocations Team (refer "Further Assistance").

FURTHER ASSISTANCE

Further assistance on asset clearances, protection works or relocation requirements can be obtained by contacting the relevant Optus Damages and Relocations Team on the following email address:
NFODamages&RelocationsDropbox@optus.com.au
Further assistance relating to asset location drawings etc. can be obtained by contacting the Optus Network Operations Asset Analysis Team on 1800 505 777.

OPTUS ENGINEERING DRAWING SYMBOLS





OPTUS

Optus Accredited Asset Locators

Name	Company Name	Phone	Email	State	Region/Service Area
Alan Cordner	Alcom Fibre Services Pty Ltd	0400 300 337	alcomfibre@bigpond.com	NSW/ACT	Sydney
Brad McCorkindale	Bradmac Locating Services	0434 157 409	brad.mac@bigpond.com	NSW/ACT	All
Troy Redden	On Point Utility Locating	1300 6676 468	troy@onpointlocating.com.au	NSW	Sydney Only
Shane Buckley	Cable & Pipe Locations	0408 730 430	sabuckley@bigpond.com	NSW/QLD	Armidale, Casino, Coffs Harbour, Dorrigo, Glenn Innes, Grafton, Inverell, Kempsey, Lismore, Nambucca, Port Macquarie, Tamworth, Taree, Tenterfield, Yamba
Philip Pegler	Down Under Detection Services (DUDS)	0418 267 964	apegler@duds.net.au	NSW	All
Tina Stanhope	SureSearch Underground Services	1300 884 520 0418 920 245	tina.stanhope@suresearch.com.au	NSW/ACT QLD	NSW, Sydney, Northern NSW, Canberra, QLD, South East QLD.
Leonard McGowan	Pipesure Australia	1300 411 811	len@pipesure.com.au	NSW	Sydney
Bruce Whittaker	Optical Fibre Technologies	0402 354 322	opticaltek1@aol.com	NSW	Sydney/Wollongong
Darryl Smith	Darryl Smith Electrical	02 6642 3731	office@dsmithelectrical.com.au	NSW	Grafton
George Koenig	Downunder Locations NSW Pty	0438 243 856	Downunderlocations@gmail.com	NSW	Tweed Heads, Gold Coast, Brisbane
Michael Grant	M&K Grant Bega Bobcats Pty Ltd	0427 260 423	zzbobcat@bigpond.net.au	NSW	Bega, Far South Coast
Antony Critcher	Geotrace Pty Ltd	0417 147 945	antony@geotrace.com.au	NSW	All Areas, Sydney, Wollongong, Newcastle, ACT
Anthony Lane	Hydro Digga	0447 774 000	locator@hydrodigga.com	NSW	All of NSW, ACT & South East Qld
Joshua Payne	Australian Utilities Management Pty Ltd	0427 833 222	aine@ausutilities.net.au	NSW	Sydney Metro
Nathan Ellis	Utility Locating Services	0404 087 555	nathan@utilitylocatingservices.com.au	NSW	Sydney
Rodney Pullen	Provac	0450 268 012	rod@provac.net.au	NSW /QLD	South East QLD, Northern NSW
Rodney Pullen	One Find Cables	0451 268 012	rod@provac.net.au	NSW /QLD	South East QLD, Northern NSW

Drew Misko	Australian Subsurface Pty Ltd	0427 879 600	admin@australiansubsurface.com	NSW/ACT	All of NSW/ACT
Scott O'Malley	Coastal Cable Locators Pty Ltd	0427 975 777	skomalley@bigpond.com	NSW	South Coast- Snowy Mountains-Southern Highlands
Liam Bolger	Brandon Construction Services	0438 044 008	liam.bolger@hotmail.com	NSW	Sydney
Brett Pickup	All About Pipes	02 8763 4200	Brett.Pickup@allaboutpipes.com.au	NSW / VIC	All
Karen Joyce	Durkin Construction Pty Ltd	02 9712 0308	karen@durkinconstruction.com.au	NSW	Sydney
Timothy Laidler	Locate & Map	0431 191 669	tim@locateandmap.com.au	NSW	Sydney, Central Coast
Ken Brown	Riteway Traffic Control Pty Ltd	0419 212 969	kbrowne@ritewaytc.com.au	NSW	Central Coast, Hunter
Walter R Johansen	Steger & Associates	02 6296 4089	enquiries@steger.com.au	ACT/NSW	Canberra
Jean-Max Monty	Civilscan	0416 068 060	civilscan@bigpond.com	NSW	Sydney – Central Coast – Newcastle – Wollongong – Hunter Valley – Blue Mountains
Alan Hunter	Hunter Ground Search	02 4953 1244 0418 684 819	huntergroundsearch@bigpond.com	NSW	Newcastle, Central Coast, Hunter Valley, Mid North Coast, Liverpool Plains, Central West NSW.
Gilbert J Cook	Datateks Communications Specialists	0408 693 660	datateks@datateks.com.au	NSW	Southern NSW
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Neil Blenkinsop	Utility Mapping Pty Ltd	0427 318 681	nblenkinsop@utilitymapping.com.au	NSW	Sydney
Daniel Fox	Epoca Environmental Pty Ltd	02 4739 2465 0433 100 642	daniel@epocaenvironmental.com.au	NSW	All NSW, ACT
Rod Shaw	Cable Find	0478 887 073	rod@cablefind.com.au	NSW	Northern Rivers
Danny Carter	Online Pipe & Cable Locating	1300 665 384	danny@onlinepipe.com.au	NSW	Sydney, Newcastel, Canberra, Blue Mountains
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Scott Allison	Crux Surveying Australia	02 9540 9940	sydneyoffice@cruxsurveying.com.au	NSW	Sydney Metro & Surrounding Areas
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Donna Wullaert	Commence Communications Pty Ltd	02 6226 3869 0428 595 620	admin@commencecomms.com.au	NSW	Canberra, Yass, Bungendore, Goulburn and Surrounding regional Areas
Grant Pearson	Warrabinya Services	0423 651 615	sales@warrabinya.com.au	NSW	Sydney Metro & Surrounding Areas
Stephen Fraser	Advanced Ground Locations	02 4930 3195 0412 497 488	steve_agl@hotmail.com	NSW	Newcastle, Hunter Valley, Central Coast, Taree & Surrounding Areas
Andrew Findlay/ Anthony Hart	LiveLocates	0429 899 777	info@livelocates.com.au	NSW	South Coast/ACT, Snowy Mountains
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Myles Green	Australian Locating Services	1300 761 545	myles@locating.com.au	NSW	Sydney
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Daniel Hudson	One Search Locators	1300 530 420	daniel@onesearchlocators.com.au	NSW	All NSW, ACT
Tim Galaz	Utec Solutions	02 9389 0040	office@utecsolutions.com.au	NSW/QLD/VIC	All areas, NSW, QLD, VIC
Gary Laneyrie	Laneyrie Electrical	0412 079 079 0413 048 048	bindy@laneyieelectrical.com.au	NSW	Illawarra, South Coast, Hunter Region
Reece Gainsford	East Coast Locating Services	0431 193 111	eastcoastlocating@hotmail.com	NSW	Sydney, Maitland, Newcastle, Hunter, Port Stephens, Central Coast
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Amer El Chami	Site Scan Pty Ltd	0449 992 520	office@sitescan.net.au	NSW	Sydney
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Justin Joseph S. Martinez	FJA Locating	0401 749 007	j.martinez@fjalocating.com.au	NSW, ACT, QLD, VIC	All regions
Rhiannon Kemps	Geoscope Utility Detection Services Pty Ltd	0432 296 323	simon@geoscopelocating.com.au	NSW	All regions
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Samuel Hathaway	Landmark Surveys	02 6280 9608	admin@landmarksurveys.com.au	NSW/ACT	ACT & Sourthen NSW
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Chris Hall	D C Locators Pty Ltd	0419 679 741	dcloc@powerup.com.au	QLD	Brisbane, Ipswich
Jeff Trackson	J.R & L.M Trackson Pty Ltd	0417 600 978	jtrackson@tracavoid.com.au	QLD	All
Benji Lee	LADS	0478 915 237	benji@ladsqld.com.au	QLD	South East QLD
Andrew Watson	Lambert Locations Pty Ltd	07 5562 8400	admin@lambertlocations.com.au	QLD	South East QLD & Northern NSW
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Brendon Smith	Dynamic Hydro Excavations	1300 822 878	admin@dynamicexcavation.com.au	QLD	QLD, NSW, VIC
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Adam Lloyd	Aussie HydroVac Services	07 3287 7818	adam.lloyd@aussiehydrovac.com.au	QLD	All
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Bernie Acabal	Taylors Development Strategists	03 9501 2800 0419 758 794	b.acabal@taylorsds.com.au	VIC	Victoria
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Dale Shearsmith	Subtera Subsurface Locating	1300 046 636	dale@subtera.com.au	WA	All
Liam Davies	Bunbury Telecom Service Pty Ltd	08 9726 0088	liam@btswa.com.au	WA	South West WA
Tammy Thorp	B.C.E Spatial	08 9364 6408	admin@bcespatial.com.au	WA	Perth Metro & Regional
Alex Jones	Utility Mapping Pty Ltd	0417 413 353	ajones@utilitymapping.com.au	WA	All
Chris Lee	Pulse Locating	0437 289 861	enquiries@pulselocating.com.au	WA	Perth
Morgan O'Connor	Kier Contracting	1300 543 728	morgan@kier.com.au	WA	Perth Metro & Greater region, Regional WA

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Jonathon Sylva	Advance Scanning Services	1300 738 118	bookings@advancescanning.com.au	WA	All
James Horton	Westscan Pty Ltd	1300 858 404	westscan1@gmail.com	WA	All NT, WA, QLD
David Phillips	Geographe Excavation and Underground Power	0458 585 524	admin@geoex.com.au	WA	South West
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Dave Turner	Anywair Pipe & Cable	0418 890 071	dave@anywair.com.au	NT	All NT, WA, QLD
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Elizabeth Young	Archers Underground Ser-vices Locations (AUS Locations)	03 6245 1298	admin@auslocations.com.au auslocations@bigpond.com	TAS	All
Patrick Monaghn	Paneltec Group	0447 797 544	patrick@paneltec.com.au	TAS	All
Scott Richardson	AJ Water & Leak Detection	0457 710 680	admin@ajwater.com.au	TAS	All

To:	Nick Caltabiano
Phone:	Not Supplied
Fax:	Not Supplied
Email:	neo.searches.dbyd@gmail.com

Dial before you dig Job #:	32949636
Sequence #	217282981
Issue Date:	20/10/2022
Location:	112 Milperra Road , Revesby , NSW , 2212

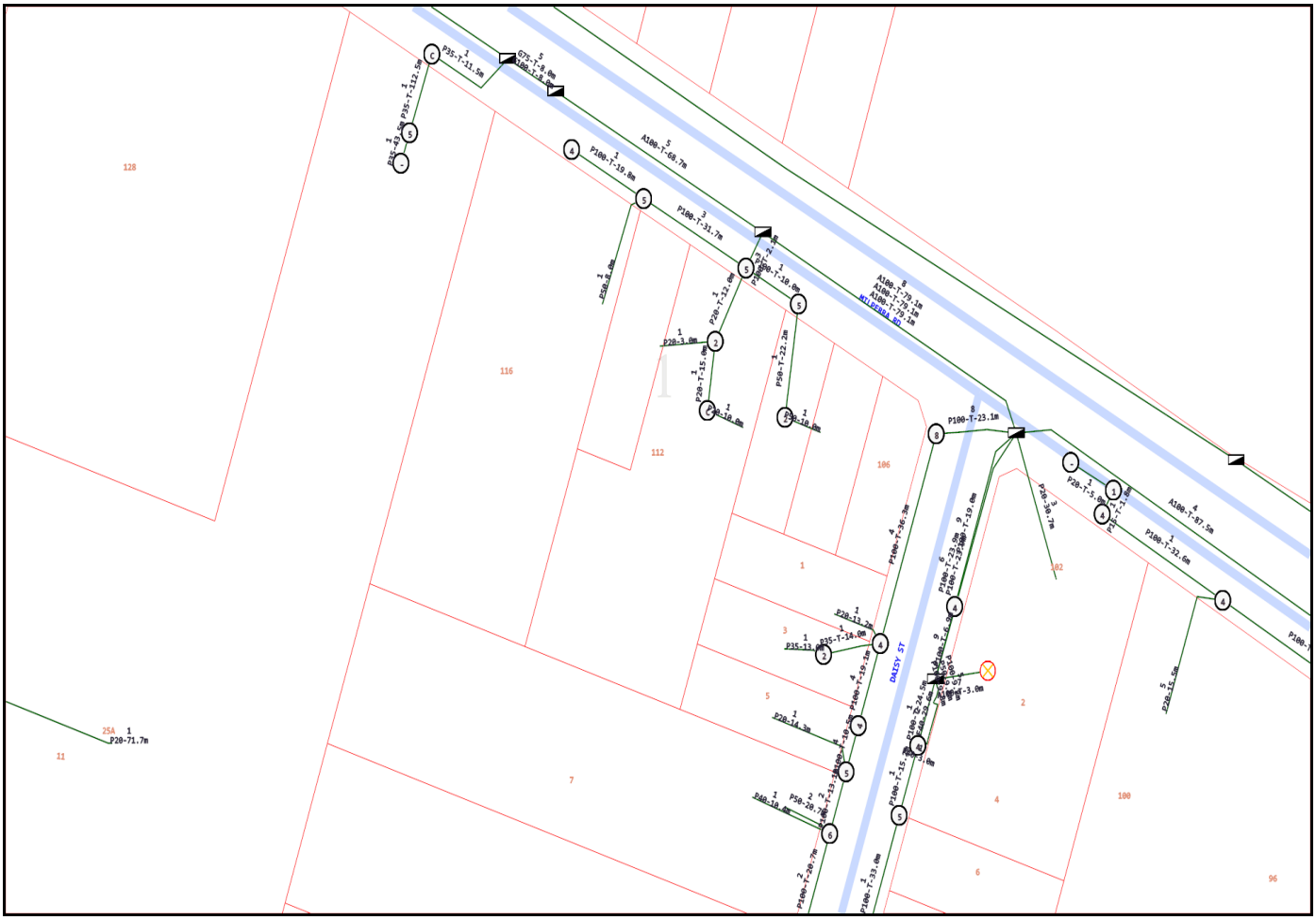
DIAL BEFORE YOU DIG www.1100.com.au

Indicative Plans

1

LEGEND

34	Parcel and the location
5	Pit with size "5"
2E	Power Pit with size "2E". Valid PIT Size: e.g. 2E, 5E, 6E, 8E, 9E, E, null.
	Manhole
	Pillar
2 PO – T- 25.0m P40 – 20.0m 5 9	Cable count of trench is 2. One "Other size" PVC conduit (PO) owned by Telstra (-T-), between pits of sizes, "5" and "9" are 25.0m apart. One 40mm PVC conduit (P40) owned by NBN, between pits of sizes, "5" and "9" are 20.0m apart.
2 10.0m 5 9	2 Direct buried cables between pits of sizes ,"5" and "9" are 10.0m apart.
5 9	Trench containing any INSERVICE/CONSTRUCTED (Copper/RF/Fibre) cables.
5 9	Trench containing only DESIGNED/PLANNED (Copper/RF/Fibre/Power) cables.
5 9	Trench containing any INSERVICE/CONSTRUCTED (Power) cables.
BROADWAY ST	Road and the street name "Broadway ST"
Scale	0 20 40 60 Meters 1:2000 1 cm equals 20 m



Emergency Contacts

You must immediately report any damage to the **nbn™** network that you are/become aware of. Notification may be by telephone - 1800 626 329.

To:	Nick Caltabiano
Phone:	Not Supplied
Fax:	Not Supplied
Email:	neo.searches.dbyd@gmail.com

Dial before you dig Job #:	32949636
Sequence #	217282981
Issue Date:	20/10/2022
Location:	112 Milperra Road , Revesby , NSW , 2212

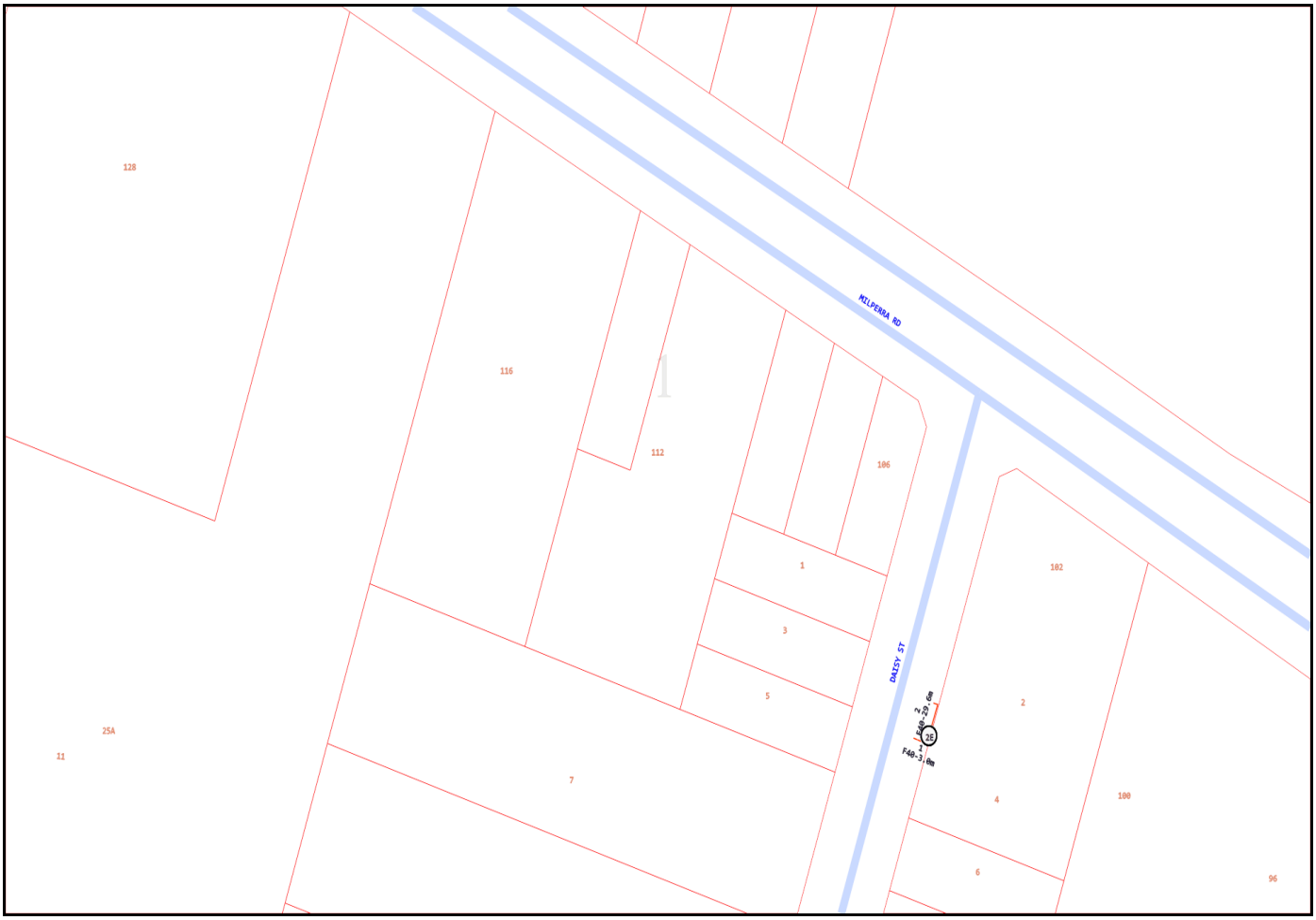
DIAL BEFORE YOU DIG www.1100.com.au

Indicative Plans

1

LEGEND

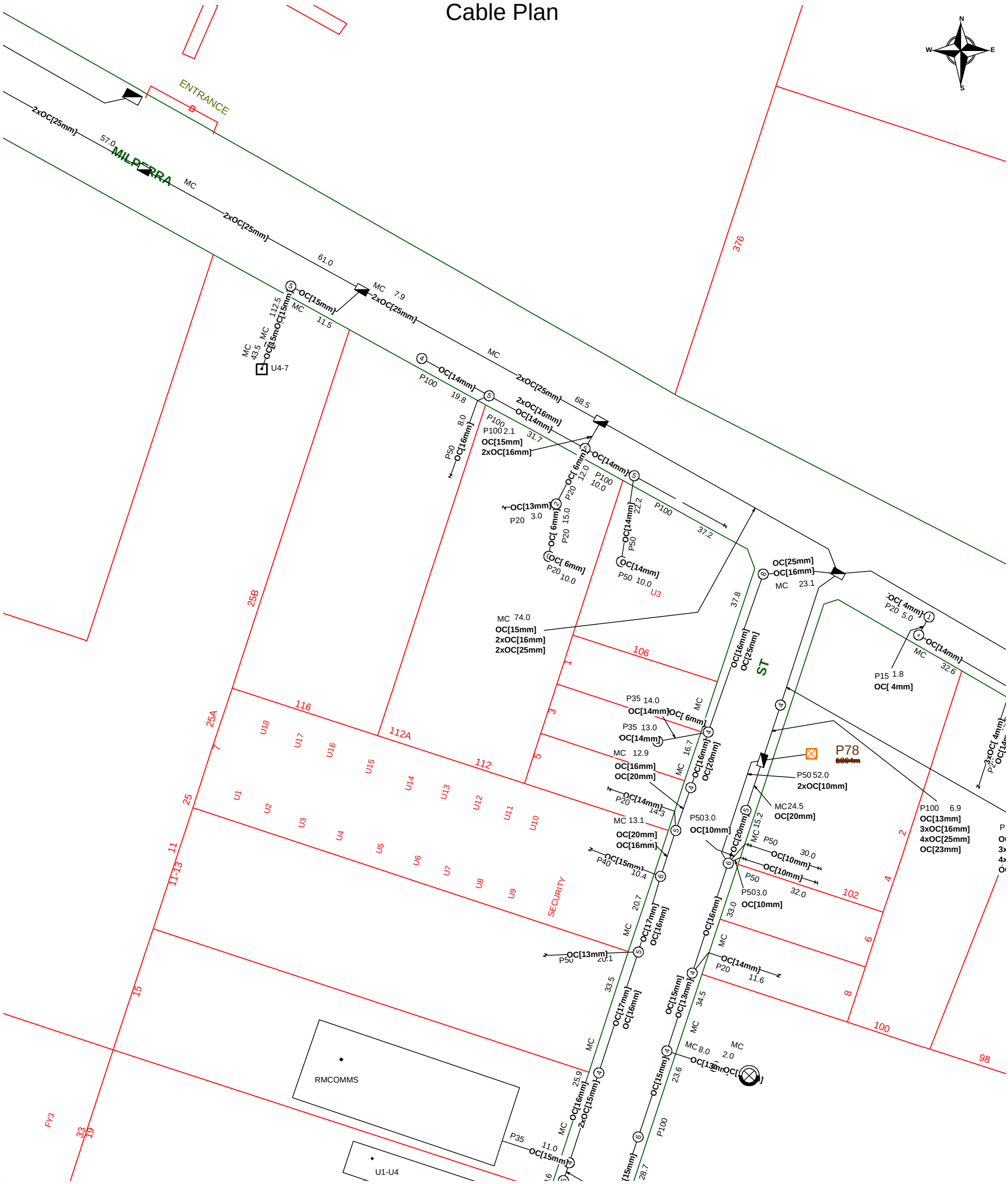
34	Parcel and the location
5	Pit with size "5"
2E	Power Pit with size "2E". Valid PIT Size: e.g. 2E, 5E, 6E, 8E, 9E, E, null.
	Manhole
	Pillar
2 PO – T- 25.0m P40 – 20.0m 5 9	Cable count of trench is 2. One "Other size" PVC conduit (PO) owned by Telstra (-T-), between pits of sizes, "5" and "9" are 25.0m apart. One 40mm PVC conduit (P40) owned by NBN, between pits of sizes, "5" and "9" are 20.0m apart.
2 10.0m 5 9	2 Direct buried cables between pits of sizes ,"5" and "9" are 10.0m apart.
5 9	Trench containing any INSERVICE/CONSTRUCTED (Copper/RF/Fibre) cables.
5 9	Trench containing only DESIGNED/PLANNED (Copper/RF/Fibre/Power) cables.
5 9	Trench containing any INSERVICE/CONSTRUCTED (Power) cables.
BROADWAY ST	Road and the street name "Broadway ST"
Scale	0 20 40 60 Meters 1:2000 1 cm equals 20 m



Emergency Contacts

You must immediately report any damage to the **nbn™** network that you are/become aware of. Notification may be by telephone - 1800 626 329.

Cable Plan



Report Damage: https://service.telstra.com.au/customer/general/forms/report-damage-to-telstra-equipment
Ph - 13 22 03
Email - Telstra.Plans@team.telstra.com
Planned Services - ph 1800 653 935 (AEST bus hrs only) General Enquiries

TELSTRA CORPORATION LIMITED A.C.N. 051 775 556

Generated On 20/10/2022 12:08:04

Sequence Number: 217282982

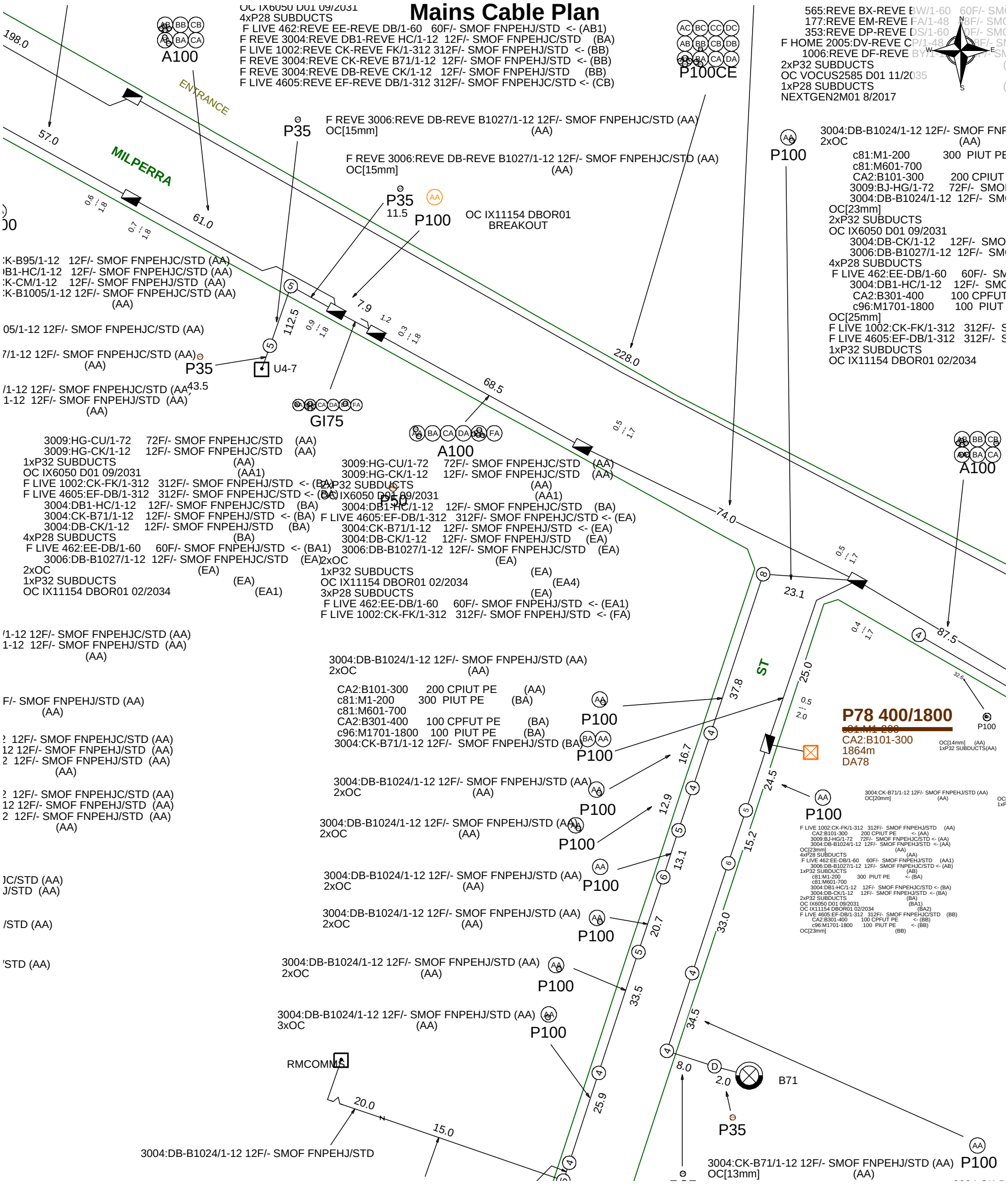
CAUTION: Fibre optic and/ or major network present in plot area. Please read the Duty of Care and contact Telstra Plan Services should you require any assistance.

The above plan must be viewed in conjunction with the Mains Cable Plan on the following page

WARNING
Telstra plans and location information conform to Quality Level "D" of the Australian Standard AS 5488-Classification of Subsurface Utility Information.
As such,Telstra supplied location information is indicative only.Spatial accuracy is not applicable to Quality Level D.
Refer to AS 5488 for further details. The exact position of Telstra assets can only be validated by physically exposing it.
Telstra does not warrant or hold out that its plans are accurate and accepts no responsibility for any inaccuracy.
Further on site investigation is required to validate the exact location of Telstra plant prior to commencing construction work.
A Certified Locating Organisation is an essential part of the process to validate the exact location of Telstra assets and to ensure the asset is protected during construction works.

See the Steps- Telstra Duty of Care that was provided in the email response.

Mains Cable Plan



Report Damage: https://service.telstra.com.au/customer/general/forms/report-damage-to-telstra-equipment
Ph - 13 22 03
Email - Telstra.Plans@team.telstra.com
Planned Services - ph 1800 653 935 (AEST bus hrs only) General Enquiries

TELSTRA CORPORATION LIMITED A.C.N. 051 775 556

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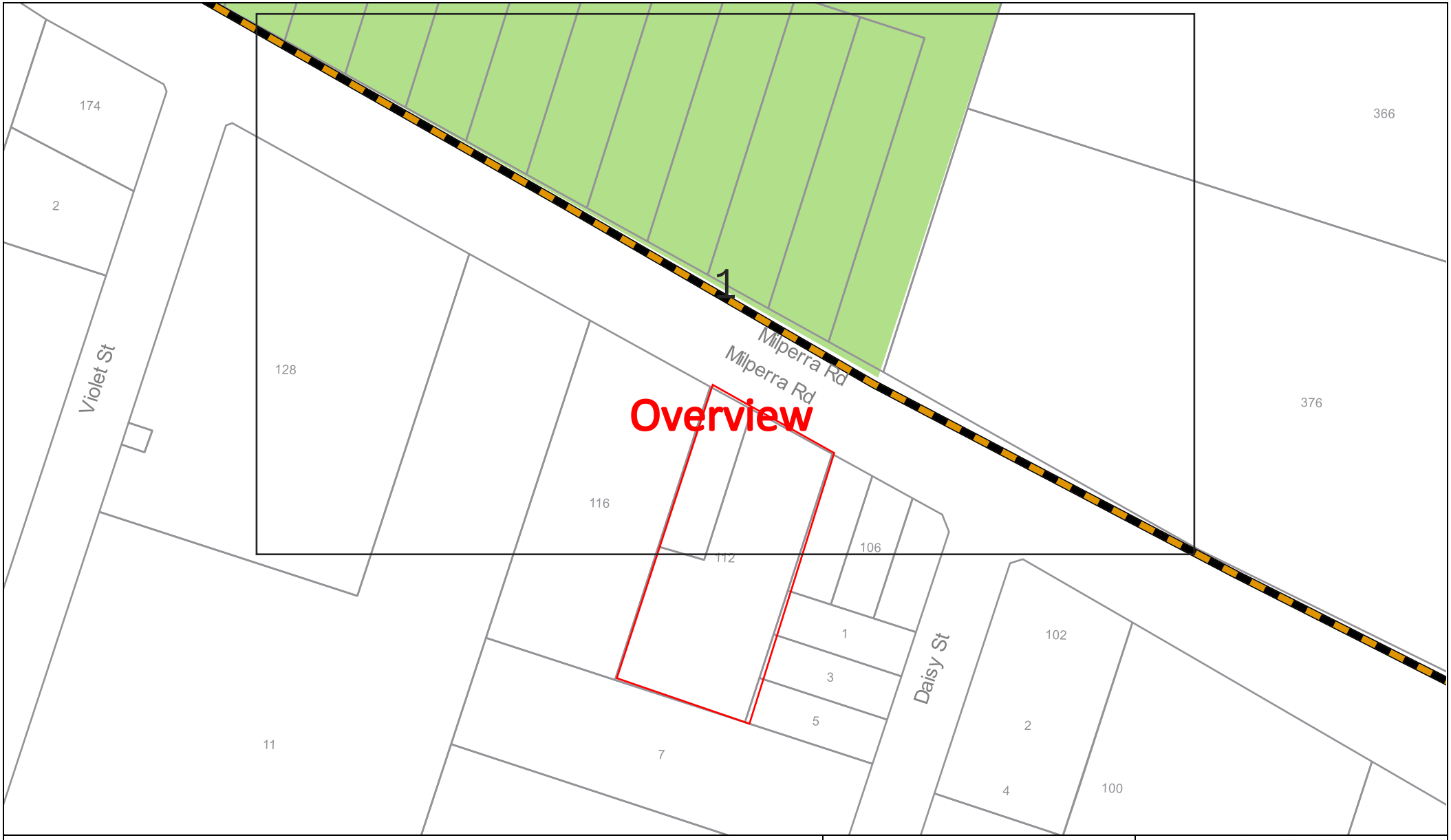
CAUTION: Fibre optic and/ or major network present in plot area. Please read the Duty of Care and contact Telstra Plan Services should you require any assistance.



Sequence Number: 217282983

Date: 20/10/2022

DISCLAIMER: THIS DRAWING SHOULD NOT BE SCALED TO LOCATE CABLES. NO WARRANTY IS GIVEN THAT THE INFORMATION IS ACCURATE OR COMPLETE. IF YOU REQUIRE INFORMATION REGARDING LOCATING THE CABLE PLEASE CALL NEXTGEN. THIS DOCUMENT HAS BEEN PREPARED SOLELY FOR DIAL BEFORE YOU DIG USE. THIS PLAN CONTAINS COMMERCIALLY SENSITIVE INFORMATION AND IS TO BE TREATED ACCORDINGLY. NO SUCH INFORMATION IS TO BE PASSED ONTO OTHER PARTIES WITHOUT WRITTEN CONSENT FROM NEXTGEN PTY LTD.

nextgen GROUP

LEGEND

Digsite

Area

Assets

Cable

3rd Party Duct

Marker Post

Sequence Number: 217282983

Date: 20/10/2022

DISCLAIMER: THIS DRAWING SHOULD NOT BE SCALED TO LOCATE CABLES. NO WARRANTY IS GIVEN THAT THE INFORMATION IS ACCURATE OR COMPLETE. IF YOU REQUIRE INFORMATION REGARDING LOCATING THE CABLE PLEASE CALL NEXTGEN. THIS DOCUMENT HAS BEEN PREPARED SOLELY FOR DIAL BEFORE YOU DIG USE. THIS PLAN CONTAINS COMMERCIALLY SENSITIVE INFORMATION AND IS TO BE TREATED ACCORDINGLY. NO SUCH INFORMATION IS TO BE PASSED ONTO OTHER PARTIES WITHOUT WRITTEN CONSENT FROM NEXTGEN PTY LTD.

nextgen GROUP

LEGEND

Digsite

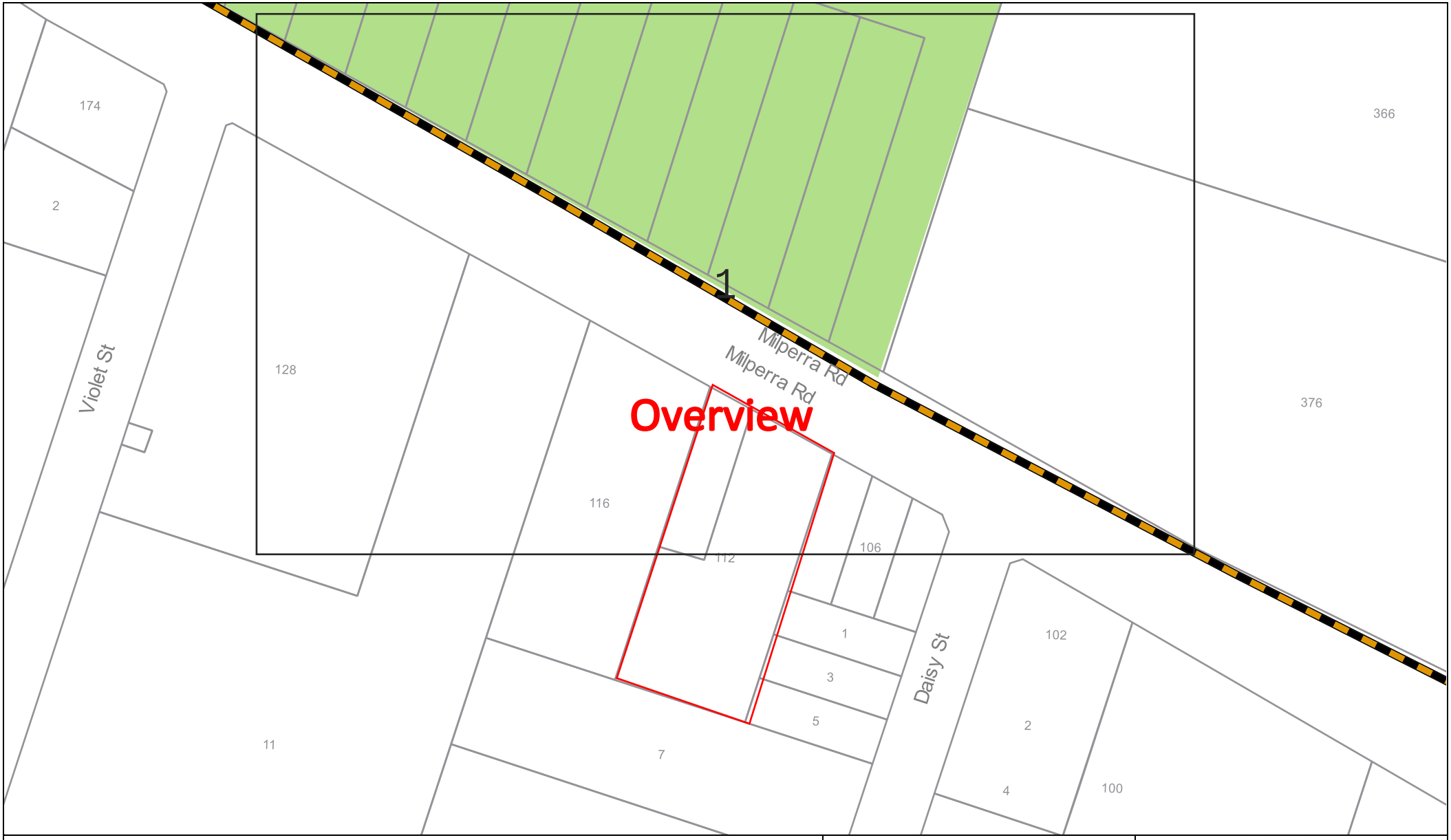
Area

Assets

Cable

3rd Party Duct

Marker Post



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nextgen GROUP

LEGEND

Digsite

Area

Assets

Cable

3rd Party Duct

Marker Post

Plant Location Details

20/10/2022

Nick Caltabiano
Neo Consulting
186 Riverstone Parade
Riverstone NSW 2765
Phone: +61423834874

Nextgen Networks Pty Ltd
Level 6, 333 Collins Street
Melbourne VIC 3000
T 1800 032 532
E Damage.Relocations@vocus.com.au

Dear Nick Caltabiano

The following is a response to your Dial Before You Dig enquiry

Assets Affected: Nextgen Assets
Sequence No: 217282983
Location: 112 Milperra Road, Revesby NSW 2212

IMPORTANT:

- Please read and understand all the information and disclaimers provided below
- Sketches and Plans provided by Nextgen Networks are circuit diagrams only and indicate the presence of telecommunications plant in the general vicinity of the geographical area shown; exact ground cover and alignments cannot be given with any certainty and cover may alter over time. Telecommunications plant seldom follow straight lines and careful on site investigation is essential to uncover and reveal its exact position
- The accuracy and/or completeness of the information in the plans can not be guaranteed often due to changes in the surrounding land subsequent to Nextgen's deployment and, accordingly the plans are intended to be indicative only

"DUTY OF CARE"
When working in the vicinity of telecommunications plant you have a legal "Duty of Care" that must be observed. The following points must be considered:

1. It is the responsibility of the owner and any consultant engaged by the owner, including an architect, consulting engineer, developer, and head contractor to design for minimal impact and protection of Nextgen Networks plant. Nextgen Networks will provide free plans and sketches showing the presence of its network to assist at this design stage.
2. It is the owner's (or constructor's) responsibility to:
   a) Request plans of Nextgen Networks plant for a particular location at a reasonable time before construction begins
   b) Visually locate Nextgen Networks plant by vacuum excavation (pot-holing) where construction activities may damage or interfere with Nextgen Networks plant (see "Essential Precautions and Approach Distances" section for more information)
   c) Contact Nextgen Networks Network (see below for details) if Nextgen Networks plant is wholly or partly located near planned construction activities

DAMAGE
ANY DAMAGE TO Nextgen Networks NETWORK MUST BE REPORTED TO 1800 032 532 IMMEDIATELY

- The owner is responsible for all plant damage when works commence prior to obtaining Nextgen Networks plans, or failure to follow agreed instructions
- Nextgen Networks reserves all rights to recover compensation for lose or damage to its cable network or other property including consequential losses

CONCERNING NEXTGEN NETWORK PLANS

- Phone 1100. Dial Before You Dig for free plans of Nextgen Networks plant locations. Please give at least 2 business days notice
- Nextgen Networks plans and information provided are valid for 30 days from the date of issue
- Nextgen Networks retains copyright in all plans and details provided in conjunction with your request. These plans and or details should be disposed of by shredding or any other secure disposal method after use
- Nextgen Networks plans or other details are provided for the use of the applicant, its servants, or agents, and shall not be used for any unauthorised purpose
- Please contact the Network Help Desk (see below for details) immediately should you locate Nextgen Networks assets not indicated on these plans
- Nextgen Networks, its servants or agents shall not be liable for any loss or damage caused or occasioned by the use of plans and or details so supplied to the applicant, its servants and agents, and the applicant agrees to indemnify Nextgen Networks against any claim or demand for any such loss or damage
- Please ensure Nextgen Networks plans and information provided remains on-site at all times throughout your construction phase

ESSENTIAL PRECAUTION AND APPROACH DISTANCE

NOTE: If the following clearances cannot be maintained, please contact the Nextgen Network Help Desk (see below for details) for advice on how best to resolve this situation

1. On receipt of plans and sketches and before commencing excavation work or similar activities near Nextgen Networks plant, carefully locate this plant first to avoid damage. Undertake prior exposure (vacuum excavation) such as potholing when intending to excavate or work closer to Nextgen Networks plant than the following approach distances:

- Where Nextgen Networks plant is in an area where road and footpaths are well defined by kerbs or other features a minimum clear distance of 600mm must be maintained from where it could be reasonably presumed that plant would reside
- In non established or unformed reserves and terrain, this approach distance must be at least 1.5 metres
- In country/rural areas which may have wider variations in reasonably presumed plant presence, the following minimum approach distances apply:
  d) Parallel to major plant: 10 metres (for optic fibre cable)
  e) Parallel to other plant: 5 metres

  Note: Even pot-holing needs to be undertaken with extreme care, common sense and employing techniques least likely to damage cables. For example - vacuum excavation.

- If construction work is parallel to Nextgen Networks plant, then careful pot-holing at least every 5m is required to establish the location of all plant, hence continuing nominal locations before work can commence

2. Maintain the following minimum clearance between construction activity and actual location of Nextgen Networks Plant.

Jackhammers/Pneumatic Breakers	*Not within 1.0m of actual locations*
Vibrating Plate or Wackers Packer Compactors	*Not within 0.5m of Nextgen Networks ducts 300mm compact clearance cover before compactor can be used across Nextgen Networks ducts, and 600mm clearance across Nextgen Networks cables in the solid*
Boring Equipment (in-line, horizontal and vertical)	*Not within 2.0m of actual location Constructor to check depth via vacuum excavation (pot-hole)*
Heavy Vehicle Traffic (over 3 tonnes)	*Not to be driven across Nextgen Networks ducts with less than 600mm cover. Not to be driven across Nextgen Networks fibre with less than 1.2m cover Constructor to vacuum excavate(pot-hole) and expose plant*
Mechanical Excavators, Boring and Tree Removal	*Not within 1.0m of actual location Constructor to vacuum excavate (pot-hole) and expose plant*

- All Nextgen Networks pits and manholes should be a minimum of 1.2m in from the back of kerb after the completion of your work
- All Nextgen Networks conduit should have the following minimum depth of cover after the completion of your work:

  Footway 450mm
  Roadway 450mm at drain invert and 600mm below the pavement subgrade level invert

- All Nextgen Networks fibre in the solid should have the following minimum depth of cover after the completion of your work:

  Footway 600mm
  Roadway 1200mm at drain invert and 1200mm below the pavement subgrade level invert

- For clearance distances relating to Nextgen Networks above ground infrastructure please contact the Network Help Desk (see below for details)

FURTHER ASSISTANCE

Over-the-phone assistance can be obtained by calling the Network Help Desk below.
Nextgen require 5 clear business days notice to conduct an on-site location. The initial on site location visit will not normally incur a charge, but at the discretion of Nextgen subsequent site visits may incur a charge to be applied at an hourly rate.
Where an on-site location is provided, the owner is responsible for all vacuum excavation work (pot-holing) to visually locate and expose Nextgen Networks plant.
If plant location plans or visual location of Nextgen Networks plant by vacuum excavation reveals that the location of Nextgen Networks plan is situated wholly or partly where the owner plans to work, then **Nextgen Networks** must be contacted through the **Network Help Desk** to discuss possible engineering solutions.
The contact number for the **Network Help Desk** is 1800 032 532.

NOTE:
If Nextgen Networks relocation or protection works are part of the agreed solution, then payment to Nextgen Networks for the cost of this work shall be the responsibility of the principal developer. The principal developer will be required to provide Nextgen Networks with the details of their proposed work showing how Nextgen Networks plant is to be accommodated and these details must be approved by the Nextgen National Operations Manager prior to the commencement of site works.

RURAL LANDOWNER - IMPORTANT INFORMATION

Where Nextgen Networks owned cable crosses agricultural land Nextgen Networks will provide a one off free-on-site electronic cable location. Please note that the exact location of cables can only be verified by visual proving by pot holing, which is not covered by this service. The Network Integrity HelpDesk Officer will provide assistance in determining whether a free-on-site location is required. Please ring the Nextgen Network Help Desk as listed above.

PRIVACY NOTE

Your information has been provided to Nextgen Networks by DBYD to enable Nextgen Networks to respond to your DBYD request. Nextgen Networks keeps your information in accordance with its privacy statement entitled 'Protecting Your Privacy' which can be obtained from Nextgen Networks either by calling 1800 032 532 or visiting our website www.nextgengroup.com.au

Warning: Nextgen Networks plans show only the presence of cables and plant. They only show their position relative to road boundaries, property fences etc, at the time of installation and Nextgen Networks does not warrant or hold out that such plans are accurate thereafter due to changes that may occur over time.
DO NOT ASSUME DEPTH OR ALIGNMENT of cables or plant as these vary significantly.
The customer has A DUTY OF CARE when excavating near Nextgen Networks cables and plant. Before using machine excavators NEXTGEN PLANT MUST FIRST BE PHYSICALLY EXPOSED BY VACUUM EXCAVATION (potholing) to identify its location.
Nextgen Networks will seek compensation for damages caused to its property and losses caused to Nextgen Networks and its customers.

EXPERIENCED PLANT LOCATORS (for your area)

On-site assistance should be sought from an Experienced Plant Locater if the telecommunications plant cannot be located within 2.5 metres of the locations indicated on the drawings provided. On-site advice should be obtained from a suitably qualified contractor highly skilled in locating Nextgen Networks plant. If there is any doubt whatsoever about the actual location of the telecommunications plant, the best method for locating the telecommunications plant or the correct interpretation of the drawings provided. In the case where Nextgen Networks plant is outside a recognised road reserve Nextgen Networks recommends that the **Network Help Desk** is contacted for assistance prior to engaging an Experienced Plant Locater.

For the assistance of customers Nextgen Networks has established strict criteria to assess the skill of contractors that may be engaged by owners requiring Nextgen Networks plant locating services to perform any of the following activities if requested to do so by the owner:

- Review Nextgen Networks plans to assess the approximate location of Nextgen Networks plant
- Advise owners of the approximate location of Nextgen Networks plant according to the plans
- Advise the owners of the best method for locating Nextgen Networks plant
- Advise owners of the hazard of unqualified persons attempting to find the exact location of Nextgen Networks plant and working in the vicinity of Nextgen Networks plant without first locating its exact position
- Perform trial hole explorations by vacuum excavation (pot-holing) to expose Nextgen Networks plant with a high degree of skill, competence and efficiency and utilising all necessary safety equipment

Nextgen Networks does not accept any liability or responsibility for the performance of or advice given by any Plant Locater engaged by you but we will, if requested, recommend suitably qualified plant locators.

GENERAL DISCLAIMER

While reasonable measures have been taken to ensure the accuracy of the information contained in this plan response, neither Nexgen or PelicanCorp shall have any liability whatsoever in relation to any loss, damage, cost or expense arising from the use of this plan response or the information contained in it or the completeness or accuracy of such information. Use of such information is subject to and constitutes acceptance of these terms.

GPO Box 5519
Chatswood
NSW, 1515

20/10/2022

To:
Nick Caltabiano
Neo Consulting
186 Riverstone Parade
Riverstone, 2765

Sequence No: 217282986

Job No: 32949636

Location: 112 Milperra Road
Revesby, NSW, 2212

Commencement Date: 21/10/2022

Dial Before You Dig Response – Underground Fibre Assets

Dear Nick Caltabiano

This letter is in relation to the proposed work at location detailed above is in the vicinity and may impact AARNet fibre optic cable assets.

Attached is a map indicating the approximate location of the AARNet assets in relation to your enquiry area. A detailed Plan is normally attached to this response. There may be additional AARNet assets in this area contained within Telstra duct. No work is to take place until plans have been obtained from Telstra and reviewed as necessary

Any information provided is valid for 28 days from the date of issue of this document.

Please review the map and if you have any further concerns, contact the AARNet NOC on 1300 APL NOC (1300 275 662).

If you are proposing to carry out digging in the vicinity of AARNet underground infrastructure you will need to carry out these works in accordance with the guidelines below.

WARNING

Where AARNet plans have been attached, they are indicative of the position of AARNet Pty Ltd's (AARNet) fibre optic installation/s only. Services belonging to other third parties are not included on these plans.

These plans have been prepared solely for the use of AARNet and any reliance placed on these plans by you is entirely at your own risk. The plans may show the position of our assets relative to fences, buildings etc., as they existed at the time the fibre etc. was installed. The plans may not have been updated to take account of any subsequent change in the location or style of those features since the time at which the plans were initially prepared.

GPO Box 5519
Chatswood
NSW, 1515

AARNet makes no warranty as to the accuracy or completeness of the enclosed plans and does not assume any duty of care to you nor any responsibility for the accuracy, adequacy, suitability or completeness of the plans or for any error, omission, lack of detail, transmission failure or corruption in the information provided. AARNet does not accept any responsibility for any loss that you or anyone else may suffer in connection with the provision of these plans, however that loss may arise (including whether or not arising from the negligence of AARNet, its employees, agents, officers or contractors).

The recipient of these plans must use their own care and diligence in carrying out their works and must carry out further surveys to locate services at their work site. Persons excavating or carrying out other earthworks will be held responsible for any damage caused to AARNet's fibre optic installations.

While reasonable measures have been taken to ensure the accuracy of the information contained in this plan response, neither AARNet or PelicanCorp shall have any liability whatsoever in relation to any loss, damage, cost or expense arising from the use of this plan response or the information contained in it or the completeness or accuracy of such information. Use of such information is subject to and constitutes acceptance of these terms.

All Areas

Under no circumstances shall construction, digging or excavating work entailing crossing AARNet plant be carried out without first exposing or locating the AARNet asset by an accredited locator and under the supervision of an accredited plant location contractor.

Manual pot-holing needs to be undertaken with extreme care, common-sense and employing techniques least likely to damage cables. For example, orientate shovel blades and trowels parallel to the cable rather than digging across the cable.

Visual location of asset must be carried out by hand digging or using non-destructive water jet method (pot holing) where construction activities may damage or interfere with AARNet assets.

The following minimum clearances must be maintained between mechanical construction activity and the located AARNet asset.

Jackhammers / Pneumatic Breakers	Not within 1.0m of actual location
Vibrating Plate or Wacker Packer Compactor	Not within 0.5m of actual location 300mm compact clearance before compactor can be used over AARNet conduits. 750mm compact clearance cover before compactor can be used Over AARNet Direct Buried cable
Boring Equipment (in-line, horizontal and vertical)	Not within 5.0m of actual location without supervision of accredited plant location contractor onsite OR AARNet asset must exposed via hand dig or nondestructive water jet method (pot holing). AND AARNet asset must not be crossed without first exposing the asset at the crossing point and not without an accredited plant location contractor representative onsite

GPO Box 5519
Chatswood
NSW, 1515

Heavy vehicle Traffic (over 3 tonnes)	Not to be driven over AARNet conduits or assets with less than 600mm of cover. Depth to be verified via hand digging
Mechanical Excavators, Farm ploughing, Boring, Tree removal, fencing	Not within 1.0m of actual location. Constructor to hand dig or use non-destructive water jet method (pot holing) and expose asset

Urban Areas

Under no circumstances shall construction, digging or excavating work be carried out: within 1.5m of AARNet assets without first locating and identifying the AARNet asset by an accredited locator and under the supervision of an accredited plant location contractor.

Rural Areas

Under no circumstances shall construction, digging or excavating work be carried out within 10m of AARNet plant be carried out without first locating and identifying the AARNet asset by an accredited locator and under the supervision of an accredited plant location contractor.

ASSET RELOCATIONS

You are not permitted to relocate, modify or alter any AARNet assets under any circumstances. Please contact AARNet Infrastructure Development Group via email apl-dig@aarnet.edu.au for all enquiries relating to the relocation of AARNet assets.

DAMAGE

AARNet will seek Compensation for any loss caused by damage to its assets. Damage to any AARNet asset must be immediately reported to AARNet NOC on 1300 APL NOC (1300 275 662).

FURTHER ASSISTANCE

Assistance can be obtained by contacting AARNet NOC on 1300 APL NOC (1300 275 662) Where an on-site location is provided by an accredited locator, the owner is responsible for all costs associated with hand digging or use of non-destructive water jet method (pot holing) to visually locate AARNet assets. If plant location drawings or visual location of AARNet assets by digging reveals that the location of AARNet plant is situated wholly or partly within the owner work area, then AARNet Infrastructure Development Group **apl-dig@aarnet.edu.au must be contacted to discuss possible engineering solutions**.

aarnet
Australia's Academic and Research Network

Sequence No: 217282986
Job No: 32949636
Location: 112 Milperra Road, Revesby, NSW 2212

DIAL BEFORE YOU DIG www.1100.com.au
The Essential First Step.

Legend | Scale: 1:1500

N

- Enquiry Area
- AARNet Fibre Optic Assets
- AARNet Power Assets
- Cadastre

DISCLAIMER: While reasonable measures have been taken to ensure the accuracy of the information contained in this plan response, neither AARNet or PelicanCorp shall have any liability whatsoever in relation to any loss, damage, cost or expense arising from the use of this plan response or the information contained in it or the completeness or accuracy of such information. Use of such information is subject to and constitutes acceptance of these terms.

Aussie Broadband

Job # 32949636
Seq # 217282979
Provider: Aussie Broadband
Telephone: 03 5165 0073

BEFORE YOU DIG www.byda.com.au

Legend

BYDA Enquiry

In an emergency contact Aussie Broadband on 0448 320 776

Index Sheet

0 15 30 60 m

Scale 1:1,500

N

Plans generated by SmarterWX™ Automate

If further information is required, please contact:
Ausgrid BYDA
Phone: (02) 4951 0899
Fax: (02) 4951 0729

Emergency Phone Number 131388

Underground Cable Location Search Advice

-- Ausgrid Assets Affected –

To:	Nick Caltabiano Neo Consulting 186 Riverstone Parade Riverstone NSW 2765		
		Phone No:	+61423834874
		Issue Date:	20/10/2022

In response to your enquiry, Sequence No: 217282984 the records of Ausgrid disclose that there **are** Ausgrid underground cables in the defined search location and relevant Ausgrid plans have been provided.

This search is based on the geographical position of the dig site as denoted in the Before You Dig Australia caller confirmation sheet and an overview is provided:

Address:	112 Milperra Road Revesby NSW 2212
Job #:	32949636

****Important****

- All information provided to you is **ONLY VALID FOR 30 DAYS** from the date of issue
- You must keep Ausgrid plans on site during excavation works. If the people actually performing the excavation works do not know how to read and interpret Ausgrid's plans, then the work must be directed by a person who knows how to read and interpret plans.
- If you require a full size print of A0 plans and don't have the resources to do so please contact our office on 49510899 to request a hard copy to be posted. **Please allow 3 working days for delivery.**
- Please note you will ONLY receive portions of your search area that contain Ausgrid Underground Assets

YOU MUST READ AND UNDERSTAND THE *SUPPLEMENTARY MATERIAL* CONTAINED IN THIS ADVICE BEFORE PROCEEDING WITH ANY WORKS.

Summary of Supplementary Information:

Material	Purpose	Location
Important Information.pdf	Details important information	Attached
Working near Ausgrid Cables.pdf	Summary of NS156	Attached
COMN0119 How to Read Ausgrid Plans.pdf	Details how to read Ausgrid plans	Attached
SafeWork NSW "*Work near underground assets: Guide*"	To assist you in deciding appropriate measures to eliminate or control risks when working near underground assets.	Web Link [Click Here]
Ausgrid's Network Standard NS156	For important information for work near or around underground cables	Web Link [Click Here]
Ausgrid's Network Standard NS199	This Network Standard applies to specific work on Ausgrid Low Voltage Underground Assets and associated Hazards	Web Link [Click Here]
Working in Confined Spaces	For important information when working in confined spaces	Web Link [Click Here]

To:	Nick Caltabiano
Phone:	Not Supplied
Fax:	Not Supplied
Email:	neo.searches.dbyd@gmail.com

Dial before you dig Job #:	32949636
Sequence #	217282981
Issue Date:	20/10/2022
Location:	112 Milperra Road , Revesby , NSW , 2212

Information

The area of interest requested by you contains one or more assets.

nbn™ Assets	Search Results
Communications	Asset identified
Electricity	Asset identified

In this notice **nbn™ Facilities** means *underground fibre optic, telecommunications and/or power facilities, including but not limited to cables, owned and controlled by* ***nbn™***

Location of **nbn™** Underground Assets

We thank you for your enquiry. In relation to your enquiry at the above address:

- **nbn's** records indicate that there **ARE** **nbn™** Facilities in the vicinity of the location identified above ("Location").
- **nbn** indicative plan/s are attached with this notice ("Indicative Plans").
- The Indicative Plan/s show general depth and alignment information only and are not an exact, scale or accurate depiction of the location, depth and alignment of **nbn™** Facilities shown on the Plan/s.
- In particular, the fact that the Indicative Plans show that a facility is installed in a straight line, or at uniform depth along its length cannot be relied upon as evidence that the facility is, in fact, installed in a straight line or at uniform depth.
- You should read the Indicative Plans in conjunction with this notice and in particular, the notes below.
- You should note that, at the present time, the Indicative Plans are likely to be more accurate in showing location of fibre optics and telecommunications cables than power cables. There may be a variation between the line depicted on the Indicative Plans and the location of any power cables. As such, consistent with the notes below, particular care must be taken by you to make your own enquiries and investigations to precisely locate any power cables and manage the risk arising from such cables accordingly.
- The information contained in the Indicative Plan/s is valid for 28 days from the date of issue set out above.You are expected to make your own inquiries and perform your own investigations (including engaging appropriately qualified plant locators, e.g DBYD Certified Locators, at your cost to locate **nbn™**

Facilities during any activities you carry out on site).

We thank you for your enquiry and appreciate your continued use of the Dial Before You Dig Service. For any enquiries related to moving assets or Planning and Design activities, please visit the **nbn** Commercial Works website to complete the online application form. If you are planning to excavate and require further information, please email dbyd@nbnco.com.au or call 1800 626 329.

Notes:

1. You are now aware that there are **nbn™** Facilities in the vicinity of the above property that could be damaged as a result activities carried out (or proposed to be carried out) by you in the vicinity of the Location.
2. You should have regard to section 474.6 and 474.7 of the *Criminal Code Act 1995* (CoA) which deals with the consequences of interfering or tampering with a telecommunications facility. Only persons authorised by **nbn** can interact with **nbn's** network facilities.
3. Any information provided is valid only for **28 days** from the date of issue set out above.

Referral Conditions

The following are conditions on which **nbn** provides you with the Indicative Plans. By accepting the plans,you are agreeing to these conditions. These conditions are in addition, and not in replacement of, any duties and obligations you have under applicable law.

1. **nbn** does not accept any responsibility for any inaccuracies of its plans including the Indicative Plans. You are expected to make your own inquiries and perform your own investigations (including engaging appropriately qualified plant locators, e.g DBYD Certified Locators, at your cost to locate **nbn™** Facilities during any activities you carry out on site).
2. You acknowledge that **nbn** has specifically notified you above that the Indicative Plans are likely to be more accurate in showing location of fibre optics and telecommunications cables than power cables. There may be a variation between the line depicted on the Indicative Plans and the location of any power cables.
3. You should not assume that **nbn™** Facilities follow straight lines or are installed at uniformed depths along their lengths, even if they are indicated on plans provided to you. Careful onsite investigations are essential to locate the exact position of cables.
4. In carrying out any works in the vicinity of **nbn™** Facilities, you must maintain the following minimum clearances:
    - 300mm when laying assets inline, horizontally or vertically.
    - 500mm when operating vibrating equipment, for example: jackhammers or vibrating plates.
    - 1000mm when operating mechanical excavators.
    - Adherence to clearances as directed by other asset owner's instructions and take into account any uncertainty for power cables.
5. You are aware that there are inherent risks and dangers associated with carrying out work in the vicinity of underground facilities (such as **nbn™** fibre optic,copper and coaxial cables,and power cable feed to **nbn™** assets).Damage to underground electric cables may result in:
    - Injury from electric shock or severe burns, with the possibility of death.
    - Interruption of the electricity supply to wide areas of the city.
    - Damage to your excavating plant.
    - Responsibility for the cost of repairs.
6. You must take all reasonable precautions to avoid damaging **nbn™** Facilities. These precautions may include but not limited to the following:
    - All excavation sites should be examined for underground cables by careful hand excavation. Cable cover slabs if present must not be disturbed. Hand excavation needs to be undertaken with extreme care to minimise the likelihood of damage to the cable, for example: the blades of hand equipment should be aligned parallel to the line of the cable rather than digging across the cable.
    - If any undisclosed underground cables are located, notify **nbn** immediately.

- All personnel must be properly briefed, particularly those associated with the use of earth-moving equipment, trenching, boring and pneumatic equipment.
- The safety of the public and other workers must be ensured.
- All excavations must be undertaken in accordance with all relevant legislation and regulations.

7. You will be responsible for all damage to **nbn™** Facilities that are connected whether directly, or indirectly with work you carry out (or work that is carried out for you or on your behalf) at the Location. This will include, without limitation, all losses expenses incurred by **nbn** as a result of any such damage.
8. You must immediately report any damage to the **nbn™** network that you are/become aware of. Notification may be by telephone - 1800 626 329.
9. Except to the extent that liability may not be capable of lawful exclusion, **nbn** and its servants and agents and the related bodies corporate of **nbn** and their servants and agents shall be under no liability whatsoever to any person for any loss or damage (including indirect or consequential loss or damage) however caused (including, without limitation, breach of contract negligence and/or breach of statute) which may be suffered or incurred from or in connection with this information sheet or any plans(including Indicative Plans) attached hereto. Except as expressly provided to the contrary in this information sheet or the attached plans(including Indicative Plans), all terms, conditions, warranties, undertakings or representations (whether expressed or implied) are excluded to the fullest extent permitted by law.

All works undertaken shall be in accordance with all relevant legislations, acts and regulations applicable to the particular state or territory of the Location. The following table lists all relevant documents that shall be considered and adhered to.

State/Territory	Documents
National	Work Health and Safety Act 2011
	Work Health and Safety Regulations 2011
	Safe Work Australia - Working in the Vicinity of Overhead and Underground Electric Lines (Draft)
	Occupational Health and Safety Act 1991
NSW	Electricity Supply Act 1995
	Work Cover NSW - Work Near Underground Assets Guide
	Work Cover NSW - Excavation Work: Code of Practice
VIC	Electricity Safety Act 1998
	Electricity Safety (Network Asset) Regulations 1999
QLD	Electrical Safety Act 2002
	Code of Practice for Working Near Exposed Live Parts
SA	Electricity Act 1996
TAS	Tasmanian Electricity Supply Industry Act 1995
WA	Electricity Act 1945
	Electricity Regulations 1947
NT	Electricity Reform Act 2005
	Electricity Reform (Safety and Technical) Regulations 2005
ACT	Electricity Act 1971

Thank You,

nbn DBYD

Date: 20/10/2022

GUIDELINE

GUIDELINE TO DESIGNING, CONSTRUCTING AND OPERATING AROUND THE EXISTING AS4645 NATURAL GAS NETWORK

GAS-9899-GL-CN-001

Revision Number: 0
Revision Date: 22/07/2022

AUTHORISATION

Reviewed by

Name	Job Title	Signature	Date
Mustafa Karacanta	Senior Engineer – Gas Distribution		25.07.2022

Approved by

Name	Job Title	Signature	Date
John Martin	Engineering Support Manager – Gas Distribution		21.08.2022

INTERNAL

Jemena
bringing energy to life

DOCUMENT HISTORY

Revision	Date	Author	Description of Changes
A	30/05/2022	Andrew Walker	Draft
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OWNING FUNCTIONAL GROUP & DEPARTMENT / TEAM

Gas Distribution : Asset Management

REVIEW DETAILS

Review Period:	Review Date + 3 years
Next Review Due:	July 2025

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1 INTRODUCTION

1.1 GAS NETWORKS AND MANAGING RISK

Jemena operates gas distribution networks throughout NSW and ACT (through Evoenergy). These networks operate at gas pressures ranging from 2kPa to 1050kPa. Failure to follow the guidelines listed in this document may lead to damage to these gas distribution networks, resulting in Catastrophic consequences, loss of life, and major damage to property and infrastructure as well as loss of gas supply to thousands of gas consumers.

To manage the risk of damage to gas networks from construction activity, Jemena participates in the Before You Dig Australia (Visit: www.byda.com.au) system and provides information to Third Parties planning to perform work around Jemena networks assets. Our Secondary and Critical gas mains are continuously patrolled via ground patrol and monitored 24/7 by a Control System.

To make an encroachment enquiry for any work potentially near a gas main, the first step is to lodge a BYDA enquiry. If the BYDA enquiry identifies work near a Jemena asset, you will be issued with a response document by the BYDA system. This response document will provide detail on the process to proceed.

For Jemena Gas Networks (NSW) and Evoenergy Network (ACT) assets, this next step will be to book a Jemena Representative to attend site and to review the proposed work. Depending on the complexity of the job, this may result in further detail being required by Jemena before the proposed work can proceed. To progress this step, an enquiry must be registered via the Jemena Gas Portal located at the following address:

https://mygasservices.jemena.com.au/gdp/login/auth

For the remainder of Jemena's gas assets, the process to proceed with Jemena assessment and approval of your proposed work is to review the response document. A Jemena representative will then make contact regarding your proposed work, however, if this contact is not received, the Third Party is not authorised to undertake any work and written Jemena consent must be sought by contacting the appropriate Jemena representative listed on the BYDA response.

1.2 PURPOSE

This document has been developed to provide general guidelines to assist the Third Party in their design/construction proposal prior to submitting it to Jemena for review.

This document does NOT authorise the Third Party to carry out any construction activities unless the design/construction proposal has been reviewed, assessed, and accepted by Jemena.

1.3 SCOPE

This document shall be limited to AS/NZS 4645 assets. For AS/NZS 2885 assets, please refer to GAS-960-GL-PL-001 – Designing, Constructing and Operating Assets Near Jemena Gas Pipelines.

1.4 TERMS & DEFINITIONS

Term	Definition
Compaction	Backfilling and compaction of pipe in accordance with Jemena's requirements.
Concrete capping	A physical protection measure made of concrete placed above the gas asset, applied when normal depths of cover cannot be achieved.
Concrete slab	A concrete surface layer, e.g. Driveway, footpath, roadway.
CP	Cathodic Protection
Critical Main	A gas main that is a single source of supply to a large number of gas customers.
BYDA	Before You Dig Australia
DRS	District Regulator Set
Easement	An easement is a form of tenure that is acquired by Jemena to provide protection to its high pressure gas assets. Easements give Jemena the right to use the land for operating its assets and include mandatory requirements for any landholder and third party undertaking work on, over or near the easement.
Encroachment	Any design or construction activity and changes in operating condition that may impact on the integrity of the pipeline.
Gas Main	A Jemena owned/operated natural gas pipeline that operates between 2 kPa and 1050 kPa pressure.
HDD	Horizontal Directional Drilling
High pressure gas main	A gas main with a pressure of 1050 kPa or greater which includes Secondary, Primary and Trunk mains, or that has been identified as high risk.
High Voltage	Voltage that is greater than or equal to 11 kV
Jemena Pipeline (AS2885 pipeline)	A Jemena owned/operated natural gas pipeline that operates above 1050 kPa pressure.
Jemena Representative/Standby	An individual who has been authorised by Jemena as having undertaken the appropriate training and meets the competency requirements. A Jemena Representative will be present on site while third party work is undertaken and will issue the Third Party Works Notice prior to commencement of this work.
Low Pressure Main	A gas main that operates at a pressure no greater than 7kPa.
MAOP	Maximum Allowable Operating Pressure

Term	Definition
Medium Pressure Main	A gas main that operates at pressures between 30kPa and 400kPa.
PE Slabbing	A layer of polyethene material approved as a procedural and physical protection measure for gas mains
PPE	Personal Protective Equipment
Road Reserves	Road Reserves are as defined by the relevant states Land Act and typically include footpath, stormwater drains, roadways, median strips, bus lanes and cycleways.
Secondary Main	A gas main that operates at a pressure of 1050kPa.
Shall	Designates a mandatory action
SWMS	Safe Work Method Statement
TfNSW	Transport for New South Wales
Third Party	Developer, Builder, Owner, Contractor or Customer planning or conducting works in the vicinity of Jemena Gas Networks.
Work site	The location of the intended work that the requestor is requesting a standby for.

1.5 REFERENCE DOCUMENTS

- AS2885 Pipelines - Gas and liquid petroleum
- AS4853 Electrical hazards on metallic pipelines

1.6 EMERGENCY CONTACT DETAILS

1.6.1 FAULTS AND EMERGENCIES

For faults and emergencies only:

- Jemena Gas Network (NSW) / EVO Energy Distribution (NSW/ACT) **131 909**

2 DUTY OF CARE FOR WORKING AROUND JEMENA GAS NETWORKS

Working near gas mains is extremely dangerous if appropriate controls are not introduced and followed. You should always exercise due care and caution when working near any gas infrastructure. In addition to your general duty of care, there may be other obligations under relevant state legislations which require you to maintain safe practices.

Due care **must** be exercised at all times to ensure there is no damage to any Jemena pipeline, asset (marker post, fencing, structure) or land.

Any damage shall be reported to Jemena immediately (see SECTION 1.6 for emergency contact numbers).

3 APPROVAL PROCESS

3.1 MY GAS SERVICES PORTAL

The Third Party shall contact Jemena via the My Gas Services portal, mygasservices.jemena.com.au when:

a) works are proposed within 3m of a Secondary or Critical main, or
b) proposed works will encroach on Medium and Low pressure mains, or
c) there are proposed changes to the depth of cover over Jemena assets, or
d) High Voltage (HV) cables are proposed to be installed within 5m of a steel main, or
e) Extra High Voltage (EHV) cables are proposed to be installed within 20m of a steel main

A site meeting may also be requested via the My Gas Services portal.

If it is determined that the proposed design/work is a **Standard Encroachment**, a discussion and an agreement of the next step will be undertaken to ensure a Jemena Representative/Standby will be available to oversee that the works are undertaken.

If the proposed design/construction is a **Non-Standard Encroachment**, the Third Party may be required to submit their plans to Jemena Engineering, gas.networks.engineer@jemena.com.au for review.

3.2 JEMENA ENGINEERING REVIEW

If a review of the proposed design/construction is required, the third party shall provide the following to Jemena Engineering via gas.networks.engineer@jemena.com.au :

a) Scope/Description of the project impacting on Jemena's assets
b) Site layout drawings which shall include the following:
    i. The location/address of the proposed work.
    ii. Existing and proposed depth of cover
c) Design drawings which shall include the following:
    i. Plan drawings showing the location of Jemena's assets and the proposed works, including horizontal separation distances.
    ii. Cross sectional drawings showing the vertical separation distances as well as existing and proposed depths of cover over Jemena's assets.
    iii. Proposed pavement details where applicable.
d) Size of plant or equipment to be used.
e) Electrical Hazard Assessment in accordance with AS/NZS 4853 for any HV works.

Additional information may be requested as required.

4 GENERAL PRINCIPLES FOR CONSTRUCTION ACTIVITIES

Unless stipulated by Jemena Engineering, the following principles are to be followed.

4.1 ROAD RESERVES AND PARK LAND

Where the gas assets are in road reserves and park lands, the TfNSW or Council are required to notify Jemena when construction works are proposed.

Gas mains shall crossroads at or close to a right angle.

4.2 CONSTRUCTION VEHICLES CROSSING GAS ASSETS

a) Where the minimum depth of a gas asset is 600mm from top of pipe to a sealed area (eg. road/driveway), the acceptable load for vehicles or plant crossing over gas assets 8 Tonnes/axle.
b) Where any construction vehicle crosses a gas main in an unsealed area (e.g. footpaths, park land, road works etc.), the location and depth of the gas main shall be confirmed. All information (ie. depth, weight of vehicle, protection measures, etc.) shall be sent to Jemena Engineering for review.
c) Where a crane needs to set up over a gas main, the location and depth of the gas main shall be confirmed. All information (ie. depth, weight of vehicle, protection measures, etc.) shall be sent to Jemena Engineering for review.
d) Heavy construction vehicles must cross over gas assets **only** at designated locations at right angles.

4.3 EXCAVATION

a) Where a construction activity is required within 3m of a secondary or critical main, a Jemena Standby/Representative shall be present. Excavation shall not commence until the Jemena Standby/Representative is present.
b) If the excavator is greater than a 20-tonne class machine, advice must be sought from gas.networks.engineer@jemena.com.au
c) Ensure the locations of all third-party assets have been clearly identified and marked.
d) Locating of the gas mains shall be performed via potholing. Where potholing of a Secondary or critical main is required, a Jemena Standby/Representative shall be present.
e) If a valve is identified at the location, gauges points are likely to be present approximately one metre either side of the centreline of the valve. Gas marker stones may or may not be present at the valve. Hand excavation shall be carried out to locate the valve and gauge points. Note, valves 200mm or greater are offset to the centreline of the main, but gauge points will still be on the centreline of the main.
f) If syphon risers are identified at the location, gas marker stones may or may not be present at the riser. Hand excavation shall be carried out to locate the riser.
g) Where the excavation is carried out near the gas asset using an excavator, the excavator shall use a toothless (gummy) or mud bucket.
h) If permissible, use HydroVac equipment to positively and visually identify the gas main location and depth along the proposed excavation area, measure the depth and mark the centreline on the ground. Refer to Appendix 7.1 for water pressure limits. AirVac may also be permissible, subject to Jemena approval.

i) No mechanical excavation is permitted within 600mm of a gas main unless permission has been given by Jemena Engineering or a Jemena Standby/Representative.
j) No piling or augers shall be within 1m of the gas main unless permission has been given by Jemena Engineering or a Jemena Standby/Representative. Continuous vibration monitoring shall be required for any auger or piling works within 5m of a gas main.
k) If the gas asset is going to be exposed for more than one day, physical protection methods shall be used such as:
    i. Hessian
    ii. Rock shield
    iii. Sand or sandbags
    iv. Steel road plates
    v. Site fencing or barriers

4.4 SEPARATION DISTANCES

The following minimum separation distances shall be maintained between the gas asset and other services. If these requirements cannot be met, then the proposed design shall be sent to Jemena Engineering for assessment. Jemena Engineering may be contacted by both Jemena representatives and third-party representatives using the following email address: gas.networks.engineer@jemena.com.au

4.4.1 UTILITIES

4.4.1.1 Trenching (Open Cut)

Unless otherwise stated, the following minimum separation distances shall apply to both horizontal and vertical separation between a gas asset and another utility:

a) Where possible, other utilities shall cross underneath gas mains.
b) For Secondary and medium pressure steel mains that are 150mm or smaller in diameter:
    i. 300mm when parallel or crossing over the gas asset.
    ii. 500mm when crossing under the gas asset.
c) 500mm for Secondary and medium pressure steel mains that are 200mm or greater in diameter.
d) 300mm for medium pressure plastic mains.
e) 500mm for DRSs.
f) 500mm between steel mains and any High Voltage electrical cables (≥11kV), and an Electrical Hazard Assessment as per AS/NZS 4853 shall be prepared by Third Party and forwarded to Jemena Engineering for review and acceptance. Refer to Section 4.5.
g) For Extra High Voltage electrical cables (≥100kV) near steel gas mains, 4000mm horizontal separation when in parallel, and 1500mm vertical separation when crossing the gas main. In addition an Electrical Hazard Assessment as per AS/NZS 4853 shall be prepared by Third Party and forwarded to Jemena Engineering for review and acceptance. Refer to Section 4.5.

4.4.1.2 Trenchless (Horizontal Direction drill, Horizontal Bore, etc)

If a trenchless activity is proposed to be carried out near or across gas assets, the Jemena representative shall discuss with the Third Party the following details:

a) Drill path profile
b) Depth of drill under the gas assets
c) Separation distance between the new service and the existing gas assets

d) Drill head control and monitoring methodology and accuracy
e) Detailed drill location

Once the gas asset is positively identified and before drilling commences, a slit trench must be excavated parallel to the gas asset on the side from which the drill is approaching to a depth of 500mm below the bottom of gas asset to prove the drill head will not encroach near it. If possible, the slit trench must be one metre away from the gas asset. In addition, physical barriers such as steel plates may be installed down the side of the gas asset to ensure the drilling machinery does not come close to or damage the gas asset and provides the Jemena representative an opportunity to stop works if necessary.

If directional drill activity is proposed to be carried out parallel to gas assets, the gas asset shall be positively identified before drilling commences and the drill path shall be no closer than one metre from the side of the gas asset. Where a one metre separation cannot be kept, Jemena Engineering/Management must be contacted to assess the proposed drill path.

4.4.2 STRUCTURES

Buildings shall be at least 1000mm from any gas main. Electrical substations shall be at least 3000mm from any steel gas main. Other structures, including stormwater pits, shall be at least 500mm from any gas main. Structures shall not be built over gas mains. If these requirements cannot be met, then the proposed design is to be assessed by Jemena Engineering for approval. Jemena Engineering may be contacted by both Jemena representatives and third-party representatives using the following email address: gas.networks.engineer@jemena.com.au

4.5 HIGH VOLTAGE ELECTRICAL INSTALLATION

For High Voltage Electrical installation, defined as voltage above 10kV, the Electricity Asset Owner or representative shall perform an Electrical hazard Assessment study on Jemena's steel mains in accordance with the latest version of AS4853 (Electrical Hazards on Metallic Pipelines). The study shall be completed by a certified practitioner. The types of electrical hazards that need to be covered are as follows:

- Low frequency induction (LFI).
- Earth potential rise (EPR).
- EPR due to lightning current.
- Capacitive coupling on the pipeline due to adjacent high voltage power lines.
- Accidental contact of pipeline with other electrical systems.

This report shall be submitted to Jemena for acceptance prior to implementing any design. The report should clearly state the standards it refers to, e.g. AS 4853:2012, details of the proposed electrical infrastructure, the hazards that have been assessed, the assessment, findings and Jemena's pipe details (diameter, length, and distance to nearest pipeline facility where contact by personnel is expected, such as Cathodic Protection Test Points).

For Low Voltage Electrical installation defined as voltage below 10kV, the Electricity Owner or representative shall perform a Level 1 assessment on Jemena's steel mains in accordance with the latest version of AS4853 (Electrical Hazards on Metallic Pipelines). The study shall be completed by a certified practitioner.

4.6 ISOLATED MAINS

Some gas assets that do not appear on BYDA may be isolated gas mains. Jemena Engineering shall be contacted for approval if relocation or removal of these assets is required.

4.7 REMOVAL OF CONCRETE CAPPING

If cutting or removal of concrete capping is required, then the activity is to be assessed by Jemena Engineering, which may require a special procedure. All existing gas asset protection methods such as pre-cast or poured concrete slabs shall be retained and/or reinstated.

4.8 GAS MAIN MARKERS

All existing gas asset markers shall be retained and/or reinstated. Where gas main markers are affected by construction works, they shall be re-located by Jemena (costs shall be paid by the third party). Additional gas main markers shall be installed at gas asset crossings for all new services or roads.

4.9 CP TEST POINTS, CP GROUND BEDS, CP CABLES AND KIOSKS

Where any CP assets are affected by construction works, all existing CP assets and equipment shall be retained, relocated, or reinstated by Jemena and the costs shall be paid by the third party.

Any electrical or earthing works which may affect the CP system must comply with AS/NZS 4853 (Electrical Hazards on Metallic Pipelines) and shall be submitted to Jemena Engineering for review and approval. Jemena Engineering may be contacted by both Jemena and third-party representatives using the following email address: gas.networks.engineer@jemena.com.au

4.10 STOCKPILING

The third party shall **not** stockpile machinery, construction, or waste materials directly over gas assets, or within three metres of the gas asset without obtaining Jemena approval.

4.11 BLASTING

Blasting is **not allowed within 50m** of Jemena Gas Networks without prior written approval from Jemena.

If the Third Party has a requirement to conduct blasting activities within 50m of Jemena Gas Networks, an engineering review of the design proposal shall be requested from the Third Party.

The following information shall be included in the design package for review:

a. The blasting distance from the pipeline and drawings, map references.
b. Depth of the blast.
c. Shot size (kg).
d. Shot sequence and delay.
e. Shot strength.

f. Information on Peak Particle Velocity (PPV) and the measures in place during blasting to monitor PPV.

4.12 SUBSIDENCE

Where any ground subsidence is predicted because of tunnelling, underground mining, etc, which may impact our gas mains, the risk of subsidence shall be mitigated in accordance with the table in Appendix 7.4. A leakage survey may be required prior to commencement of works to provide a baseline. Regular ground level monitoring will be required during works to highlight any significant changes in height which may result in additional leakage surveys.

4.13 PROLONGED JEMENA GAS MAIN EXPOSURE

If the Jemena gas main is to be exposed for more than one day, suitable barricades and steel plates shall be installed to ensure the security of the exposed Jemena gas main from accidental (construction or vehicle impact) or deliberate damage (vandalism). In addition, the gas main shall be wrapped in hessian to prevent UV damage.

Damage to Jemena gas main due to sagging shall be prevented. For any unsupported span of pipe exceeding 6 m, written approval from Jemena will be required.

4.14 DEPTH OF COVER

The minimum depth of cover of a gas main is detailed in the table below. Depth of cover shall not exceed 1500mm. Where there is a proposed change to the existing depth of cover of a gas main, the design shall be sent to Jemena Engineering for review and acceptance.

	Secondary and Critical Mains	**MP and LP Mains (non-critical)**
Arterial roads and their adjacent road reserves	1200mm	1200mm
Other roads	900mm	750mm
Road reserve	900mm	600mm
Railway Reserve (other than under railway)	2000mm	2000mm
Under Railway	Refer to AS4799 – Installation of underground utility services and gas mains within railway boundaries.	

Table 1: Minimum depth of cover for gas mains

4.15 BACKFILLING

The following shall apply when backfilling over our gas mains:

- No stabilised sand, road base, or concrete within 300mm of the gas main.
- The gas main shall be in a bed of washed river sand (no recycled material allowed) with a maximum particle size of 2mm with a neutral PH value.

  - For steel mains, the river sand shall extend to a height of 300mm above and below the main, and 300mm either side of the main.
  - For plastic mains, the river sand shall extend to a height of 75mm above and below the main, and 75mm either side of the main.
- Sandbags are not to be used as permanent bedding.

4.16 COMPACTION OVER GAS ASSETS

Compaction shall be in accordance with the diagram in Appendix 6.1.

4.17 VIBRATION

Vibrations from any equipment or processes including vibrating compaction equipment, jack hammers, rock hammers, seismic measuring processes, blasting, etc. are not to exceed the following peak particle velocity readings at the nearest surface of the buried pipeline:

a) 20mm/s for Steel mains.
b) 10mm/s for plastic and cast-iron mains.

If such vibrating equipment is to be used close to the pipeline or in blasting operations, suitable trials are to be conducted prior to proceeding with the proposed development to ensure that the stipulated peak particle velocities will not be exceeded.

Suitable vibration monitoring equipment is to be used to record the tests and works as they progress in accordance with agreed procedures with Jemena.

4.18 TREE PLANTING

Any trees proposed to be planted near Jemena's assets shall be in accordance with Appendix 7.3.

4.19 POST CONSTRUCTION PROTECTION MEASURES

All existing Jemena Gas Network's protection measures including but not limited to concrete slabs, marker posts, marker tape and Cathodic Protection Systems shall be retained. Any protection measure that was temporarily removed with Jemena's approval as part of construction is to be reinstated to its original condition post construction.

5 TERMS & DEFINITIONS

Abbreviation	Definition
Compaction	Backfilling and compaction of pipe in accordance with Jemena's requirements.
Concrete capping	A physical protection measure made of concrete placed above the gas asset, applied when normal depths of cover cannot be achieved.

Abbreviation	Definition
Concrete slab	A concrete surface layer, e.g. Driveway, footpath, roadway.
CP	Cathodic Protection
Critical main	A plastic main that has been deemed “critical” due to internal factors. It shall be treated as a secondary main.
BYDA	Before You Dig Australia
DRS	District Regulator Set
Encroachment	An Encroachment is any unauthorised 3rd party activity within three metres of a Secondary main or Critical Medium Pressure main.
Extra High Voltage	Voltage that is greater than or equal to 100 kV
Gas main	All secondary mains, medium pressure mains and low-pressure mains covered under AS4645.
HDD	Horizontal Directional Drilling
High pressure gas main	A gas main with a pressure of 1050 kPa or greater which includes Secondary, Primary and Trunk mains, or that has been identified as high risk.
High Voltage	Voltage that is greater than or equal to 11 kV
Jemena Standby/ Representative	A suitably qualified person assigned to carry out a standby on a Secondary or critical medium pressure main. This includes Secondary Standby Officers and Pipeline Patrol Officers.
kPa or MPa	Units of pressure measurement
LP	Low Pressure
Low Pressure gas main	2, 7 kPa
MAOP	Maximum Allowable Operating Pressure
Medium Pressure gas main	30, 100, 210, 300, 400 kPa
MP	Medium Pressure
PE Slabbing	A layer of polyethene material approved as a procedural and physical protection measure for gas mains
PPE	Personal Protective Equipment
TfNSW	Transport for New South Wales

Abbreviation	Definition
Secondary gas main	1050 kPa.
SWMS	Safe Work Method Statement
Work site	The location of the intended work that the requestor is requesting a standby for.

6 REFERENCES

6.1 INTERNAL

GAS-960-GL-PL-001 – Designing, Constructing and Operating Assets Near Jemena Gas Pipelines

6.2 EXTERNAL

AS 4645 Series – Gas Distribution Networks

AS 4853 – Electrical Hazards on Gas Pipelines

7 APPENDICES

7.1 OPERATING LIMITS FOR THE APPLICATION OF VACUUM EXCAVATION AROUND BURIED NATURAL GAS MAINS

The use of vacuum excavation (or hydro-excavation) on gas mains shall be limited to the water pressures set out in the table below.

Pipe material	**Maximum allowable water pressure, psig***	
	Rotating nozzle	**Fixed nozzle**
Nylon	2000	1500
PE	2500	2500
Uncoated steel pipe	3000	3000
PE coated steel pipe (yellow jacket)	2000	2000
Fusion bonded epoxy (FBE) coated steel	2000	2000
Coal tar enamel coated steel	0	0
Petroleum tape coated steel	1000	1000
Tek-Rap coated steel	1000	1000
Coated steel pipe (unknown coating)	1000	1000

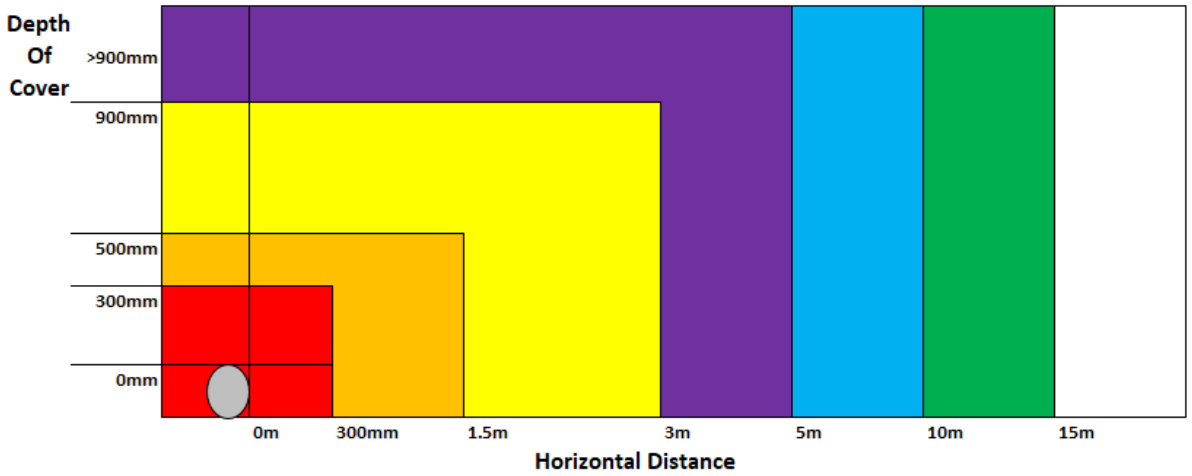
* Notes:

1. The pressure of the water must be measured at the lance, NOT the truck.
2. The nozzle shall be always kept at least 300 mm from the surface of the gas asset.
3. In the case of steel pipe only, the minimum water pressure the equipment can deliver must be applied when starting the excavation process until the nature of the pipe coating is identified, then the pressure may be increased to the relevant pressure specified in the table.
4. Vacuum excavation is not permitted on coal tar enamel coated gas mains.

The use of vacuum excavation around buried high-pressure natural gas pipes will require the presence of a Jemena or Zinfra representative.

7.2 COMPACTION REQUIREMENTS

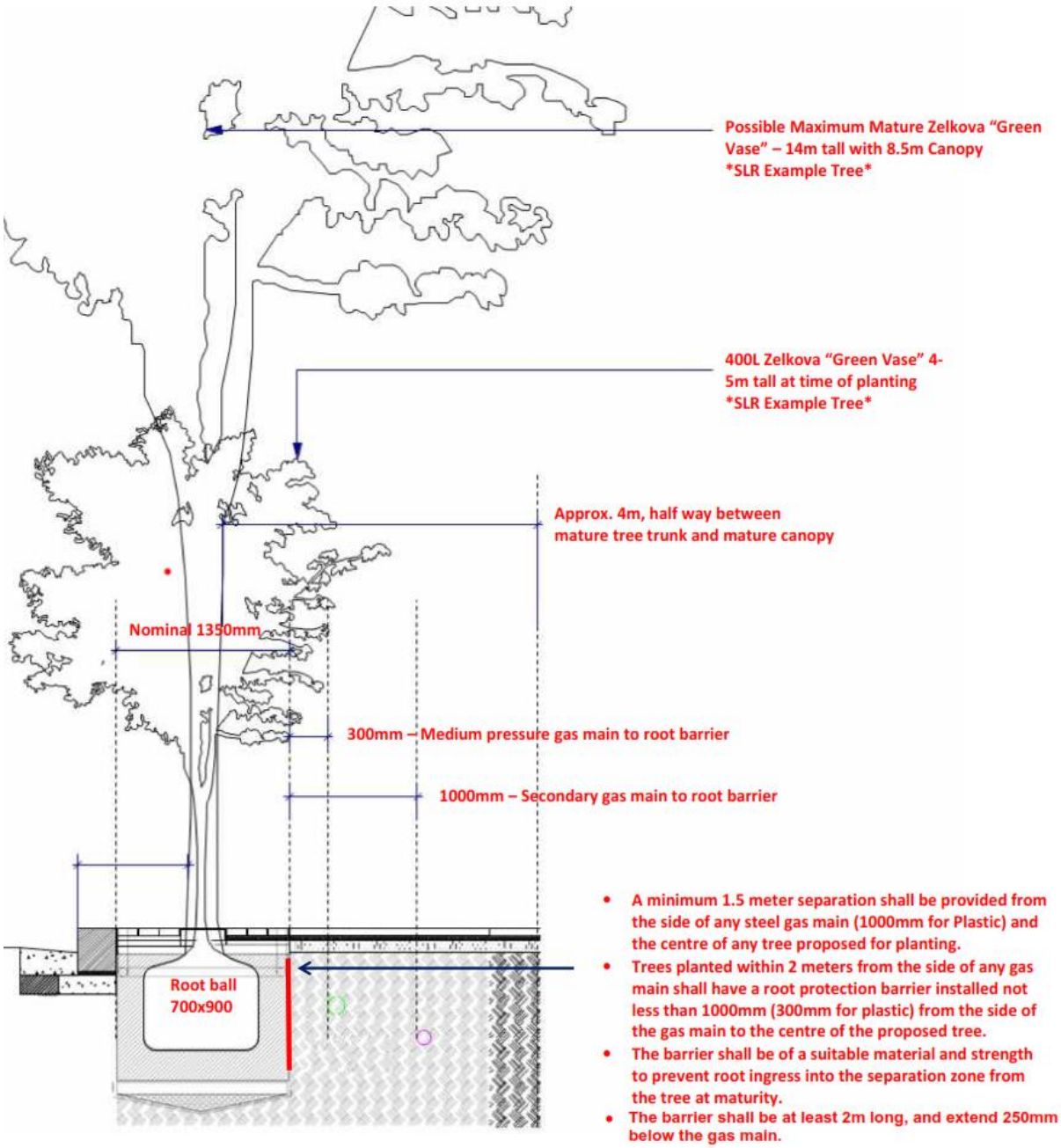
Compaction Requirements



Maximum Allowable Compaction

- No compaction permitted. Hand tamping only.
- Hand-held class 60kg compacter only.
- 8T tandem-drum static roller (no vibration), or a hand-held larger plate compacter at any vibration setting.
- 8T tandem-drum roller set at low-amplitude vibration, or 10T vibratory roller set to static roller only (no vibration).
- 8T tandem-drum roller at any vibration setting, or 10T vibratory roller set to low-amplitude vibration.
- 10T tandem-drum roller at any vibration setting.
- No restrictions.

7.3 TREE PLANTING REQUIREMENTS



7.4 SUBSIDENCE RISK CONTROL PROCEDURES

Level	Control Measures	Frequency	Analysis	Trigger Level	Action
1	Baseline Gas Detection Survey Required Undertake a pre-tunnelling gas detection survey of pipes within the area potentially affected.		Jemena reviews: - 2D ground surveys report - pipe integrity - ground conditions report		
	Ground inspections: - 2D survey - ground inspection	Ground surveys by contractor: - Monthly 2D survey along centreline of tunnel for pegs located within active subsidence zone after the length of the tunnelling exceeds 200 metres. - Weekly surveys from when tunnelling exceeds 800 metres, until one month after completion of tunnel. - Weekly surveys along roads where mains exists when within active subsidence zone. Ground inspections by contractor:	Contractor surveys and provides Jemena with: - ground surveys - ground movements / features reports	Ground movement survey and measurements: - Radius of ground curvature greater than 4 (km) - Ground strain 0 to 2 (mm/m) - Ground movements rate of change steady Ground conditions monitoring: - ground cracks reported - ground subsidence reported --- - ground movements showing a step change indicating shear and / or discontinuity in humps near the gas services	Go to LEVEL 2 if LEVEL 1 limit is exceeded: - normal ground patrol by Jemena pipeline officer Jemena actions following receipt of reported incidents: inspects site to confirm operation of gas facilities not affected Assess potential for impacts on pipe crossings due to valley closure. Consider trigger level for Level 2. ---

Level	Control Measures	Frequency	Analysis	Trigger Level	Action
		- Weekly inspection including at the creek crossings within the active subsidence zone.			- undertake additional inspection e.g. exposing and inspecting gas service as applicable to determine gas facilities integrity - based on above findings, undertake corrective action per Level 3 activities where gas services integrity affected
	<u>Ground subsidence validations:</u> - Observed against predictions	On receipt of data: verify and track results against predictions	Contractor analyses and reports findings to stakeholders		
2	<u>Ground inspections:</u> - 2D survey - ground inspection	Submit data within 24 hours duration Twice weekly 2D survey	Contractor surveys and provides Jemena with: - ground surveys - ground movements / features reports	<u>Ground movement survey and measurements:</u> - Radius of ground curvature 2 to 4 (km) - Ground strain 2 to 5 (mm/m) - Ground movements rate of change increasing with increasing upward trend - Subsidence is delayed (such as subsidence not developing within expectations, and/or reports of no caving underground)	Go to LEVEL 3 if LEVEL 2 limit is reached: - weekly ground patrol by Jemena pipeline officer Jemena actions following receipt of reported incidents: inspects site to confirm operation of gas facilities
	<u>Ground subsidence validations:</u> - Observed against predictions	Twice weekly: verify and track results against predictions	Contractor analyses and reports findings to stakeholders		

Level	Control Measures	Frequency	Analysis	Trigger Level	Action
			Jemena reviews: - 2D ground surveys report - pipe integrity - ground conditions report	Ground conditions monitoring: - ground cracks reported - ground subsidence reported _____ - ground movements showing a step change indicating shear and / or discontinuity in humps near the gas services	not affected _____ based on above findings, undertake corrective action per Level 3 activities where gas services integrity affected - if no immediate corrective actions required, Jemena may put field construction on standby
3	Ground inspections: - 2D survey - ground inspection	Submit data within 24 hours duration Daily 2D survey	Contractor surveys and provides Jemena with: - ground surveys - ground movements / features reports	Ground movement survey and measurements: - Radius of ground curvature less than 2 (km) - Ground strain greater than 5 (mm/m) - ground movements showing a step change indicating shear and / or discontinuity in humps near the gas services.	Jemena's field corrective actions: - mobilisation construction in the field - excavate affected area - inspect gas facilities to confirm integrity - repair and / or replace gas services as applicable - to maintain supply and safe operation
	Ground subsidence validations: - Observed against predictions	Daily: verify and track results against predictions	Contactor analyses and reports findings to stakeholders		
			Jemena reviews: - 2D ground surveys report - pipe integrity		

Level	Control Measures	Frequency	Analysis	Trigger Level	Action
			- ground conditions report (as applicable)		

Guide to reading Sydney Water DBYD Plans

This guide will help you understand our plans and what our services are.

Symbol	Meaning	Symbol	Meaning
	Sewer main with flow arrow and size type text.		Sewer vertical
	Disuses sewer main This means the sewer has been disused but remains in the ground.		Sewer pumping station
	Sewer maintenance hole with upstream depth invert.		
	Sewer Sub-surface chamber		Pressure sewer main These are also found in Vacuum sewer areas.
	Sewer Maintenance hole with overflow chamber		Pressure sewer Pump unit Alarm, electrical cable and pump unit.
	Sewer Ventshaft EDUCT		Pressure sewer property valve boundary assembly
	Sewer Ventshaft IDUCT		Pressure sewer stop valve
	Sewer property connection point With chainage to downstream maintenance hole.		Pressure sewer reducer / taper
	Sewer concrete encased section		Pressure sewer flushing point
	Sewer Rehabilitation		Vacuum sewer division valve
	Sewer terminal maintenance shaft		Vacuum sewer vacuum chamber
	Sewer maintenance shaft		Vacuum sewer clean out pot
	Sewer rodding point		Stormwater pipe
	Sewer lamphole		Stormwater channel

Symbol	Meaning	Symbol	Meaning
	Stormwater gully		Potable water stop valves with Tapers
	Stormwater maintenance hole		Potable water closed stop valve
	Watermain – potable drinking water With size type text.		
	Disconnected watermain potable drinking water This means the watermain has been disused but remains in the ground.		Potable water air valve
	Recycled watermain		Potable water valve
	Special supply conditions – potable drinking water		Potable water scour
	Special supply conditions – recycled water		Potable water reducer / taper
	Restrained joints – Potable drinking water		Potable water vertical bends
	Sewer concrete encased section		Potable water reservoir
	Restrained joints – Potable drinking water		Recycled water is shown as per potable above. Colour as indicated
	Potable water hydrant		Private potable water main
	Potable water maintenance hole		Private recycled water main
	Potable water stop valve		Private sewer main
	Potable water stop valve with By-pass		

Pipe types

PIPE TYPES		PIPE TYPES	
ABS	Acrylonitrile Butadiene Styrene	AC	Asbestos Cement
BRICK	Brick	CI	Cast Iron
CICL	Cast Iron Cement Lined	CONC	Concrete
COPPER	Copper	DI	Ductile Iron
DICL	Ductile Iron Cement (mortar) Lined	DIPL	Ductile Iron Polymeric Lined
EW	Earthenware	FIBG	Fibreglass
FL BAR	Forged Locking Bar	GI	Galvanised Iron
GRP	Glass Reinforced Plastics	HDPE	High Density Polyethylene
MS	Mild Steel	MSCL	Mild Steel Cement Lined
IPE	Polyethylene	PC	Polymer Concrete
PP	Polypropylene	PVC	Polyvinylchloride
PVC - M	Polyvinylchloride, Modified	PVC - 0	Polyvinylchloride, Oriented
PVC - U	Polyvinylchloride, Unplasticised	RC	Reinforced Concrete
RC-PL	Reinforced Concrete Plastics Lined	S	Steel
SCL	Steel Cement (mortar) Lined	SCL IBL	Steel Cement Lined Internal Bitumen
SGW	Salt Glazed Ware	SPL	Steel Polymeric Lined
SS	Stainless Steel	STONE	Stone
VC	Vitrified Clay	WI	Wrought Iron
WS	Woodstave		

DIAL BEFORE YOU DIG www.1100.com.au

Further Information

Please consult the Dial Before You Dig enquiries page on our website.

For general enquiries please call the Customer Contact Centre on 132 092

In an emergency, or to notify Sydney Water of damage or threats to its structures, call 13 20 90 (24 hours, 7 days)

Jemena Gas Network Protection

High Pressure - Assets Affected

This information is only valid for 28 days from the date of issue

In reply to your enquiry, there are **High Pressure Gas Mains** in the vicinity of your intended work, as generally illustrated on the attached map. There may also be other mains or services at the location, as discussed in the warning below. **For an explanation of the map, please see the information below and the legend attachment.**

Excavation Guidelines

Prior to **any** excavations in this area, you ***must*** contact the High Pressure Response Coordinator to arrange a survey via:

http://mygasservices.jemena.com.au (High Pressure Works / High Pressure Standby)

Please note that a duty of care exists to ensure gas assets are not compromised or damaged. Jemena's expectation is the excavator operator holds a current Verification of Competency (VOC) or equivalent for the machine to be used near Jemena High Pressure Gas Assets.

Further standby enquiries can be directed to the High Pressure Coordinator -

E: infrastructureprotection@jemena.com.au or PH: 1300 665 380

Appointments will be coordinated with availability of a Jemena Representative to arrange a survey. For all works in the vicinity of High Pressure Gas Mains you must arrange for a Jemena Representative to attend and supervise all excavations. Charges may apply.

In accordance with clause 34(5) of the Gas Supply (Safety and Network Management) Regulation 2013 (NSW), you should be informed that all excavation, (including pot-holing by hand to confirm the location of pipes) should be performed in accordance with "***Work Near Underground Assets Guideline"*** *published in 2007 by the Work Cover Authority.*

A copy of this Guideline is available at: www.safework.nsw.gov.au

Warning: The enclosed plans show the position of Jemena Gas Networks (NSW) Ltd's underground gas mains and installations in public gazetted roads only. **Individual customers' services and services belonging to other third parties are not included** on these plans. These plans have been prepared solely for the use of Jemena Gas Networks (NSW) Ltd and Jemena Asset Management Pty Ltd (together "**Jemena**") and any reliance placed on these plans by you is entirely at your own risk. The plans may show the position of underground mains and installations relative to fences, buildings etc., as they existed at the time the mains etc were installed. The plans may not have been updated to take account of any subsequent change in the location or style of those features since the time at which the plans were initially prepared. Jemena makes no warranty as to the accuracy or completeness of the enclosed plans and does not assume any duty of care to you nor any responsibility for the accuracy, adequacy, suitability or completeness of the plans or for any error, omission, lack of detail, transmission failure or corruption in the information provided. Jemena does not accept any responsibility for any loss that you or anyone else may suffer in connection with the provision of these plans, however that loss may arise (including whether or not arising from the negligence of Jemena, its employees, agents, officers or contractors). The recipient of these plans must use their own care and diligence in carrying out their works and must carry out further surveys to locate services at their work site. Persons excavating or carrying out other earthworks will be held responsible for any damage caused to Jemena's underground mains and equipment. Jemena advises that you may be required to carry out potholing by hand if required by a Jemena Representative to confirm the location of Jemena's main and installations. This must also be performed by you under the supervision of a Jemena Representative and be carried out in accordance with the Working Near Underground Assets Guideline published in 2007 by Work Cover Authority

In case of Emergency Phone 131 909 (24 hours)

Admin 1300 880 906

Jemena Gas Networks
Dial Before You Dig Map Legend

Nov 2021 ver3

Network Mains

- Proposed New Main (coloured as per kPa)
- Proposed Isolate (coloured as per kPa)
- Unknown kPa
- 2kPa Low Pressure gas main
- 7kPa Low Pressure gas main
- 30kPa Medium pressure gas main
- 100kPa Medium Pressure gas main
- 210kPa Medium Pressure gas main
- 300kPa Medium Pressure gas main
- 400kPa Medium Pressure gas main
- 1050kPa High Pressure gas main
- 3500kPa High Pressure gas main
- 7000kPa High Pressure gas main
- >7000kPa Transmission pipeline
- Isolated Service - Former Med/High Pressure
- Isolated Steel Main -**Treat as High Pressure**

100 PVC — Conduit or Casing Size & Material (see conduit material codes)

Critical Main -**Treat as High Pressure** (Main coloured as per kPa)

EXPOSED — Exposed Main section

SHALLOW-SP — Shallow Main section: see Protection Code below, no code assume no protection

SP	Steel Plate	CE	Concrete Encased
PP	PE Plate	UNK	Unknown Type
CS	Concrete Slab		

Network Assets

- Siphon
- Network Valve
- High Pressure Main Line Valve (=>1050kPa)
- High Pressure Automatic Line Break Valve (>1050kPa)
- Boundary Regulator Set (=<1050kPa)
- Distribution Regulator Set (=<1050kPa)
- High Pressure Regulating Station (>1050kPa)

Annotations

Pipe and Conduit Material Codes

NY	Nylon	NB	Nominal Bore – Cast Iron
PE	Polyethylene	ST	Steel
P/PL	Plastic (undefined)	C/CO	Copper
PVC	Polyvinyl Chloride		

Pipe code combinations and dimension references

6NB 50MM NY — 50mm Nylon main inserted into 6 inch (Nominal Bore) Cast Iron pipe

50MM 32MM NY — 32mm Nylon main inserted into 50mm Steel pipe

~1.5 — Distance (in metres) of main from Boundary Line (MBL)

MBK	Distance in Metres Back of Kerb
MKL	Distance in Metres from Kerb Line
MEBL	Distance in Metres from Eastern Boundary Line (North/South/West)
MCL	Distance in Metres from Centre Line of Road
MFL	Distance in Metres from Fence Line

Reading Ausgrid Plans
COMN0119

1 Property Lines

"property line" (PL), sometimes referred to as **"building line" (BL),** is the standard dimensioning reference point on all Ausgrid plans and represents property boundaries.

Typically, the PL is the boundary between private property and local council's footpath area or nature reserve. Most residential fences and office blocks are erected along the PL.

"kerb line" (KL) is less frequently referred to on Ausgrid plans, and where used will be identified clearly as KL.

Numbers listed within property boundaries should correspond to recognised "street numbers" (refer to figure 1).

Figure 1

2 Datum References

"datum references" identify distances (in metres) from significant features (such as corners of property boundaries) to reference points such as Ausgrid assets (eg: "conduits", "cables", "joints") (refer to figure 2).

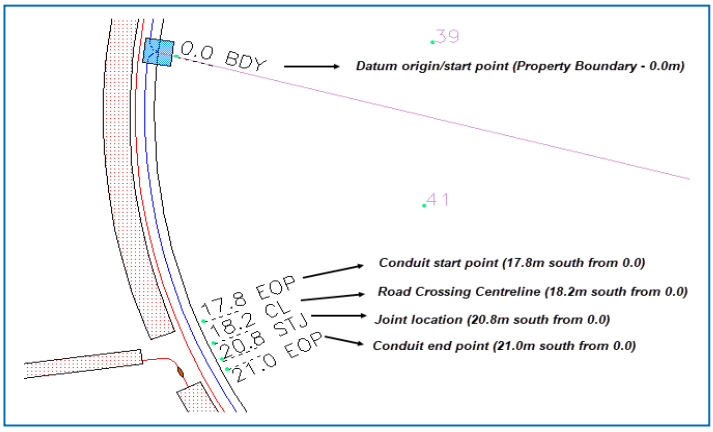


Figure 2

3 Cross Sections

A "cross sections" displayed on Ausgrid plans detail information relating to the relative position (ie: distance from the **"property line",** and the depth of **"cover"**) of Ausgrid assets.

"Cover" is a term used to refer to the depth of cables underground.

A "cross section" leader line will be drawn indicating the location of the displayed **"cable"** or **"conduit"** information on Ausgrid plans.

The distance from **"property line"** (in metres) and depth of **"cover"** (in metres) references are displayed as; ie: 0.6 metres from PL and 0.5 metres underground.

Where distance and cover are not recorded, they will be clearly marked as **"NR".**

NOTE: Distance and cover where indicated may be different to the actual position of the cables (eg: fill may have been placed at site that has changed the ground level).

"PL" distance shown in cross sections is an indicative measure to the centre of the trench allocation from the adjacent property line.

On some plans the "cross sections" may also be shown with a specific number (eg: HR1). This number will match with a cross section detail found in the border of the plot or on a separate plot page (refer to figures 3 and 4).

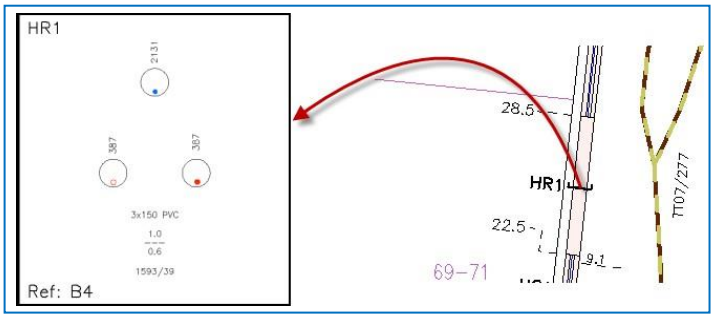


Figure 3

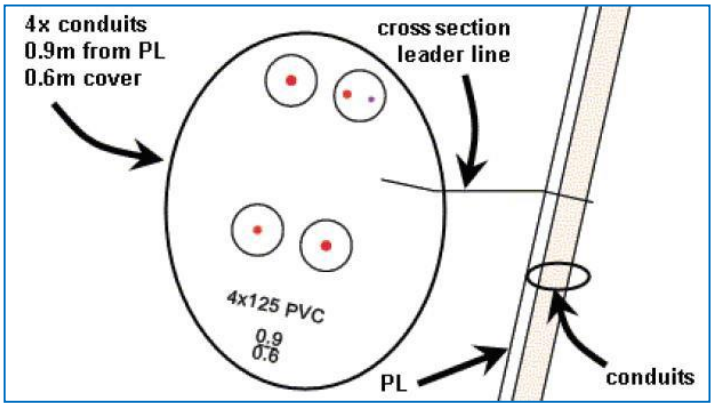


Figure 4

4 Cable Joints and Joint Reports

"cable joints" (numbered individually) and **"joint reports"** (attached to Ausgrid plans) can provide information relating to the relative position of Ausgrid assets, distance from the "property line" (in metres), and the depth of "cover" (in metres) (refer to figures 5 and 6).

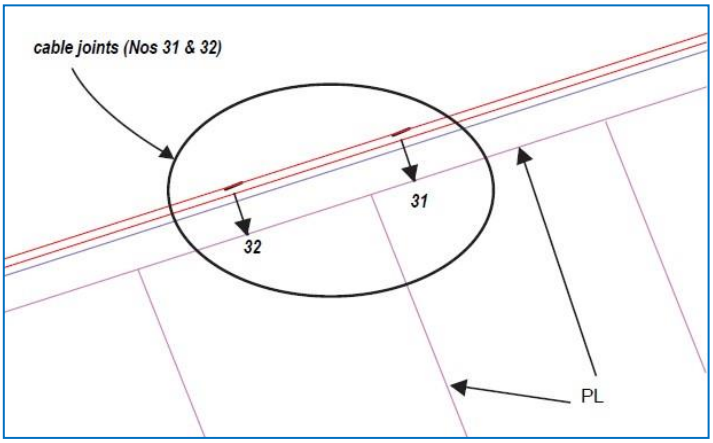


Figure 5

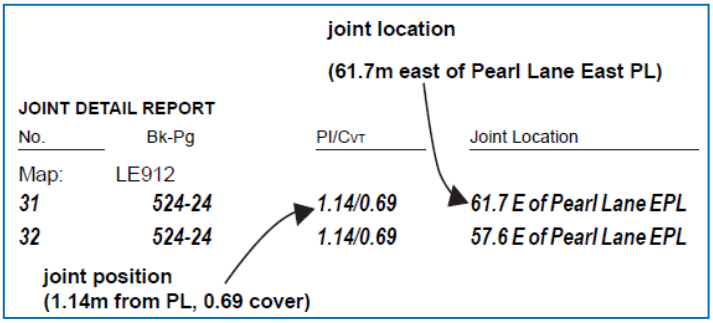


Figure 6

5 Cross Section Detail Boxes

"cross section" detail boxes on the sides of an Ausgrid plan are used when there is insufficient room to display **"cable"** and/or "conduit" information on the Ausgrid plan.

Ausgrid plans (refer to figure 7) are bordered by numeric identifiers along the top and bottom borders and alpha identifiers along the side borders.

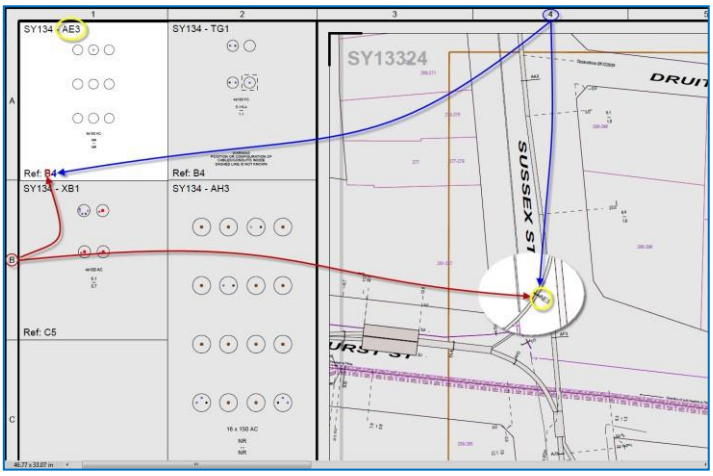


Figure 7

"Cross section" leader line and annotation is drawn on the Ausgrid plan for a reference to **"cable"** and/or **"conduit"** information in the **"cross section"** detail boxes. There are areas where underground work may have been issued for construction by Ausgrid, but details are not yet completely displayed on Ausgrid plans. In such cases a shaded "proposal area" is displayed on the Ausgrid plan, indicating underground work may have commenced in the vicinity but is not yet complete.

6 Pits

Underground **"pits"** are numbered on Ausgrid plans, positioned relative to the **"property line" (PL)**, and can be found on either the footpath (nature strip) or the road (refer figure 8).

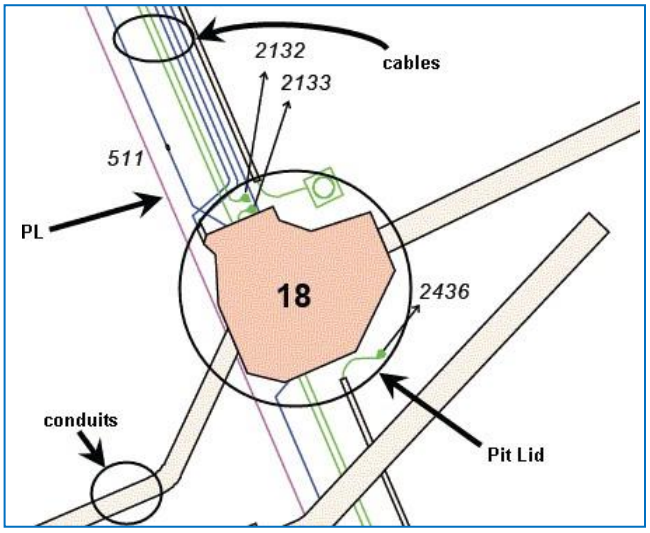


Figure 8

7 Proposal Areas

In some instances, cables and other assets within the shaded **"proposal area"** will be shown in a **bright magenta** colour, indicating that the proposed new work displayed within the shaded area is based on initial planning documentation (refer to figure 9).

Figure 9

In other instances, the shaded **"proposal area"** itself may be shown as a blue colour, indicating that the new work displayed within the shaded area on the Ausgrid plan is yet to include details regarding final depths and dimensioning (refer to figure 10).

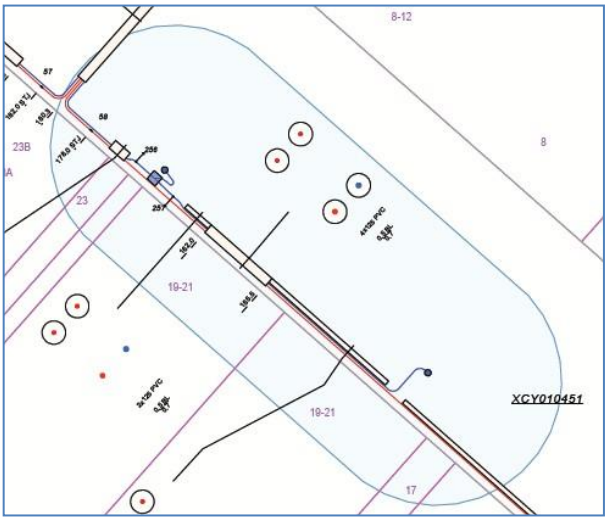


Figure 10

NOTE: In cases where these shaded **"proposal areas"** are displayed on Ausgrid plans.

"Ausgrid's design plans showing the proposed position of its underground cables, overhead lines and structures have been prepared solely for Ausgrid's own planning use. They show the proposed position of such underground cables, overhead lines and structures as proposed at the time of planning and have not necessarily been corrected to take into account any changes to road widths, road levels, fences and buildings subsequent to proposed installation.

Actual installations may vary from proposed installations as it may be necessary to take account of unforeseen above ground or subterranean constructions. Therefore, Ausgrid does not hold out that the design plans show more than the proposed presence or absence of its underground cables, overhead lines and structures in the street and will accept no liability for inaccuracies in the information shown on such design plans from any cause whatsoever."

Any further information regarding information displayed for "proposal areas" can be obtained by contacting the Ausgrid Before You Dig Australia (BYDA) office at the number indicated on the response to your BYDA enquiry for further information.

8 Ausgrid Maps

Depending on the size of the BYDA request, the response will either be a **single map area** or **a cover sheet** and several standard maps.

8.1 Single Map Area Response

The single map area response will have a buffer area shown on the plan that should relate to the original Before You Dig Australia request.

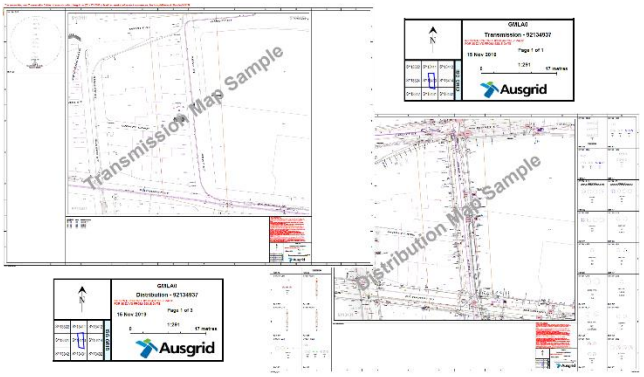


Figure 11

The **map grid index box** on Ausgrid plans should be used when reading the **"joint report"** (see part 4 of this document for more detail) to accurately locate underground cables. The buffer area will display on the grid index box for single map area responses

There are two different size maps that can be produced – A3 will be issued if there are no cross sections in the area, and an A0 will be issued if there are cross sections that are required to be displayed in the detail boxes on the side.

A single map area response could include two maps in the Sydney region. Ausgrid plans are separately labelled as "**Distribution – nnnnnnn"** and **" Transmission – nnnnnnn"**, where **"nnnnnnn"** refers to the BYDA sequence number quoted. If the request does not include any Transmission assets, then only one Distribution map will be issued.

In the Hunter region, the Ausgrid plans show combined **"distribution"** and **"transmission"** voltage assets, are clearly labelled as **"Distr + Trans – nnnnnnn"** where **"nnnnnnn"** refers to the BYDA sequence number.

Some Hunter plans may have transmission cables in the area, when these cables are present there will be a warning printed at the top of the plan supplied: "**"You are working near Transmission Cables. You must contact Ausgrid on (02) 4951 9200 at least two weeks before work commences. See Ausgrid Network Standard NS156"**

8.2 Cover Sheet Response

On a response that includes a cover sheet, the buffer area will only be shown on the cover sheet and it will not appear on the standard maps. The cover sheet will indicate which standard maps have been included and provide a high-level view of the location of the underground details (Figure 12). The standard maps will have the detail of the underground assets (Figure 13).

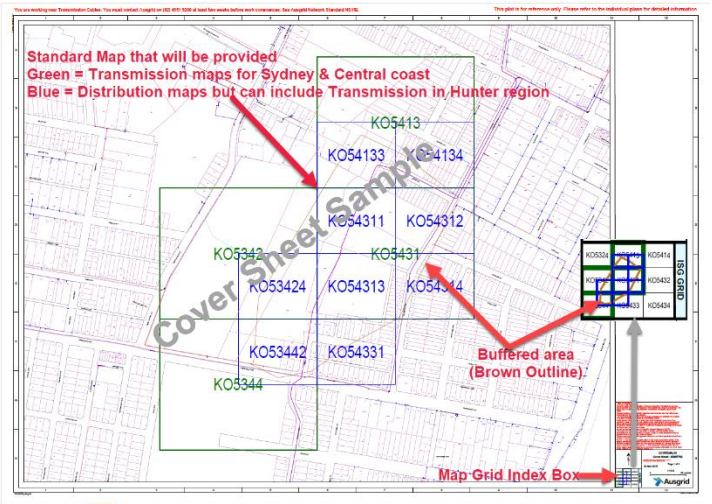


Figure 12

A **map grid index box** has been included in the cover sheet and on the standard maps. The buffer area will only display on the grid index box on the cover sheet and not on standard maps (Figure 12 + Figure 13).

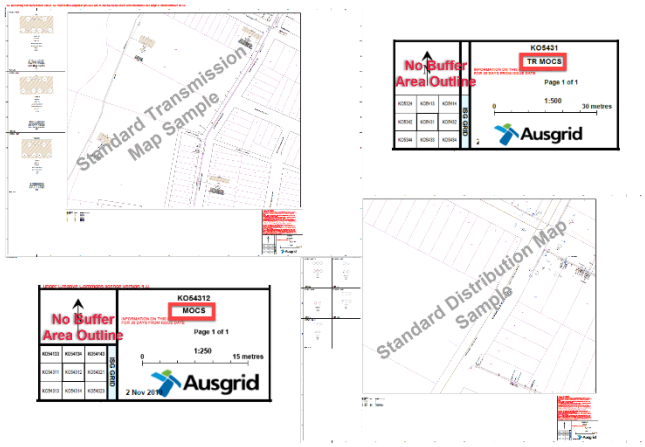


Figure 13

9. Shifting Land Base" on Ausgrid Distribution and Transmission Plans

In some instances, the plans supplied may indicate road or property outlines that appear to have shifted in relation to the Ausgrid assets displayed (refer to figure 14).

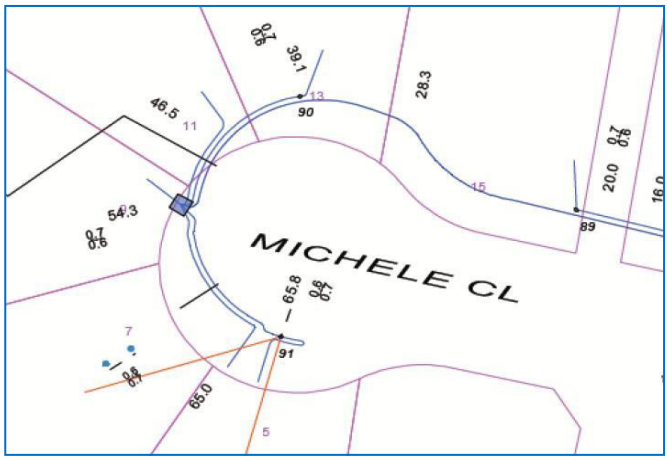


Figure 14

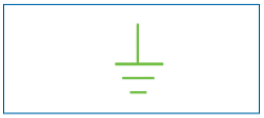
In such instances, always refer to the **"property line"** (in metres) and depth of **"cover"** (in metres) references displayed on the nearest relevant **"cross sections"** to obtain Ausgrid asset location information (*see* Reading Ausgrid Plans, clause 3, Cross Sections for more detail).

10. "Underground Earthing Infrastructure"

In some instances, the plans supplied may also indicatethe presence of underground earthing infrastructure associated with underground and/or overhead Ausgrid assets.

The **"Earth Point"** symbol (refer to figure 15) will be shown on plans to minimize risk of disturbance or damage to any Ausgrid underground earthing infrastructure in the vicinity.

Figure 15



11. Hazardous Cables – Specific Excavation Hazard

Certain low voltage cables are susceptible to deterioration or defects that may pose a risk of electric shock when working near them particularly in damp ground. Other low voltage cables may have an exposed conductive sheath or armour which may, under certain conditions, become energised. These cables may pose a significant risk and will be illustrated as in figures 15 and 16 below.
For all work on or near Ausgrid's network where workers have been trained in Ausgrid's "Working near or around underground cables" course the work practices outlined in NS156 "Working near or around underground cables", NS199 "Safe Electrical Work on Low Voltage Underground Assets" for low voltage cables susceptible to deterioration and the Electrical Safety Rules for low voltage exposed conductive sheath or armoured cables must be adhered to.
All other persons must contact Ausgrid before excavating near or accessing areas where these cables are present to arrange for appropriate precautions to be applied.

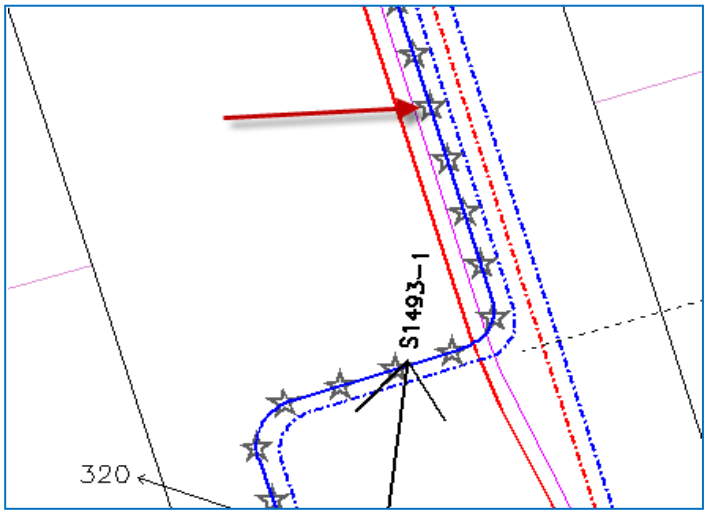


Figure 15

The **"star"** symbols over the cable indicates that it may be susceptible to deterioration or defects or the cable may contain an exposed conductive sheath or armour which could pose an electrical risk to workers.
Cables that are in duct lines have this symbology covered so an at-risk cable is indicated only within a cross section by a **"#"** appended to its cable code as illustrated below.

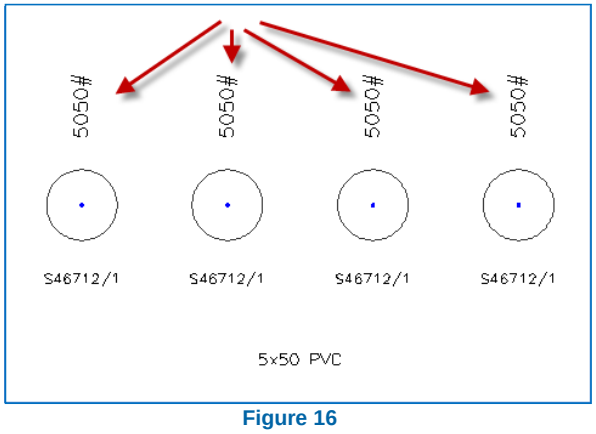


Figure 16

Ausgrid Underground Map Symbology

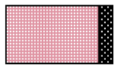
NOTE: Please note symbology is subject to change. This document provides underground (UG) related objects only. In cases where you are unsure of the data presented, please contact Ausgrid's BYDA for clarification *prior* to any planning/excavation works.

Object		Symbol
HV Cable	HV (High Voltage) 5kV-22kV	In Service / Out of Service
	TR (Transmission) 33kV – 330kV	In Service / Out of Service
LV Cable (Low Voltage)	Mains (Dark blue)	In Service / Out of Service
	Street Lighting (Green) Note: Mains Connector also used as Street Lighting (dark blue)	In Service / Out of Service
	Service (Light blue)	In Service / Out of Service
	Stars are used to highlight At Risk cables	In Service Risk / In Service Risk / In Service Risk
	Unknown	
Auxiliary Cable	Data	In Service / Out of Service
	Comms	
	Telco	
	Protection	
	Fibre Optic	
	Pilot	

Object		Symbol
HV UG Joint	Straight Through, Parallel Branch or Tee	
	Switchgear, End Box or Transition	
HV UG Termination	Sealed end	
	Pot End	
	UGOH	
HV Cable Repair	5kV-330kV (HV & TR)	
LV UG Joint	Straight Through, Parallel Branch, Tee or Service	
	Network Box	
LV UG Termination	Switchgear, End Box or Transition	
	Sealed end	
	Pot End	
	UGOH	

Object		Symbol
Auxiliary Fix	Pilot Window	
Auxiliary Joint	Straight Through, Parallel Branch or Tee	
Auxiliary Termination	UGOH or Pole Termination	
	Pilot	P
	UGOP-ADSS Termination	
Cable Pit (Can be various shapes)	Auxiliary	
	Distribution	
	Transmission	
LV Pillar	Distribution	
	Switch	1-3 WAY / 4+WAY
	SL Pillar	NO SLCP / SLCP
	SL Cubicle	
	Fargo	F
	Private	P
LV Auxiliary Pillar	All Types	
LV Link Box	2 Way & 4 Way	

Ausgrid Underground Map Symbology

Object		Symbol
Substation	Cottage & Chamber	
	Ground & Subtransmission Ground	
	Kiosk & Subtransmission Kiosk	
	Zone	
	Transmission	
	Bulk Supply Point	
	Metering Station & Subtransmission Metering	
Switching Station	Isolating & Earth	
	Other – OH & UG	
	Ring Main Unit	
Earthing	UG Earth Cable	
	Earth Point	
Frequency Marker	Distribution and Transmission Power	 Ball or Disc Type Marker
	Auxiliary Communications	 Ball or Disc Type Marker
	Distribution and Transmission Power	Tape Marker
	Auxiliary Communications	Tape Marker

Object		Symbol
Trench	Centreline	
Conduit (Can be various shapes)	Coverage (Distribution)	
	Coverage (Transmission)	
	Coverage (Underbore – cross hatched)	
Cross Section	Marker (Staple)	
	User Line	
Measure-ment Point		
Miscella-neous Point Feature	Cable Clamp	
	Cable Core split (Trifurcation)	
	Cable Marker	
	Electrolysis Point	
	End Of Pipe	
	Frequency Injection Unit	
	Gas Charger	
	Gas Control Cabinet	
	Gas Control Kiosk	
	Gas Control Point	
	Gas Control Valve	
	Gatic Pit lid	

Object		Symbol
Miscella-neous Point Feature	Inspection Box	
	Link point	
	Oil Control Valve	
	Oil Gauge	
	Oil Tank	
	Sniffer Box	
	Thermocouple Box	
	Transmission Cable Marker	
	Transmission Link Point	
Miscella-neous Linear Feature	All Geometries	
Map Note	Location & Text	 Text about note
Dimension Feature	Placement Change	
Lead Cable	Oil/Gas/ Thermocouple	
	Bonding	
	Electrolysis	

Ausgrid

Ausgrid

Emergency Phone Number 131388

IMPORTANT INFORMATION

YOU MUST BE AWARE THAT:

1. There may be underground cables owned by other utilities, in the vicinity of your work, about which Ausgrid has no information.

2. Ausgrid does not usually keep plans of privately owned underground cables or its underground service cables on private property. (Refer NS 156 for further information.)

YOU MUST MAKE YOUR OWN ENQUIRIES IN RESPECT OF THESE CABLES.

YOU MUST UNDERSTAND THAT:

1. Ausgrid takes all reasonable care in providing details of its underground cables. However, owing to changes in road and footway alignments and levels, and the age and incompleteness of some records, it is not possible to conclusively specify the location of all of Ausgrid's underground cables. The accuracy and completeness of the information provided to you cannot be guaranteed. It is intended to be indicative only. It must not be **solely** relied upon when undertaking underground works.

2. Except to the extent that liability may not be capable of lawful exclusion, Ausgrid, its servants and agents will be under no liability whatsoever to any person for loss or damage (including indirect or consequential loss or damage) however caused (including without limitation, for breach of contract, negligence and breach of statute) which may be suffered or incurred from or in connection with the advice provided.

3. Due to the inherent dangers associated with **excavation, under boring and directional drilling** in the vicinity of underground cables, precautions must always be taken when undertaking any underground works. Ausgrid's Network Standard NS 156 specifies standards for working in the vicinity of underground cables. It is deemed to be part of this Advice, and it must be read by you.

4. Due to the inherent risk of compromising the stability of Ausgrid's power poles during excavation which could lead to pole movement or collapse, precautions must always be taken. If excavation is to be carried out within 1m from a power pole, Ausgrid must be contacted at construction.works@ausgrid.com.au for advice. Do not proceed until you have received such advice from Ausgrid.

YOU MUST READ NETWORK STANDARD NS 156, *WORKING NEAR OR AROUND UNDERGROUND CABLES.* IT IS PART OF THIS ADVICE.

Important information about Dial Before You Dig

The material provided or made available to you by Sydney Water (including on the Sydney Water website) in relation to your Dial Before You Dig enquiry (**Information**) is provided on each of the following conditions, which you are taken to have accepted by using the Information:

1 The Information has been generated by an automated system based on the area highlighted in the "Locality Indication Only" window on your Caller Confirmation. It is your responsibility to ensure that the dig site is properly defined when submitting your Dial Before You Dig enquiry and, if the Information does not match the dig site, to resubmit your enquiry for the correct dig site.

2 Neither Sydney Water nor Dial Before You Dig make any representation or give any guarantee, warranty or undertaking (express or implied) as to the currency, accuracy, completeness, effectiveness or reliability of the Information. The Information, including Sydney Water plans and work-as-executed diagrams, amongst other things:

(a) may not show all existing structures, including Sydney Water's pipelines, particularly in relation to newer developments and in relation to structures owned by parties who do not participate in the Dial Before You Dig service

(b) may be out of date and not show changes to surface levels, road alignments, fences, buildings and the like

(c) is approximate only and is therefore not suitable for scaling purposes

(d) does not show locations of property services (often called house service lines) belonging to or servicing individual customers, which are usually connected to Sydney Water's structures.

3 You are responsible for, amongst other things:

(a) exposing underground structures, including Sydney Water's pipelines, by pot-holing using hand-held tools or vacuum techniques so as to determine the precise location and extent of structures before any mechanical means of excavation are used

(b) the safe and proper excavation of and for underground works and structures, including having regard to the fact that asbestos cement pipelines, which can pose a risk to health, may form part of Sydney Water's water and sewerage reticulation systems

(c) protecting underground structures, including Sydney Water's pipelines, from damage and interference

(d) maintaining minimum clearances between Sydney Water's structures and structures belonging to others

(e) ensuring that backfilling of excavation work in the vicinity of Sydney Water's structures complies with Sydney Water's standards contained on its website or otherwise communicated to you

(f) notifying Sydney Water immediately of any damage caused or threat of damage to Sydney Water's structures

(g) ensuring that plans are approved by Sydney Water (usually signified by stamping) prior to landscaping or building over or in the vicinity of any Sydney Water structure

(h) ensuring that the Information is used only for the purposes for which Sydney Water and Dial Before You Dig intended.

4 You acknowledge that you use the Information at your own risk. In consideration for the provision of the Dial Before You Dig service and the Information by Sydney Water and Dial Before You Dig, to the fullest extent permitted by law

(a) all conditions and guarantees concerning the Information (whether as to quality, outcome, fitness, care, skill or otherwise) expressed or implied by statute, common law, equity, trade, custom or usage or otherwise are expressly excluded and to the extent that those statutory guarantees cannot be excluded, the liability of Sydney Water and Dial Before You Dig to you is limited to either of the following as nominated by Sydney Water in its discretion, which you agree is your only remedy:

(i) the supplying of the Information again; or
(ii) payment of the cost of having the Information supplied again;
(b) in no event will Sydney Water or Dial Before You Dig be liable for, and you release Sydney Water and Dial Before You Dig from, any Loss arising from or in connection with the Information, including the use of or inability to use the Information and delay in the provision of the Information:
(i) whether arising under statute or in contract, tort or any other legal doctrine, including any negligent act, omission or default (including wilful default) by Sydney Water or Dial Before You Dig; and
(ii) regardless of whether Sydney Water or Dial Before You Dig are or ought to have been aware of, or advised of, the possibility of such loss, costs or damages;
(c) you will indemnify Sydney Water and Dial Before You Dig against any Loss arising from or in connection with Sydney Water providing incorrect or incomplete information to you in connection with the Dial Before You Dig service; and
(d) you assume all risks associated with the use of the Dial Before You Dig and Sydney Water websites, including risk to your computer, software or data being damaged by any virus, and you release and discharge Sydney Water and Dial Before You Dig from all Loss which might arise in respect of your use of the websites.

5 "**Sydney Water**" means Sydney Water Corporation and its employees, agents, representatives and contractors. "**Dial Before You Dig**" means Dial Before You Dig Incorporated and its employees, agents, representatives and contractors. References to "**you**" include references to your employees, agents, representatives, contractors and anyone else using the Information. References to "**Loss**" include any loss, cost, expense, claim, liability or damage (including arising in connection with personal injury, death or any damage to or loss of property and economic or consequential loss, lost profits, loss of revenue, loss of management time, opportunity costs or special damages). To the extent of any inconsistency, the conditions in this document will prevail over any other information provided to you by Sydney Water and Dial Before You Dig.
In an emergency, or to notify Sydney Water of damage or threats to its structures, call 13 20 90 (24 hours, 7 days)

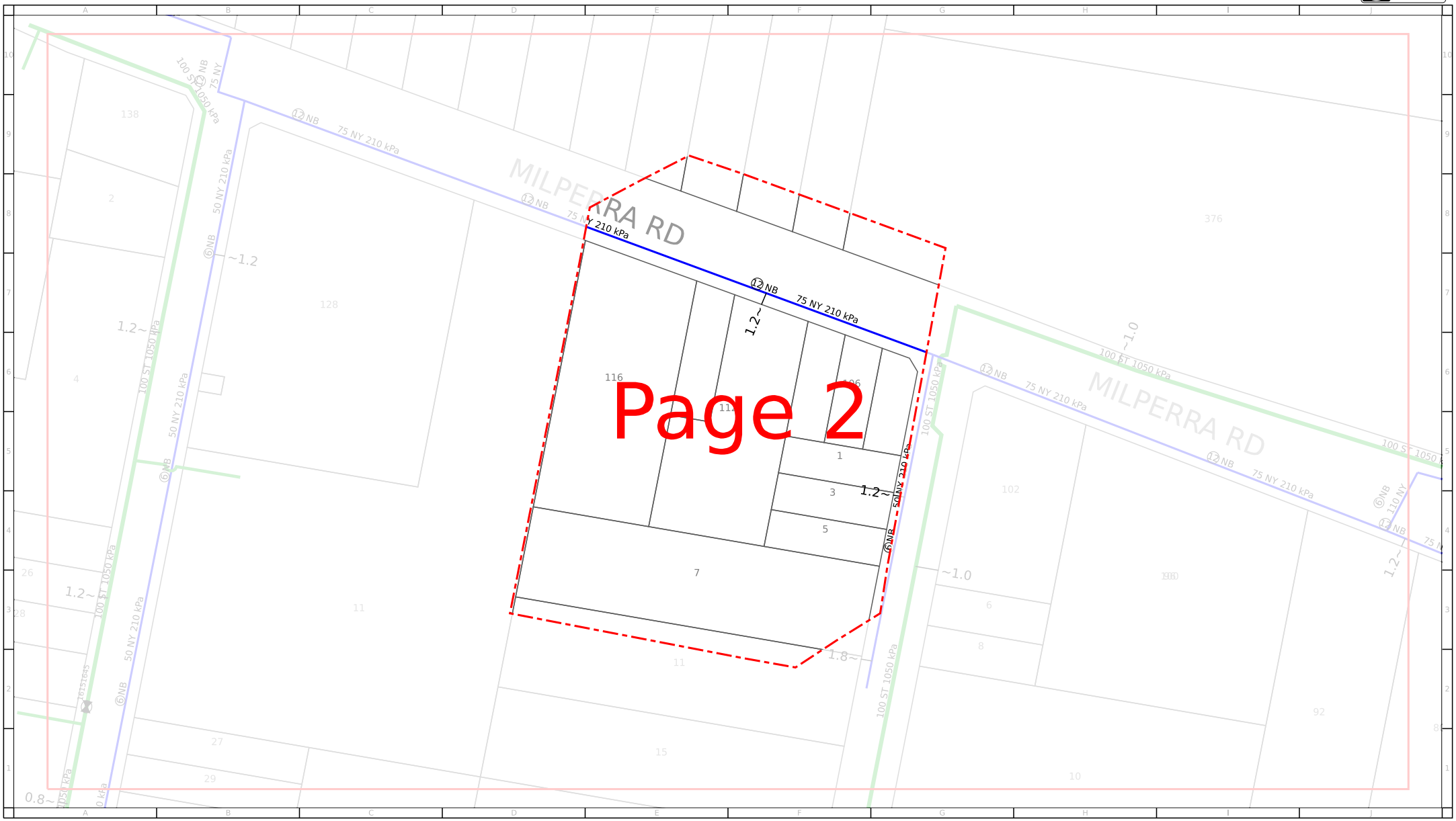
Further information and guidance is available in the Building Development and Plumbing section of Sydney Water's website at www.sydneywater.com.au, where you will find the following documents under 'Dial Before You Dig':

• Avoid Damaging Water and Sewer Pipelines
• Water Main Symbols
• Depths of Mains
• Guidelines for Building Over/Adjacent to Sydney Water Assets
• Clearances Between Underground Services

Or call **13 20 92** for Customer Enquires.
Note: The lodging of enquiries via **www.1100.com.au** will enable you to receive colour plans in PDF format 24 hours a day, 7 days a week via email.

DBYD Authority: Jemena Gas Networks (NSW)

DBYD Location: 112 Milperra Road Revesby NSW, 2212



Jemena
ABN 87 003 004 322

For legend details, please refer to the Coversheet attachment provided as part of this DBYD response.

N W E S

Scale: 1:2101

Issue Date: 20/10/2022
DBYD Seq No: 217282985
DBYD Job No: 32949636
Overview Page:

DBYD Authority: Jemena Gas Networks (NSW)

DBYD Location: 112 Milperra Road Revesby NSW, 2212

Jemena
ABN 87 003 004 322

For legend details, please refer to the Coversheet attachment provided as part of this DBYD response.

N W E S

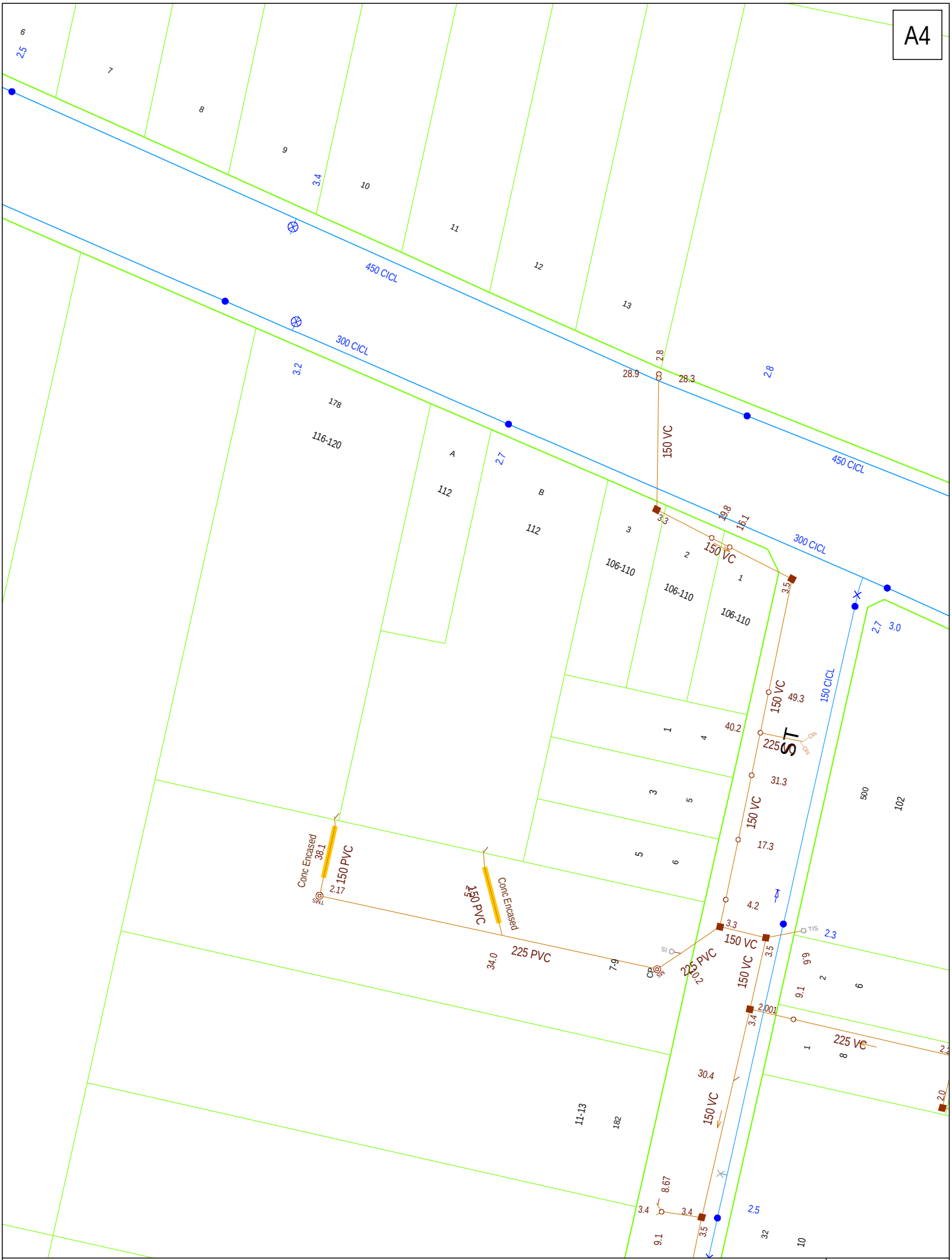
Scale: 1:2000

Issue Date: 20/10/2022
DBYD Seq No: 217282985
DBYD Job No: 32949636

0m 10m 20m 30m 40m 50m 60m 70m 80m

WARNING: This is a representation of Jemena Gas Networks underground assets only and may not indicate all assets in the area. It must not be used for the purpose of exact asset location in order to undertake any type of excavation. This plan is diagramatic only, and distances scaled from this plan may not be accurate. Please read all conditions and information on the attached information sheet. This extract is subject to those conditions. The information contained on this plan is only valid for 28 days from the date of issue.

A4



DBYD Address:
112 Milperra Road
Revesby NSW 2212

DBYD Job No: 32949636

DBYD Sequence No: 217282987

SYDNEY WATER CORPORATION

Scale: 1:1000

Date of Production: 20/10/2022

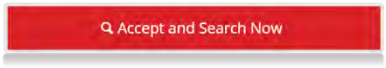
Plan 1 of 1

N

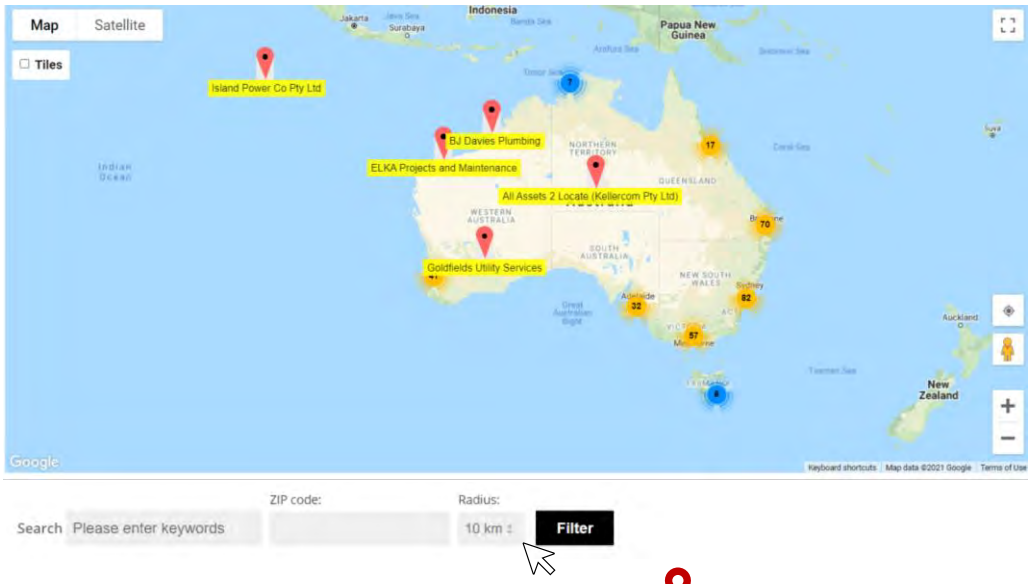
0m 5m 10m 15m 20m

Certified Locating Organisations (CLO)

Find the closest CLO to your worksite on: https://dbydlocator.com/certified-locating-organisation/

Read the disclaimer and click: 

A national map and an A-Z list of Certified Locating Organisations is displayed.



Use the map to zoom to your work area and choose the closest Locator indicated.

OR search by entering the **postcode** of your work area.

1. **Enter the post/zip code**
2. **Choose your search radius**
3. **Click filter** (If there is no result, you may have to increase the search radius)
4. **Click on the closest for CLO details or view the results displayed below the map**

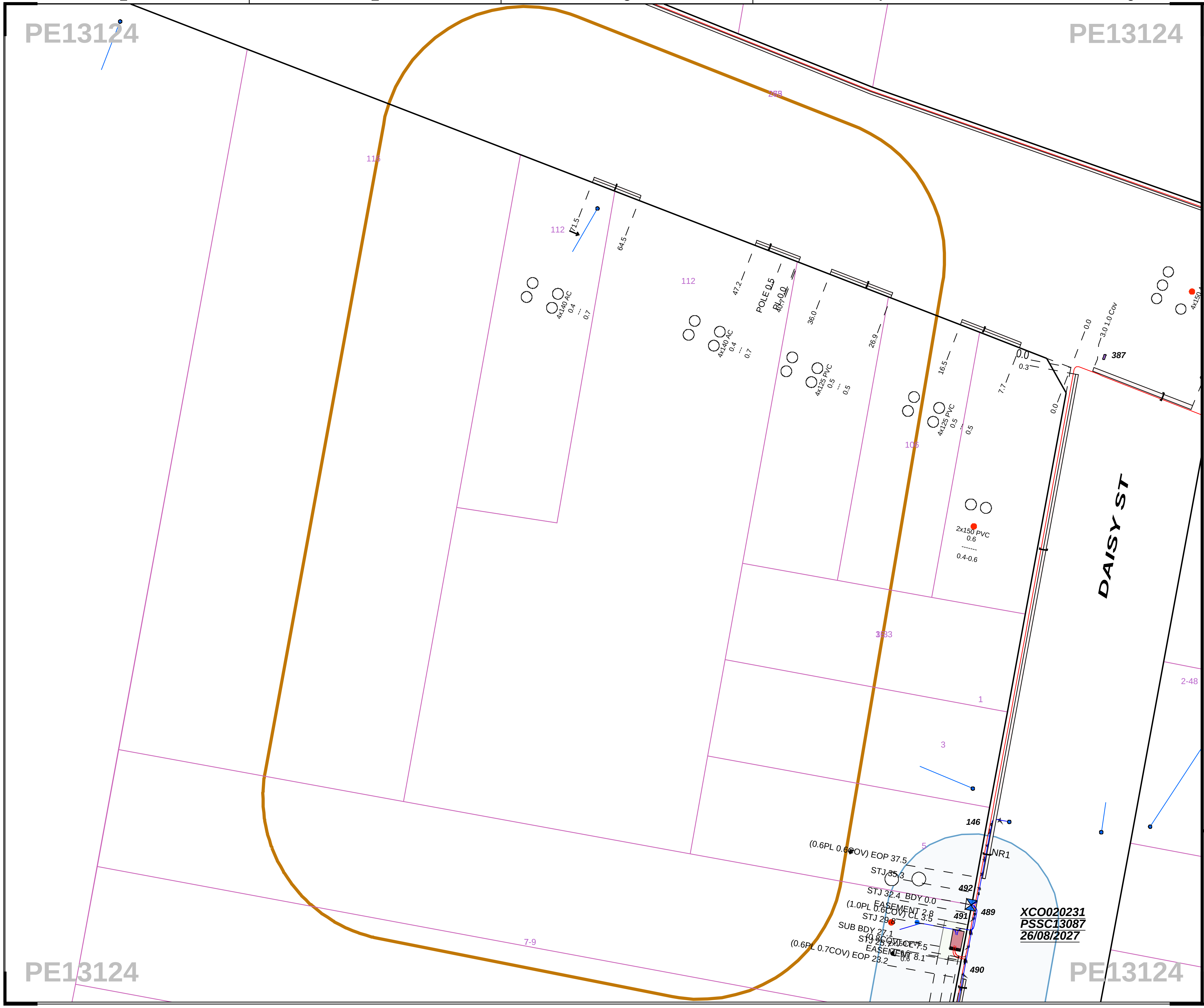
Locator skills have been tested, and the Organisation has calibrated location and safety equipment.

Telstra is aware of each Certified Locating Organisation and their employee locators.

Only a DBYD Certified Locator registered with a Certified Locating Organisation is authorised to access Telstra network for locating purposes.

Each Certified Locator working for a CLO is issued with a photo ID Card, authorising them to access Telstra pits and manholes for the purpose of cable and plant locations.

Please ask to see your Locators' CLO ID Card.



ISG GRID

PE13121	PE13122	PE13211
PE13123	PE13124	PE13213
PE13141	PE13142	PE13231

Page 1 of 1

Scale 1:553

0 15 metres

N

Distribution - 217282984
GMLA3

INFORMATION ON THIS PLAN ONLY VALID FOR 30 DAYS FROM ISSUE DATE: **20 Oct 2022**

Ausgrid

W A R N I N G : Ausgrid's plans show the position of assets at the time of installation and may not account for subsequent changes to road alignments, fences or buildings. The plans show no more than the presence or absence of Ausgrid assets in the street. Persons working near electricity networks must exercise care and will be held responsible for any damage caused. You must excavate by hand or use vacuum excavation to establish the location of Ausgrid underground cables and associated assets.Underground: Working near a cable may result in electric shock even if no contact is made. Any work in the vicinity of any cable should only be performed using safe work methods developed in accordance with the recommendations included in Safework NSW Code of Practice for Excavation and Safework NSW Guide for Work Near Underground Assets as well as recommendations of Ausgrid's Network Standard NS156. Overhead: Do not excavate near poles or towers until the stability of the foundation has been assessed by Ausgrid. Cables or earth conductors may be present close to substations, poles or towers. Workers must maintain safe approach distances and follow applicable Safework NSW Codes of Practice. NOTE: 1. You must keep Ausgrid plans on site during excavation works. If the people actually performing the excavation works do not know how to read and interpret Ausgrid's plans, then the work must be directed by a person who knows how to read and interpret the plans. 2. This information includes data from the NSW Digital Cadastral Database by Land and Property Information (c) 2016, used under Creative Commons licence version 4.0.