Environmental Site Assessment

P2085

Speedway Petroleum

Service Station at:

117 Pringle Avenue,

Belrose NSW 2085

14th July 2023

Report Distribution

Environmental Site Assessment

Address: 117 Pringle Avenue, Belrose NSW 2085

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Executive Summary

NEO Consulting were appointed by Speedway Petroleum (the client), to undertake an Environmental Site Assessment (ESA) for the former service station located at No. 117 Pringle Avenue, Belrose NSW 2085 (the site). The site is legally identified as Lot 8/-/DP545948 and has an area of approximately 1,902m^2. The site is currently zoned as E1 - Local Centre.

It is understood that the proposed plan for the site includes:

1) Removal of existing underground storage tanks (USTs);
2) Installation of a new underground petroleum storage system (UPSS). The new UPSS will consist of two (2) USTs and four fuel bowsers; and
3) Extension of the onsite retail store.

This report provides an assessment of the soil and groundwater beneath the site to ensure no contamination through the storage, refilling and dispensing on petroleum products has occurred. However, if contamination is present, remedial action will be required.

The scope of work undertaken includes:

- A site inspection to identify potential sources of contamination;
- Sampling and chemical analysis of soil on the site;
- Historical investigations relating to the site (if any);
- Local Council records and planning certificates;
- NSW EPA Contaminated Land Register and Protection of the Environment Operation Act (POEO) Public Register;
- Dial-Before-You-Dig enquiry for an evaluation into local underground services and assets;
- Review of local geological and hydrogeological information, including registered groundwater bore database;
- Review of Acid Sulphate Soil data maps.

A site inspection was undertaken on the 6th July 2023. NEO Consulting undertook a soil and groundwater investigation to assess the potential contamination on-site from current and/or historical activities. Six (6) soil samples were obtained from four (4) boreholes with a judgemental sampling pattern. Additionally, Three (3) groundwater sample was collected from onsite monitoring wells. Samples were submitted to a NATA accredited laboratory for chemical analysis for targeted Contaminants of Potential Concern (CoPC).

The history of the site indicates that it was without any structures before at least 1970. Starting from at least 1975, the site served as both a service station and an auto mechanical workshop until 2008. Following the decommissioning of the service station in 2008, the site has been operating solely as an auto mechanical workshop and carwash.

The analytical results for soil and groundwater indicate no exceedances above the NEPM Health and Ecological guidelines for Commercial/Industrial sites (D).

Removal of underground storage tanks and infrastructure should be conducted in accordance with Clause 24 of NSW EPA, Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation, 2019.

Therefore, based on the findings of this ESA, NEO Consulting concludes that the site is suitable for establishing a brand-new service station, provided that the recommendations outlined in Section 15 of this report are implemented.

1. Introduction

1.1 Background

NEO Consulting were appointed by Speedway Petroleum (the client), to undertake an Environmental Site Assessment (ESA) for the former service station located at No. 117 Pringle Avenue, Belrose NSW 2085 (the site). The site is legally identified as Lot 8/-/DP545948 and has an area of approximately 1,902m^2. The site is currently zoned as E1 - Local Centre.

It is understood that the proposed plan for the site includes:

4) Removal of existing underground storage tanks (USTs);
5) Installation of a new underground petroleum storage system (UPSS). The new UPSS will consist of two (2) USTs and four fuel bowsers; and
6) Extension of the onsite retail store.

A site inspection was undertaken on the 6th July 2023 by qualified environmental consultants. Reporting, photographs and sampling were conducted on this day and with reference to the relevant regulatory criterial **(2. Scope of Work**). Further information of the inspection is described in **4. Site Condition** and regarding the sampling in **11. Sampling and Analysis Plan**.

1.2 Objectives

This report provides an assessment of current and/or historical potentially contaminating activities that may have impacted the soils and groundwater on site and will determine if the site is suitable for the continued use as a service station.

1.3 Regulatory Framework

This ESA has been prepared in general accordance with the following regulatory framework:

- NSW EPA, *Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation,* 2019;
- NSW EPA, *Technical Note: Investigation of Service Station Sites,* 2014;
- NSW EPA, Contaminated Sites: Guideline for Assessing Service Station Sites, 2003;
- NSW EPA, *Contaminated Land Guidelines*, *Sampling Design Part 1 – Application*, 2022;
- NSW EPA, *Contaminated Land Guidelines*, *Sampling Design Part 2 – Interpretation*, 2022;
- NSW EPA, *Consultants Reporting on Contaminated Land: Contaminated Land Guidelines*, 2020;
- NSW DECCW, UPSS Technical Note: Decommissioning, Abandonment and Removal of UPSS, 2010;
- NSW DECCW, UPSS Technical Note: Site Validation Reporting, 2010; and
- State Environment Protection Policy (Resilience and Hazard) 2021.

2. Scope of Work

To meet the requirements in Section 1.3 of this report, the following scope of works were included:

- A site inspection to identify potential sources of contamination;
- Sampling and chemical analysis of soil on the site;
- Historical investigations relating to the site (if any);
- Local Council records and planning certificates;
- NSW EPA Contaminated Land Register and Protection of the Environment Operation Act (POEO) Public Register;
- Dial-Before-You-Dig enquiry for an evaluation into local underground services and assets;
- Review of local geological and hydrogeological information, including registered groundwater bore database;
- Review of Acid Sulphate Soil data maps.

3. Site Details

Table 1. Site Details

Address	No. 117 Pringle Avenue, Belrose NSW 2085
Deposited plan	Lot 8/-/DP545948
Zoning	E1 - Local Centre
Locality map	Figure 1, Appendix A
Site Details	Figure 2, Appendix A
Area	1,902m^2

Table 2. Adjoining land use

Direction from site	Land-use
North	Ralston Avenue
East	Pringle Avenue
South	Residential Property at No. 113 Pringle Avenue
West	Shopping Centre

4. Site Condition

A site inspection was undertaken on the 6th July 2023 by NEO Consulting. During the site inspection, the following observations were noted (photographs in **Appendix A**):

- This site is situated on an irregular-shaped lot positioned at the intersection of Pringle Avenue and Ralston Avenue.
- The site currently functions as an auto mechanical workshop.
- The underground storage tanks (USTs) from the previous service station still exist on the site, specifically in the eastern portion.
- Various structures are present on the site, including a workshop in the western portion, a retail store in the northern portion, and a metal awning in the southern portion.
- The site had a sloping gradient towards southwest; and
- No visual or olfactory signs of surface contamination were observed during the assessment.

The site is surrounded by sensitive human receptors, including neighbouring residential and commercial properties. In addition, the Belrose Primary OSH Care Centre is located approximately 30 meters northeast of the site, and Belrose Public School is approximately 70 meters northwest. As for environmental receptors, Frenches Creek is situated approximately 980 meters southwest of the site.

5. Site History

5.1 History of Site

The history of the site indicates that it was without any structures before at least 1970. Starting from at least 1975, the site served as both a service station and an auto mechanical workshop until 2008. Following the decommissioning of the service station in 2008, the site has been operating solely as an auto mechanical workshop and carwash.

A summary of historical images is contained below, and the images referenced can be seen in **Appendix A**.

Table 3. Google street view.

Year	Description
1943	The site did not have any structures at this time. The surrounding area primarily consisted of rural residential properties and vacant land.
1970	Vegetation on the site had been enhanced, and there was an increase in commercial developments in the surrounding area.
1975	The site was developed and included a service station. Residential developments had also progressed in the southeast of the site.
1998	The site experienced minimal changes during this period. The surrounding area was improved in residential and commercial developments to the north.
2009	There were no significant changes to the site or its surrounding area.
2023	The site and its surrounding area have remained largely unchanged up to the present year.

5.2 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, the Planning Certificate was not available.

5.3 NSW EPA Contaminated Land Register

A search of the NSW EPA contaminated land register was undertaken for the site. No records were found for the site or within 500m of the site.

5.4 NSW EPA Protection of the Environment Operations Act (POEO) Public Register

A search on the POEO public register of licensed and delicensed premises (DECC) was undertaken for the site. No records were found for the site or within 500m of the site.

5.5 Product Spill and Loss History

The visual site inspection did not identify evidence of contamination within the site (e.g. chemical staining, unhealthy vegetation).

5.6 Dial Before You Dig

A review of assets and services via a Dial-Before-You-Dig request indicates that underground services or assets may act as a portal for contamination to migrate off-site.

5.7 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 Hawkesbury Sandstone of Wianamatta Groupe which consists of medium to coarse-grained quartz sandstone with minor shale and laminate lenses. Deep weathering of the sandstone is widespread. The deep weathering products are known as friable sandstone.

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 Somersby soil landscape. This landscape is normally recognised by gently undulating to rolling rises in deeply weathered Hawkesbury Sandstone plateau. Local relief of this landscape is typically up to 40 m, with slopes of usually less than <15%. moderately deep to deep (100–300cm) Red Earths and Yellow Earths overlying laterite gravels and clays on crests and upper slopes; Yellow Earths and Earthy Sands on mid-slopes; Grey Earths, Leached Sands and Siliceous Sands on lower slopes and drainage lines; Gleyed Podzolic Soils in low lying poorly drained areas.

6.3 Groundwater

A groundwater bore search was conducted on the 13th July 2023. The nearest bore (GW016740) with was located 70m north-west of the site. The standing water level of the bore was not recorded, the bore had the following material:

Table 4. GW016740 bore logs.

From(m)	To(m)	Thickness(m)	Drillers Description	Geological Material
0.00	0.60	0.60	Clay	Clay
0.60	24.38	23.78	Sandstone	Sandstone

6.4 Topography

The topography surrounding the site gently slopes towards Frenchs Creek located approx. 980m south-west of the site.

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 Frenchs Creek (approx. 980m SW).

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. Potential Areas and Contaminants of Concern

AEC	Potentially Contaminating / Hazardous Activity	CoPC	Likelihood of Site Impact	Comments
Entire site	Importation of fill material is likely to be minimal	Metals, TRH, BTEX, PAH	Low	The presence of imported fill material is likely be minimal. On site operation may have given rise to contamination event/s. Due to sealed surfaces leachability of petroleum-derived contaminants is unlikely.
Self service area and underground storage of petroleum products	Storage and dispensing of petroleum products underground.	Metals, TRH, BTEX, PAH	Moderate	Based on site observation, the potential for hydrocarbon spills within the service area, leaks from the underground tank and associated lines are possible.
Building structures	Hazardous materials	ACM, SMF, ODS, Lead (paint and/or dust), PCBs	Low	Based on site observations, it cannot be concluded that any of the hazardous materials mentioned here are present at this location.

ABBREVIATIONS: ASBESTOS CONTAINING MATERIALS (ACM), BENZENE, TOLUENE, ETHYLBENZENE AND XYLENE (BTEX), OZONE DEPLETING SUBSTANCES (ODS), POLYCHLORINATED BIPHENYLS (PCBS), POLYCYCLIC AROMATIC HYDROCARBON (PAH), TOTAL PETROLEUM HYDROCARBONS (TPH), SYNTHETIC MINERAL FIBRES (SMF), HAZARDOUS MATERIALS SURVEY (HMS).

8. Conceptual Site Model

A Conceptual Site Model (CSM) was developed to provide an indication of potential risks associated with contamination source and contamination migration pathways, receptors and exposure mechanisms. The CSM provides a framework for the review of the reliability and useability of the data collected and to identify data gaps in the existing site characterisation. Here, we consider the connections between the following elements:

- Potential contamination sources and their associated CoPC;
- Potential human receptors that may be impacted by the site contamination are current and future site users including occupants to the dwelling/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 historical onsite operations. ACM and other hazardous material within onsite structures. Multiple small scale hydrocarbon spills from refuelling events (tanks or vehicles). Storage and dispensing of petroleum products underground.	Future site occupant, construction workers, general public, surrounding ecological receptors.	Dermal contact, inhalation/ ingestion of particulates, vapour intrusion.	Complete (current)	Low	Exposure to potentially contaminated soils is unlikely since sealed surfaces extend across the site.
			Complete (Future)	Low	If present, impacted soils are to be disposed of off-site.
	Natural soils	Underground storage of petroleum products, migration from surface source.	Complete (current)	Low	Due to underground storage of petroleum products, contamination of natural soils is possible.
			Complete (Future)	Low	If present, impacted soils are to be disposed of off-site.
	Frenches Creek (980m SW)	Migration of impacted groundwater and surface water run-off	No (Future)	Low	The local topography surrounding the site falls Frenches Creek (980m SW). It is unlikely surface waters from the site reach this waterway due to large distance.

			No (Future)	Low	If present, contaminated soils and groundwater are likely to be remediated.
	Underlying aquifer	Leaching and migration of contaminants through groundwater infiltration.	Complete (current)	Moderate	Underground storage of petroleum products may give rise to contamination migrating to the aquifer.
			Complete (Future)	Moderate	If present, contaminated soil and/or groundwater is likely to be remediated.

9. Data Gaps

Data gaps remaining for the site include:

- Presence and extent of ACM, Pb and other CoPC within on-site structures;

10. Assessment Criteria

The following assessment criteria were adopted for the investigation.

10.1 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 for residential use. Tier 1 HILs are divided into sub-criteria. The sub-criteria appropriate to the site is HIL-D, Commercial/Industrial sites.

Table 7. HIL-D

Assessment Criteria	Commercial/Industrial Soil HIL-D, mg/kg
Lead, Pb	1500
Carcinogenic PAHs (as BaP TEQ)	40
Total PAH (18)	4000

10.2 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 sites. NL = Not Limiting.

Table 8. HSL-D for soil

Assessment Criteria	Commercial/Industrial Soil HSL-D for Vapour Intrusion, 0-<1m depth, Sand, mg/kg	Commercial/Industrial Soil HSL-D for Vapour Intrusion, 1-<2m depth, Sand, mg/kg	Commercial/Industrial Soil HSL-D for Vapour Intrusion, 2-<4m depth, Sand, mg/kg
Benzene	3	3	3
Toluene	NL	NL	NL
Ethylbenzene	NL	NL	NL
Xylenes	NL	NL	NL
Naphthalene	NL	NL	NL
TRH C_6-C_{10} - BTEX (F1)	260	370	630
TRH >C_{10}-C_{16} - N (F2)	NL	NL	NL

10.3 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. EILs can be applied for arsenic (As), copper (Cu), chromium III (Cr(III)), dichlorodiphenyltrichloroethane (DDT), naphthalene, nickel (Ni), lead (Pb) and zinc (Zn). The 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	Soil Generic EIL for Commercial/Industrial, mg/kg
Naphthalene	370

10.4 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, which corresponds with the root and habitat zone for many species.

Table 10. ESL

Assessment Criteria	Soil ESL for Commercial/Industrial, Coarse -grained soil, mg/kg
Benzene	95
Toluene	135
Ethylbenzene	185
Xylenes	95
BaPyr (BaP)	1.4

TRH C_6-C_{10}	215
TRH >C_{10}-C_{16}	170
TRH >C_{16}-C_{34} (F3)	1700
TRH >C_{34}-C_{40} (F4)	3300

10.5 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. Residential, Parkland and Public Open Space limits have been adopted based on the proposed land use.

Table 11. Management Limits

Assessment Criteria	Management Limits for Commercial/Industrial, **Coarse** -grained soil, mg/kg
TRH C_6-C_{10}	700
TRH >C_{10}-C_{16}	1000
TRH >C_{16}-C_{34} (F3)	3500
TRH >C_{34}-C_{40} (F4)	10000

10.6 NEPM Groundwater Assessment Criteria (HSL-A and GILs)

Health Screening Level A (HSL-D) 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 and groundwater (Vapour Risk).

Groundwater Investigation Levels (GILs) are the concentration of a contaminant in the groundwater above which further investigation or a response is required. These levels are based on Australian water quality guidelines and drinking water guidelines and are applicable for assessing human health risk and ecological risk (fresh water or marine water) from direct contact within groundwater.

Table 12. Groundwater Investigation Levels

NEPM Assessment Criteria	NEPM 2013 GIL Marine Waters, µg/L	NEPM 2013 GIL Fresh Waters, µg/L	NEPM 2013 Commercial/Industrial HSL-D for Vapour Intrusion, 2 - <4m depth, Sand, µg/L
Benzene	500C	950	5000
Toluene	-	-	NL
Ethylbenzene	-	-	NL
Xylenes	-	350 as o-x; 200 as p-x	NL
Naphthalene	50C	16	NL
Aroclor 1242	-	0.6	-
Aroclor 1254	-	0.03	-
F1	-	-	6000
F2	-	-	NL
Arsenic	4.4	3.4	-
Cadmium	0.7	0.2	-
Chromium	27	-	-
Copper	1.3	1.4	-
Lead (pb)	4.4	3.4	-
Nickel	-	-	-
Zinc	15	8	-
Mercury	0.1	0.06	-

11. Sampling and Analysis Plan

11.1 Sampling Rationale

Table 13. Sampling Rationale

Sampling Decision	Chosen Approach	Justification
Sampling Pattern	Judgemental	This pattern was selected due to the area of the site, access to underlying soil and groundwater, the AEC and CoPC as well as the potential heterogeneity of any contamination.
Sampling Density	In total, six (6) soil samples and three (3) groundwater samples	This sampling density was selected based on the extent of the potential contaminated area to be detected, feasibility, topography, the site history, distribution of current and historical uses on site, location and condition of structures.
Duplicate Samples (total)	No duplicates	No duplicate was taken due to the minimum number of samples taken.
Sampling Depths	Soil samples 0.15-1.5 m	These depths were selected in compliment with sampling density and to target depths of potential contaminants. Additionally, soil thickness and proximity to the aquifer were considered when determining these depths.

11.2 Field Sampling Methodology

All boreholes were completed with a hand and drill auger. Soil was scraped from the freshly cut cross section for sample collection. Augers was decontaminated with deionised water between boreholes. Samples were immediately placed in laboratory prepared jars (labelled prior to arriving on site), with the lid securely attached to jar and only removed for the purpose of storing each sample. This sample storage approach allowed the preservation of any potential fill layers as well as natural underlying material to be stored in stratigraphic layers.

A Clear PVC Bailer was lowered into the wells, positioned appropriately and allowed to reach equilibrium before retrieval. Depth to water and depth of well were recorded for each well. Groundwater samples were placed in laboratory prepared bottles: amber glass vial for metal analysis and two (2) glass vials for TRH.

The samples were placed on ice in an esky for transport under Chain of Custody (COC) to a NATA accredited laboratory for the analysis of the CoPC.

Table 14. Soil sample details

Borehole	Sample	Depth (m)	Soil Type
BH1	BH1.1	0.15m	Sand
	BH1.2	1.5m	Weathered Sandstone
BH2	BH2.1	0.15m	Sand
BH3	BH3.1	0.15m	Sand
BH4	BH4.1	0.15m	Sand
	BH4.2	1.5m	Weathered Sandstone

Table 15. Groundwater well details

Sample	Depth to Water (m)	Total Depth of Well (m)
MW1	0.66	4.78
MW2	0.60	1.70
MW3	0.36	1.40

11.3 Field Quality Assurance & Quality Control Procedures

The following procedures were undertaken to ensure the data quality for each sample:

- Selection of appropriate sampling methods;
- Decontamination procedures;
- Appropriate containers selected for planned analyses;
- Appropriate preservation and storage measures to minimise contamination or analyte loss;
- Statement of duplicate frequency;
- Sampling devices and equipment;
- Field instrument calibrations.

11.4 Laboratory Quality Assurance & Quality Control Procedures

The following procedures were undertaken to ensure the data quality for each sample:

- A copy of signed chain-of-custody forms acknowledging receipt date, time and temperature and identity of samples included in shipments;
- Record of holding times;
- Analytical methods used, including any deviations or method detection limit;
- Laboratory accreditation for analytical methods used;
- Laboratory performance for the analytical method using duplicates calculated as Relative Percentage Differences (RPD);
- Surrogates used during extraction process;

- Practical quantification limits (PQL);
- Reference laboratory control sample (LCS) used throughout the full method process from extraction to injection;
- Matrix spikes (MS) indicate percentage of recovery of an expected result, via a known concentration if an analyte spiked in a field sub-sample;
- Laboratory blank results (tabulate);
- Results are within control chart limits;
- Instrument detection limit.

12. 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 16. Data Quality Objectives

Step 1: State the problem	NEO Consulting have identified the following risks to human and environmental receptors: Historical site use as a service station may have given rise to contaminating events: • Refuelling vehicles; • Tank refilling events; • Underground storage of petroleum products. Additionally, these potentially contaminating events persist as the intended future use of the site is operation as a service station. Constraining a historical contamination base line is essential for the operation and management of the future use of the site.
Step 2: Identify the decision/goal of the study	NEO Consulting 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 of the ESA? • 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 the proposed development?
Step 3: Identify the information inputs	NEO Consulting has identified issues of potential environmental concern; Appropriate identification of CoPC; • Soil and groundwater 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 footprint of the imported fill; • Vertical boundary: The soil interface to the maximum depth reached during soil and groundwater sampling; and • Temporal boundary: Constrained to a single visit to the site.
Step 5: Develop the analytical approach	Here, NEO Consulting integrate the information from steps 1 – 4 to support and justify our proposed analytical approach. Our aim is to confirm if the site is suitable for the proposed development. If the findings of the SAQP identify; • Any exceedance of the adopted assessment criteria for soil;

	• Groundwater flow direction confirms contamination likely to be transported offsite; • Professional opinion that further assessment is required; and/or • Adopted RPD for QC data not met. Further assessment may be required to confirm suitability of the site in the form of; Data Gap investigation, Remediation Action Plan and Site Validation.
Step 6: Specify performance or acceptance criteria	To determine if the soils and groundwater are within acceptable ranges, we employ the following NEPM criteria: • The 95% upper confidence limit (UCL) is calculated for the mean concentration of each contaminant for each individual sample across a sampling plane (eg. surface samples, depth samples), which provides the probability that 95% of the data obtained will meet the acceptance criteria; and • a limit on decision error will be 5% that the conclusion may be incorrect.
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.

13. Analytical Results

13.1 Soil Analytical Results

Analytical results indicate no exceedances of Health and Ecological Assessment Criteria for Commercial/Industrial (D) developments.

Elevated concentrations of TRH-F2, TRH-F3, PAH and Lead detected above Laboratory Limit of Reporting (LOR) but at concentrations below the Health and Ecological Assessment Criteria for Commercial/Industrial sites (D) sites.

Analytical results are provided in Appendix B.

13.2 Groundwater Analytical Results

Analytical results indicate no exceedances of Health and Ecological Assessment Criteria for Commercial/Industrial (D) developments.

Elevated concentrations of TRH-F1 and, Naphthalene in MW2 detected above Laboratory Limit of Reporting (LOR) but at concentrations below the Health and Ecological Assessment Criteria for Commercial/Industrial sites (D) sites.

Analytical results are provided in Appendix B.

14. Conclusion

The history of the site indicates that it was without any structures before at least 1970. Starting from at least 1975, the site served as both a service station and an auto mechanical workshop until 2008. Following the decommissioning of the service station in 2008, the site has been operating solely as an auto mechanical workshop and carwash.

The analytical results for soil and groundwater indicate no exceedances above the NEPM Health and Ecological guidelines for Commercial/Industrial sites (D).

Removal of underground storage tanks and infrastructure should be conducted in accordance with Clause 24 of NSW EPA, Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation, 2019.

Therefore, based on the findings of this ESA, NEO Consulting concludes that the site is suitable for establishing a brand-new service station, provided that the recommendations outlined in Section 15 of this report are implemented.

15. Recommendations

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

- Removal of underground storage tanks and infrastructure should be conducted in accordance with Clause 24 of NSW EPA, *Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation,* 2019:
    - A report referred to in subclause (1) must: (a) be prepared by a suitably qualified person in accordance with EPA guidelines, and (b) describe the processes used to remove the tanks concerned and assess contamination at the storage site, and (c) describe any remediation work carried out during the removal or replacement of the tanks concerned.
- 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 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, including asbestos.

References

- NSW EPA, *Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation*, 2019;
- NSW EPA, *Technical Note: Investigation of Service Station Sites,* 2014;
- NSW EPA, *Contaminated Land Guidelines*, *Sampling Design Part 1 – Application*, 2022;
- NSW EPA, *Contaminated Land Guidelines*, *Sampling Design Part 2 – Interpretation*, 2022;
- NSW EPA, Contaminated Sites: Guideline for Assessing Service Station Sites, 2003;
- NSW EPA, *Consultants Reporting on Contaminated Land: Contaminated Land Guidelines*, 2020;
- NSW EPA, *Guidelines on the Duty to Report Contamination under Contaminated Land Management Act*, 1997;
- NSW DECCW, UPSS Technical Note: Decommissioning, Abandonment and Removal of UPSS, 2010;
- NSW DECCW, UPSS Technical Note: Site Validation Reporting, 2010;
- NEPM (2013), Schedule B2 – *Guideline on Site Characterisation*;
- State Environment Protection Policy (Resilience and Hazard) 2021; and
- National Environmental Protection (Assessment of Site Contamination) Measure – National Environmental Protection Council 2013.

Limitations

The findings of this report are based on the Scope of Work outlined in Section 2. NEO Consulting 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 NEO Consulting personnel involved with the project, subject to the qualifications made above. While normal assessments of data reliability have been made, NEO Consulting assumes no responsibility or liability for errors in any data obtained from regulatory agencies, statements from sources outside of NEO Consulting, 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. NEO Consulting 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.

NEO Consulting 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.

NEO CONSULTING

Prepared by:	Reviewed by:
Ehsan Zare	Nick Caltabiano
Environmental Consultant	Project Manager

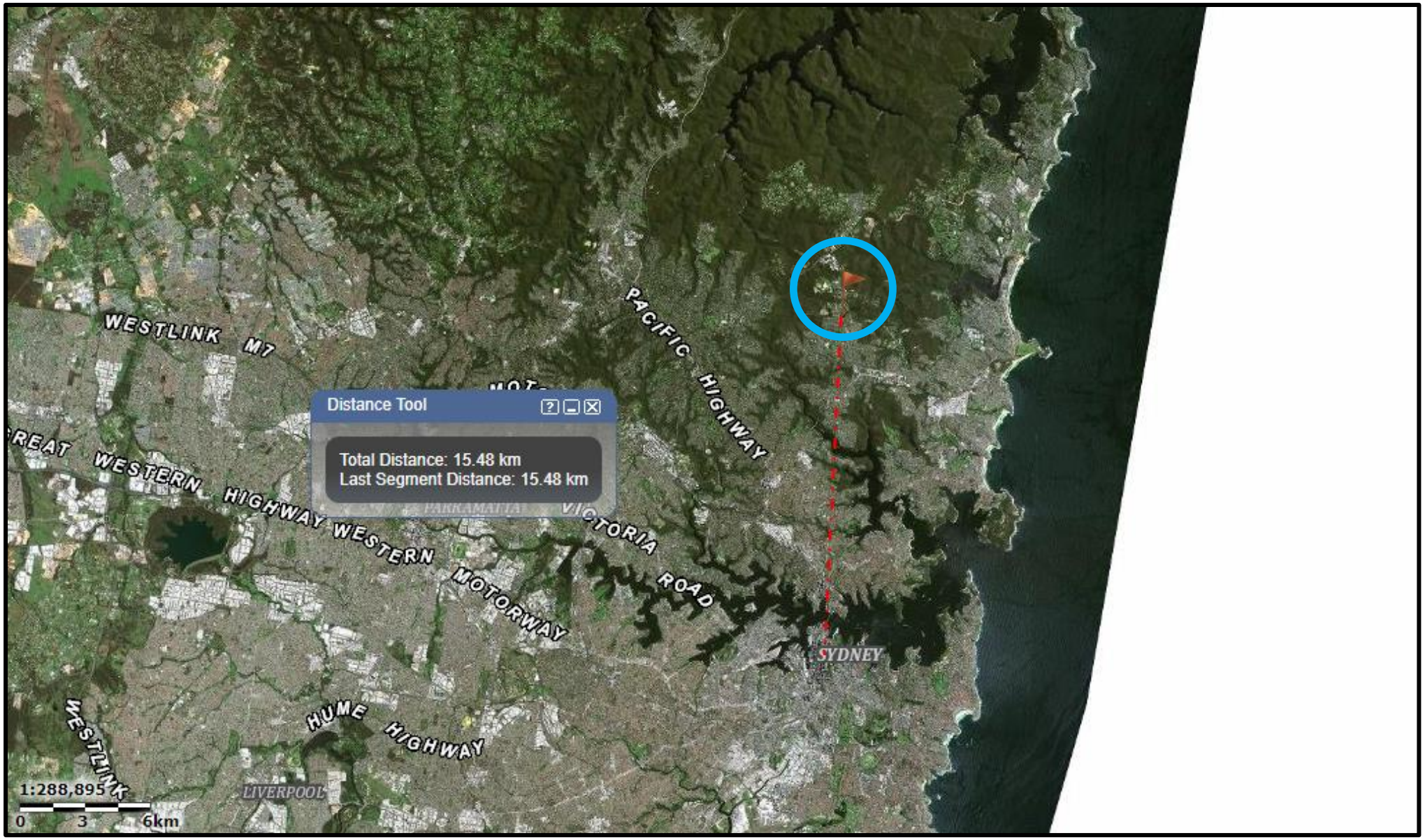
NEO CONSULTING

APPENDIX A

Figures and Photographic Log

N

Figure 1. The site is located approximately 15km north of Sydney CBD.



Site location

Source: Six Maps 2023

Figure 1	Locality Map
Project	117 Pringle Avenue, Belrose NSW 2085

N

Figure 2. The approximate area of the site is 1,092m^2.

Storage Tanks

Monitoring Well

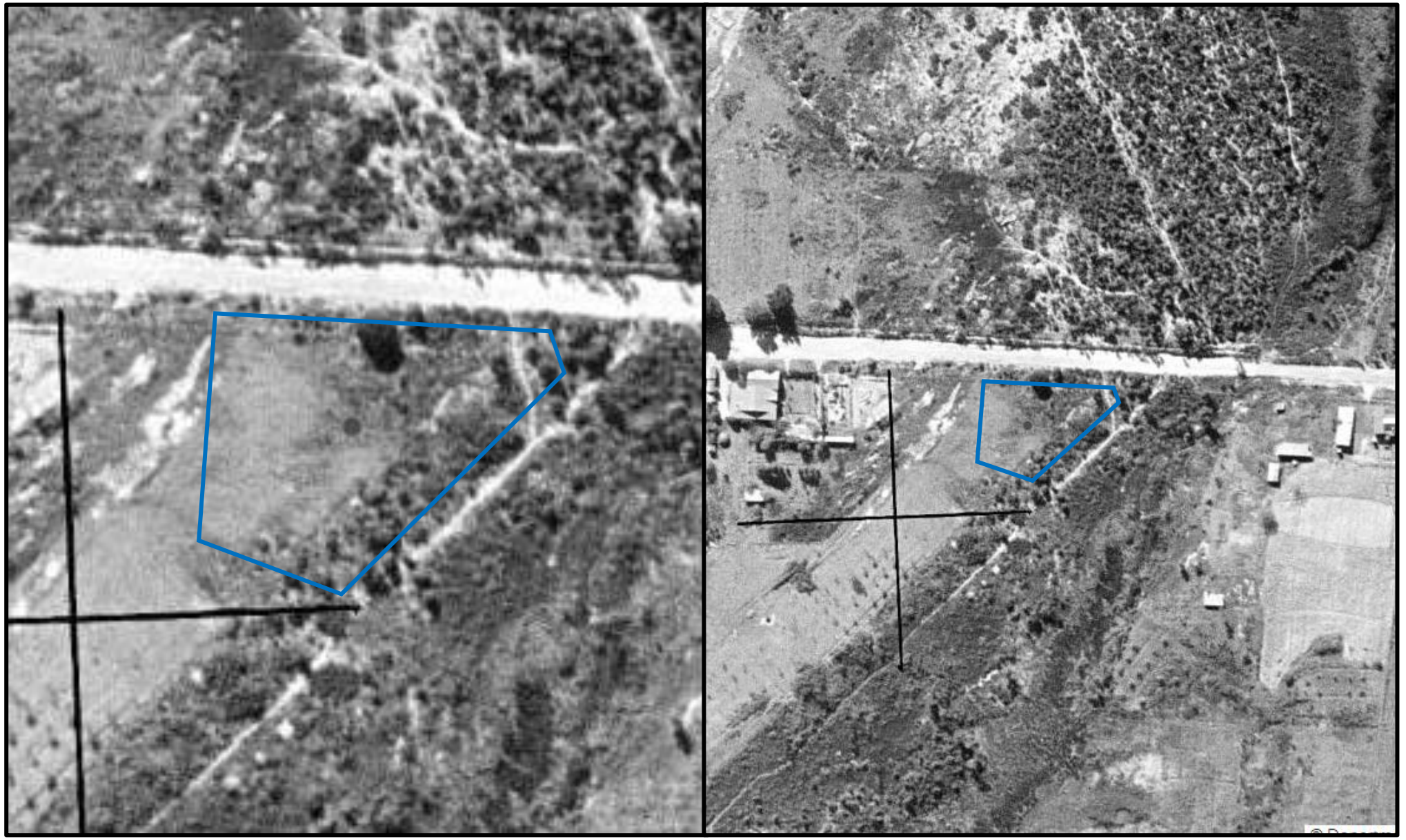
Soil Sample Locations

Source: Nearmap 2023

Figure 2	Site Area
Project	117 Pringle Avenue, Belrose NSW 2085

N

Figure 3: Aerial and street image of the site and surrounding area 1943. The site did not have any structures at this time. The surrounding area primarily consisted of rural residential properties and vacant land.

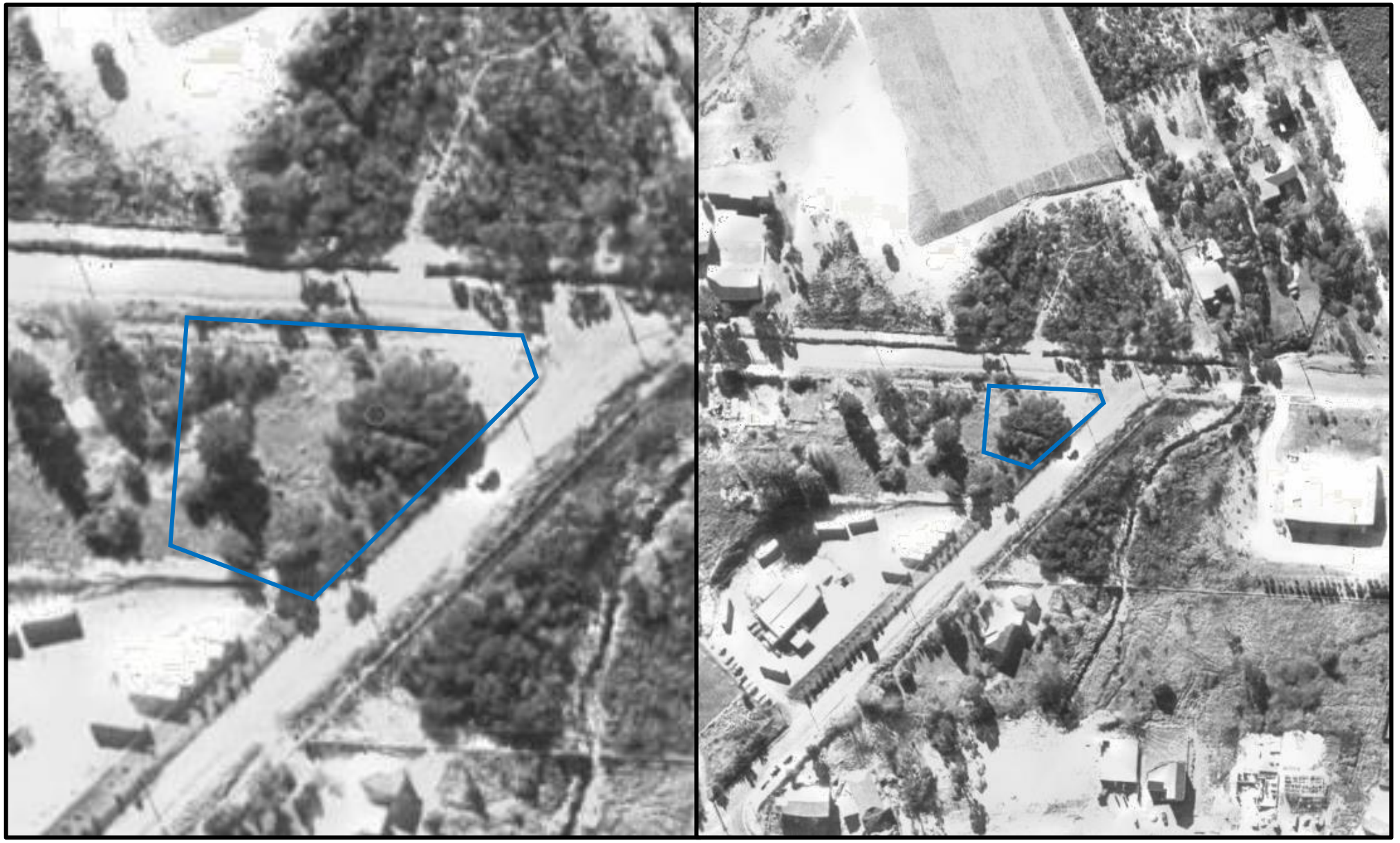


Source: NSW Historical Imagery 2023

Figure 3	Aerial and Street Image 1943
Project	117 Pringle Avenue, Belrose NSW 2085

N

Figure 4: Aerial and street image of the site and surrounding area 1970. Vegetation on the site had been enhanced, and there was an increase in commercial developments in the surrounding area.

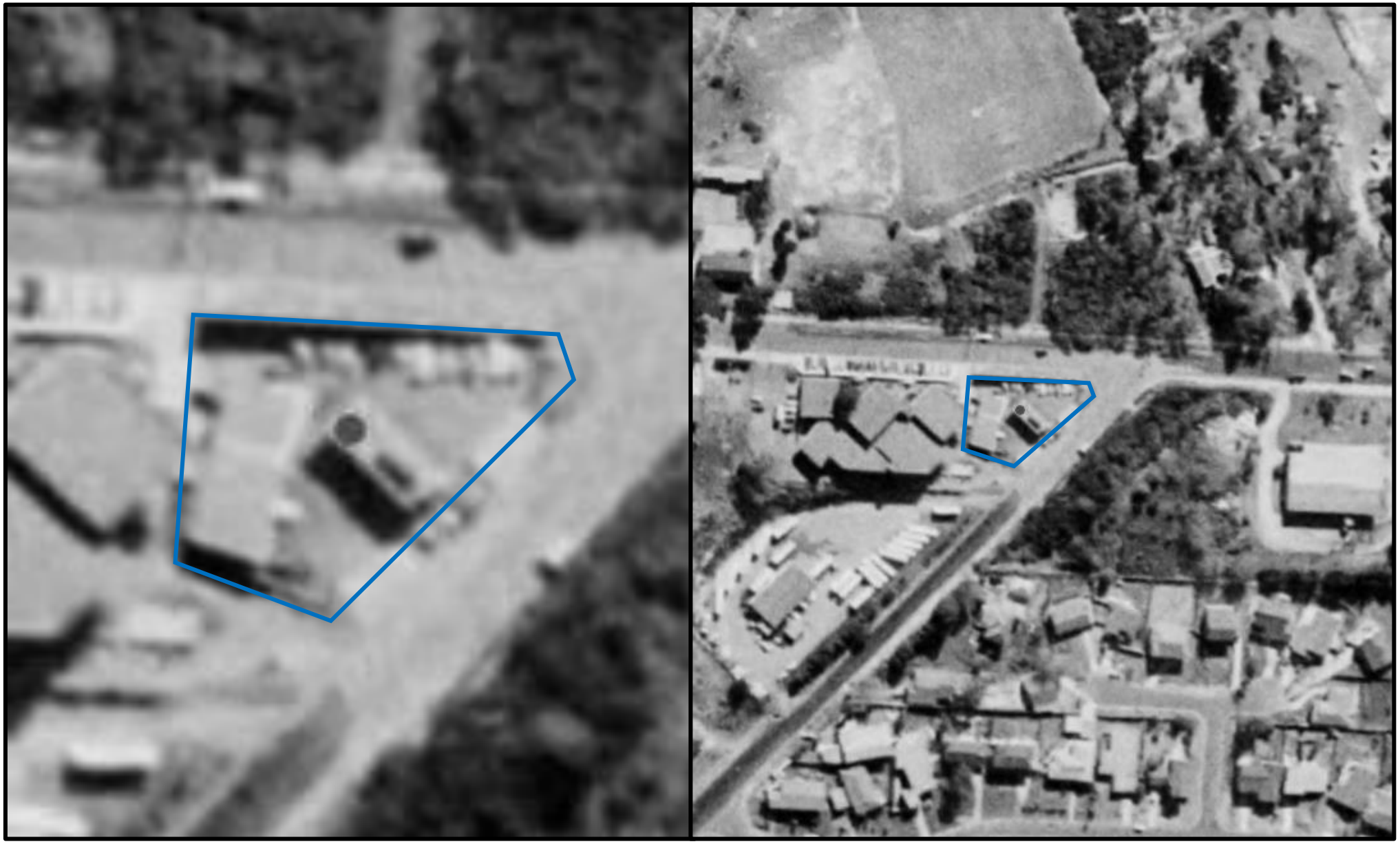


Source: NSW Historical Imagery 2023

Figure 4	Aerial and Street Image 1970
Project	117 Pringle Avenue, Belrose NSW 2085

N

Figure 5: Aerial image of the site and surrounding area 1975. The site was developed and included a service station. Residential developments had also progressed in the southeast of the site..



Source: NSW Historical Imagery 2023

Figure 5	Aerial Image 1975
Project	117 Pringle Avenue, Belrose NSW 2085

N

Figure 6: Aerial image of the site and surrounding area 1998. The site experienced minimal changes during this period. The surrounding area was improved in residential and commercial developments to the north.

Source: NSW Historical Imagery 2023

Figure 6	Aerial Image 1998
Project	117 Pringle Avenue, Belrose NSW 2085

N

Figure 7: Aerial image of the site and surrounding area 2009. There were no significant changes to the site or its surrounding area.

Source: nearmap 2023

Figure 7	Aerial Image 20059
Project	117 Pringle Avenue, Belrose NSW 2085

Figure 8: Aerial image of the site and surrounding area 2023. The site and its surrounding area have remained largely unchanged up to the present year.

Source: nearmap 2023

Figure 8	Aerial Image 2023
Project	117 Pringle Avenue, Belrose NSW 2085

Figure 9. Overall view of the site.

Figure 10. Auto mechanical workshop within western portion of the site.

Figure 11. Retail store within northern portion of the site.

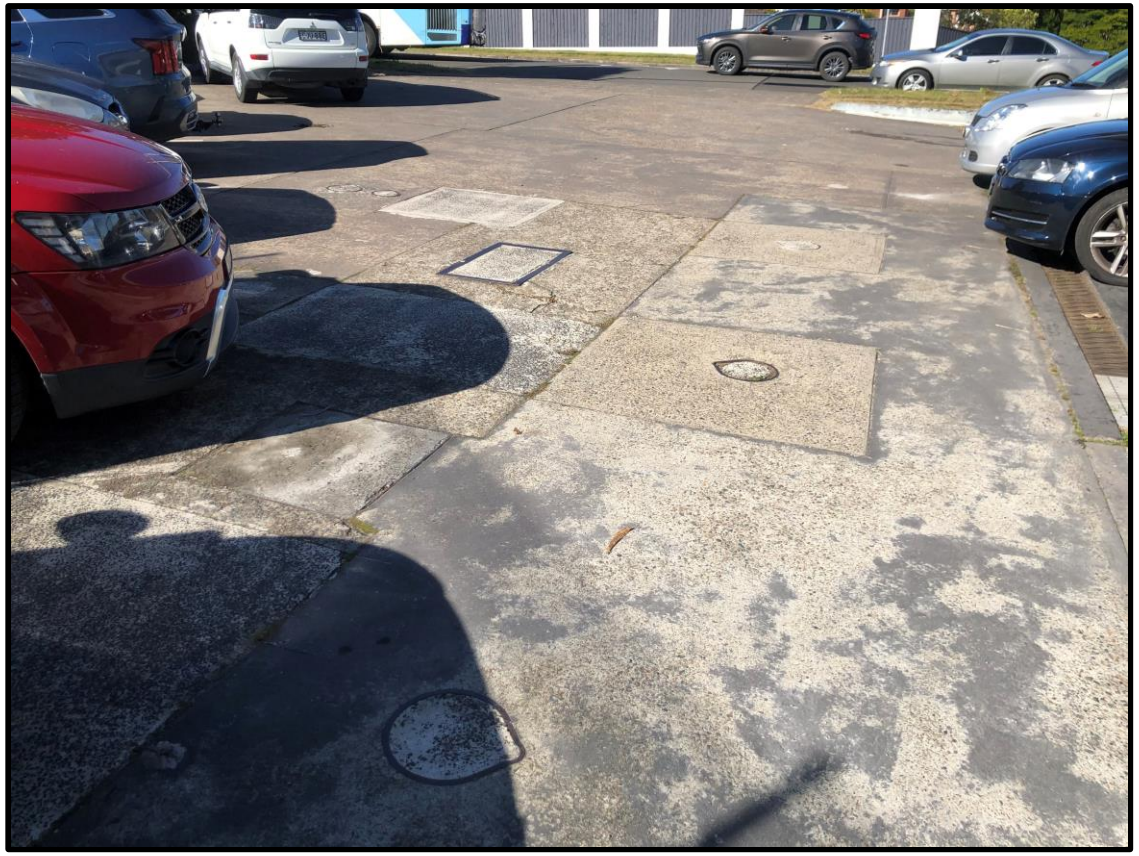


Figure 12. Location of underground storage tanks within eastern portion of the site.

Figure 13. Sampling of MW2.

Figure 14. Sampling of MW3.

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APPENDIX B

Analytical Results and Laboratory Reports

Table 17. Total Recoverable Hydrocarbon (TRH) analytical results.

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, 1-<2m depth, Sand, mg/kg			260		NL		
NEPM 2013 Commercial/Industrial Soil HSL-D for Vapour Intrusion, 1-<2m depth, Sand, mg/kg			370		NL		
NEPM 2013 Commercial/Industrial Soil HSL-D for Vapour Intrusion, 2-<4m depth, Sand, mg/kg			630		NL		
NEPM 2013 Soil Generic 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	10 000
Sample	Depth (m)	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
BH1.1	0.15m	<25	<25	**51**	**51**	**310**	<120
BH1.2	1.5m	<25	<25	**40**	**40**	**300**	<120
BH2.1	0.15m	<25	<25	<25	<25	<90	<120
BH3.1	0.15m	<25	<25	<25	<25	<90	<120
BH4.1	0.15m	<25	<25	<25	<25	**160**	<120
BH4.2	1.5m	<25	<25	<25	<25	**150**	<120

Table 18. 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	NL
NEPM 2013 Commercial/Industrial Soil HSL-D for Vapour Intrusion, 1-<2m depth, Sand, mg/kg		3	NL	NL	NL
NEPM 2013 Commercial/Industrial Soil HSL-D for Vapour Intrusion, 2-<4m depth, Sand, mg/kg		3	NL	NL	NL
NEPM 2013 Soil ESL for Commercial/Industrial, Coarse-grained soil, mg/kg		95	135	185	95
Sample	Depth (m)	mg/kg	mg/kg	mg/kg	mg/kg
BH1.1	0.15m	<0.1	<0.1	<0.1	0.4
BH1.2	1.5m	<0.1	<0.1	<0.1	<0.3
BH2.1	0.15m	<0.1	<0.1	<0.1	<0.3
BH3.1	0.15m	<0.1	<0.1	<0.1	<0.3
BH4.1	0.15m	<0.1	<0.1	<0.1	<0.3
BH4.2	1.5m	<0.1	<0.1	<0.1	<0.3

Table 19. Polycyclic Aromatic Hydrocarbon (PAH) analytical results. NL = Not Limiting.

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 Commercial/Industrial Soil HSL-D for Vapour Intrusion, 1-<2m depth, Sand, mg/kg		NL			
NEPM 2013 Commercial/Industrial Soil HSL-D for Vapour Intrusion, 2-<4m depth, Sand, mg/kg		NL			
NEPM 2013 Soil Generic EIL for Commercial/Industrial, mg/kg		370			
Soil ESL for Commercial/Industrial, Coarse-grained soil, mg/kg			1.4		
NEPM 2013 Commercial/Industrial Soil HIL-D, mg/kg			1.00 TEF	40	4000
Sample	Depth (m)	mg/kg	mg/kg	TEQ (mg/kg)	mg/kg
BH1.1	0.15m	<0.1	**0.2**	**0.4**	**2.5**
BH1.2	1.5m	<0.1	<0.1	<0.3	<0.8
BH2.1	0.15m	<0.1	<0.1	<0.3	<0.8
BH3.1	0.15m	<0.1	<0.1	<0.3	<0.8
BH4.1	0.15m	<0.1	**0.2**	**0.4**	**1.5**
BH4.2	1.5m	<0.1	**0.2**	**0.4**	**1.7**

Table 20. Lead analytical results. Values are presented as mg/kg.

Assessment Criteria		Lead, Pb
NEPM 2013 Commercial/Industrial Soil HIL-D, mg/kg		1500
NEPM 2013 Soil Generic EIL for Commercial/Industrial, mg/kg		1800
Sample	Depth (m)	mg/kg
BH1.1	0.15m	**25**
BH1.2	1.5m	**19**
BH2.1	0.15m	**70**
BH3.1	0.15m	**30**
BH4.1	0.15m	**250**
BH4.2	1.5m	**130**

Table 21. Groundwater Health Screening Level (HSL-D) and Groundwater Investigation Levels (GIL).

Assessment Criteria	TRH C_6-C_{10} - BTEX (F1)	TRH >C_{10}-C_{16} - N (F2)	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	Benzo(a)pyrene	Lead, Pb
Commercial/Industrial Groundwater HSL-D for Vapour Intrusion, 2-<4m depth, Sand, µg/L	6000	NL	5000	NL	NL	NL	NL		
NEPM 2013 GIL Marine Waters, µg/L			500C	-	-	-	50C	-	4.4
NEPM 2013 GIL Fresh Waters, µg/L			950	-	-	350 as o-x; 200 as p-x	16	-	3.4
MW1 (µg/L)	<50	<60	<0.5	<0.5	<0.5	<1.5	<0.1	<0.1	<1
MW2 (µg/L)	**76**	**65**	<0.5	<0.5	<0.5	<1.5	**1.9**	<0.1	<1
MW3(µg/L)	<50	<60	<0.5	<0.5	<0.5	<1.5	<0.1	<0.1	<1

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:	P2085
Address:	186 Riverstone Parade	Purchase Order No:	**QUOTE NUMER: 322722**
	Riverstone NSW 2765	Results Required Date:	Next Day/3 day/**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:			

SG S ID	Client Sample ID	Sampling Date/ Time	Matrix (Tick as appropriate) Soil Sample	Water Sample	Other_Cartridge__	NO. OF CONTAINERS	ANALYSIS REQUESTED NEO 1	NEO 2	NEO 3	NEO 4	Asbestos NEPM 500g.	Asbestos I.D.	BTEX	TRH	PAH	Metals	Lead	PCBs
1	BH1.1	**06/07/2023**	x			1	x											
2	BH1.2	**06/07/2023**	x			1	x											
3	BH2.1	**06/07/2023**	x			1	x											
4	BH3.1	**06/07/2023**	x			1	x											
5	BH4.1	**06/07/2023**	x			1	x											
6	BH4.2	**06/07/2023**	x			1	x											
7	MW1	**06/07/2023**		x			x											
8	MW2	**06/07/2023**		x			x											
9	MW3	**06/07/2023**		x			x											

Additional Report Formats

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

Notes/Guidelines/LOR/ Special instructions

SGS EHS Sydney COC
SE250441

Relinquished By: Jacob King	Date/Time: **06/07/2023**	Received By:	Date/Time: 7.7.23 3:00
Relinquished By:	Date/Time:	Received By:	Date/Time:
Samples Intact: *Yes / No*	Temperature: 11.6 °C	Sample Security Sealed: *Yes / No*	Hazards: *e.g. may contain Asbestos*
Comments / Subcontracting details:			

SAMPLE RECEIPT ADVICE

SE250441

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	**P2085**
Order Number	**P2085**
Samples	9

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	Fri 7/7/2023
Report Due	Fri 14/7/2023
SGS Reference	**SE250441**

SUBMISSION DETAILS

This is to confirm that 9 samples were received on Friday 7/7/2023. Results are expected to be ready by COB Friday 14/7/2023. Please quote SGS reference SE250441 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	6 Soil, 3 Water	Type of documentation received	COC
Date documentation received	7/7/2023	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	11.6°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice Bricks	Samples clearly labelled	Yes
Complete documentation received	Yes		

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

SE250441

CLIENT DETAILS

Client NEO CONSULTING PTY LTD

Project P2085

SUMMARY OF ANALYSIS

No.	Sample ID	Moisture Content	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	BH1.1	1	26	1	10	11	7
002	BH1.2	1	26	1	10	11	7
003	BH2.1	1	26	1	10	11	7
004	BH3.1	1	26	1	10	11	7
005	BH4.1	1	26	1	10	11	7
006	BH4.2	1	26	1	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

SE250441

CLIENT DETAILS

Client NEO CONSULTING PTY LTD

Project P2085

SUMMARY OF ANALYSIS

No.	Sample ID	PAH (Polynuclear Aromatic Hydrocarbons) in Water	Trace Metals (Dissolved) in Water by ICPMS	TRH (Total Recoverable Hydrocarbons) in Water	VOCs in Water	Volatile Petroleum Hydrocarbons in Water
007	MW1	22	1	9	11	7
008	MW2	22	1	9	11	7
009	MW3	22	1	9	11	7

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 .

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	**P2085**
Order Number	**P2085**
Samples	9

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	**SE250441 R0**
Date Received	7/7/2023
Date Reported	14/7/2023

COMMENTS

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

SIGNATORIES

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: 11/7/2023

PARAMETER	UOM	LOR	BH1.1 SOIL - 6/7/2023 SE250441.001	BH1.2 SOIL - 6/7/2023 SE250441.002	BH2.1 SOIL - 6/7/2023 SE250441.003	BH3.1 SOIL - 6/7/2023 SE250441.004	BH4.1 SOIL - 6/7/2023 SE250441.005
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	BH4.2 SOIL - 6/7/2023 SE250441.006
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
Total Xylenes*	mg/kg	0.3	<0.3
Total BTEX*	mg/kg	0.6	<0.6
Naphthalene (VOC)*	mg/kg	0.1	<0.1

Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 11/7/2023

PARAMETER	UOM	LOR	BH1.1 SOIL - 6/7/2023 SE250441.001	BH1.2 SOIL - 6/7/2023 SE250441.002	BH2.1 SOIL - 6/7/2023 SE250441.003	BH3.1 SOIL - 6/7/2023 SE250441.004	BH4.1 SOIL - 6/7/2023 SE250441.005
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
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	BH4.2 SOIL - 6/7/2023 SE250441.006
Benzene (F0)	mg/kg	0.1	<0.1
TRH C6-C9	mg/kg	20	<20
TRH C6-C10	mg/kg	25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 11/7/2023

PARAMETER	UOM	LOR	BH1.1 SOIL - 6/7/2023 SE250441.001	BH1.2 SOIL - 6/7/2023 SE250441.002	BH2.1 SOIL - 6/7/2023 SE250441.003	BH3.1 SOIL - 6/7/2023 SE250441.004	BH4.1 SOIL - 6/7/2023 SE250441.005
TRH C10-C14	mg/kg	20	43	33	<20	<20	<20
TRH C15-C28	mg/kg	45	210	210	<45	<45	81
TRH C29-C36	mg/kg	45	150	140	56	<45	130
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16	mg/kg	25	51	40	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	51	40	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	310	300	<90	<90	160
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	400	390	<110	<110	210
TRH >C10-C40 Total (F bands)	mg/kg	210	360	340	<210	<210	<210

PARAMETER	UOM	LOR	BH4.2 SOIL - 6/7/2023 SE250441.006
TRH C10-C14	mg/kg	20	<20
TRH C15-C28	mg/kg	45	71
TRH C29-C36	mg/kg	45	120
TRH C37-C40	mg/kg	100	<100
TRH >C10-C16	mg/kg	25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25
TRH >C16-C34 (F3)	mg/kg	90	150
TRH >C34-C40 (F4)	mg/kg	120	<120
TRH C10-C36 Total	mg/kg	110	200
TRH >C10-C40 Total (F bands)	mg/kg	210	<210

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 11/7/2023

PARAMETER	UOM	LOR	BH1.1 SOIL - 6/7/2023 SE250441.001	BH1.2 SOIL - 6/7/2023 SE250441.002	BH2.1 SOIL - 6/7/2023 SE250441.003	BH3.1 SOIL - 6/7/2023 SE250441.004	BH4.1 SOIL - 6/7/2023 SE250441.005
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	**0.5**	<0.1	<0.1	<0.1	**0.2**
Pyrene	mg/kg	0.1	**0.4**	<0.1	<0.1	<0.1	**0.2**
Benzo(a)anthracene	mg/kg	0.1	**0.3**	<0.1	<0.1	<0.1	**0.1**
Chrysene	mg/kg	0.1	**0.3**	<0.1	<0.1	<0.1	**0.1**
Benzo(b&j)fluoranthene	mg/kg	0.1	**0.3**	<0.1	<0.1	<0.1	**0.2**
Benzo(k)fluoranthene	mg/kg	0.1	**0.1**	<0.1	<0.1	<0.1	**0.1**
Benzo(a)pyrene	mg/kg	0.1	**0.2**	<0.1	<0.1	<0.1	**0.2**
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	**0.2**	<0.1	<0.1	<0.1	**0.2**
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	**0.2**	<0.1	<0.1	<0.1	**0.2**
Carcinogenic PAHs, BaP TEQ <LOR=0*	TEQ (mg/kg)	0.2	**0.3**	<0.2	<0.2	<0.2	**0.3**
Carcinogenic PAHs, BaP TEQ <LOR=LOR*	TEQ (mg/kg)	0.3	**0.4**	<0.3	<0.3	<0.3	**0.4**
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	TEQ (mg/kg)	0.2	**0.4**	<0.2	<0.2	<0.2	**0.3**
Total PAH (18)	mg/kg	0.8	**2.5**	<0.8	<0.8	<0.8	**1.5**
Total PAH (NEPM/WHO 16)	mg/kg	0.8	**2.5**	<0.8	<0.8	<0.8	**1.5**

PARAMETER	UOM	LOR	BH4.2 SOIL - 6/7/2023 SE250441.006
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	**0.3**
Pyrene	mg/kg	0.1	**0.2**
Benzo(a)anthracene	mg/kg	0.1	**0.2**
Chrysene	mg/kg	0.1	**0.2**
Benzo(b&j)fluoranthene	mg/kg	0.1	**0.2**
Benzo(k)fluoranthene	mg/kg	0.1	**0.1**
Benzo(a)pyrene	mg/kg	0.1	**0.2**
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	**0.2**
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	**0.2**
Carcinogenic PAHs, BaP TEQ <LOR=0*	TEQ (mg/kg)	0.2	**0.3**
Carcinogenic PAHs, BaP TEQ <LOR=LOR*	TEQ (mg/kg)	0.3	**0.4**
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	TEQ (mg/kg)	0.2	**0.3**
Total PAH (18)	mg/kg	0.8	**1.7**
Total PAH (NEPM/WHO 16)	mg/kg	0.8	**1.7**

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 11/7/2023

PARAMETER	UOM	LOR	BH1.1 SOIL - 6/7/2023 SE250441.001	BH1.2 SOIL - 6/7/2023 SE250441.002	BH2.1 SOIL - 6/7/2023 SE250441.003	BH3.1 SOIL - 6/7/2023 SE250441.004	BH4.1 SOIL - 6/7/2023 SE250441.005
Lead, Pb	mg/kg	1	**25**	**19**	**70**	**30**	**250**

PARAMETER	UOM	LOR	BH4.2 SOIL - 6/7/2023 SE250441.006
Lead, Pb	mg/kg	1	**130**

Moisture Content [AN002] Tested: 11/7/2023

PARAMETER	UOM	LOR	BH1.1 SOIL - 6/7/2023 SE250441.001	BH1.2 SOIL - 6/7/2023 SE250441.002	BH2.1 SOIL - 6/7/2023 SE250441.003	BH3.1 SOIL - 6/7/2023 SE250441.004	BH4.1 SOIL - 6/7/2023 SE250441.005
% Moisture	%w/w	1	4.3	4.4	31.4	10.6	11.0

PARAMETER	UOM	LOR	BH4.2 SOIL - 6/7/2023 SE250441.006
% Moisture	%w/w	1	12.0

VOCs in Water [AN433] Tested: 12/7/2023

PARAMETER	UOM	LOR	MW1 WATER - 6/7/2023 SE250441.007	MW2 WATER - 6/7/2023 SE250441.008	MW3 WATER - 6/7/2023 SE250441.009
Benzene	µg/L	0.5	<0.5	<0.5	<0.5
Toluene	µg/L	0.5	<0.5	<0.5	<0.5
Ethylbenzene	µg/L	0.5	<0.5	<0.5	<0.5
m/p-xylene	µg/L	1	<1	<1	<1
o-xylene	µg/L	0.5	<0.5	<0.5	<0.5
Total Xylenes	µg/L	1.5	<1.5	<1.5	<1.5
Total BTEX	µg/L	3	<3	<3	<3
Naphthalene (VOC)*	µg/L	0.5	<0.5	**2.7**	<0.5

Volatile Petroleum Hydrocarbons in Water [AN433] Tested: 12/7/2023

PARAMETER	UOM	LOR	MW1 WATER - 6/7/2023 SE250441.007	MW2 WATER - 6/7/2023 SE250441.008	MW3 WATER - 6/7/2023 SE250441.009
TRH C6-C9	µg/L	40	<40	<40	<40
Benzene (F0)	µg/L	0.5	<0.5	<0.5	<0.5
TRH C6-C10	µg/L	50	<50	**76**	<50
TRH C6-C10 minus BTEX (F1)	µg/L	50	<50	**76**	<50

TRH (Total Recoverable Hydrocarbons) in Water [AN403] Tested: 10/7/2023

PARAMETER	UOM	LOR	MW1 WATER - 6/7/2023 SE250441.007	MW2 WATER - 6/7/2023 SE250441.008	MW3 WATER - 6/7/2023 SE250441.009
TRH C10-C14	µg/L	50	<50	**52**	<50
TRH C15-C28	µg/L	200	<200	<200	<200
TRH C29-C36	µg/L	200	<200	<200	<200
TRH C37-C40	µg/L	200	<200	<200	<200
TRH >C10-C16	µg/L	60	<60	**67**	<60
TRH >C10-C16 - Naphthalene (F2)	µg/L	60	<60	**65**	<60
TRH >C16-C34 (F3)	µg/L	500	<500	<500	<500
TRH >C34-C40 (F4)	µg/L	500	<500	<500	<500
TRH C10-C40	µg/L	320	<320	<320	<320

PAH (Polynuclear Aromatic Hydrocarbons) in Water [AN420] Tested: 10/7/2023

PARAMETER	UOM	LOR	MW1 WATER - 6/7/2023 SE250441.007	MW2 WATER - 6/7/2023 SE250441.008	MW3 WATER - 6/7/2023 SE250441.009
Naphthalene	µg/L	0.1	<0.1	**1.9**	<0.1
2-methylnaphthalene	µg/L	0.1	<0.1	**0.3**	<0.1
1-methylnaphthalene	µg/L	0.1	<0.1	**0.3**	<0.1
Acenaphthylene	µg/L	0.1	<0.1	<0.1	<0.1
Acenaphthene	µg/L	0.1	<0.1	<0.1	<0.1
Fluorene	µg/L	0.1	<0.1	<0.1	<0.1
Phenanthrene	µg/L	0.1	<0.1	<0.1	<0.1
Anthracene	µg/L	0.1	<0.1	<0.1	<0.1
Fluoranthene	µg/L	0.1	<0.1	**0.2**	<0.1
Pyrene	µg/L	0.1	<0.1	**0.2**	<0.1
Benzo(a)anthracene	µg/L	0.1	<0.1	<0.1	<0.1
Chrysene	µg/L	0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	µg/L	0.1	<0.1	**0.1**	<0.1
Benzo(k)fluoranthene	µg/L	0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	µg/L	0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	µg/L	0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	µg/L	0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	µg/L	0.1	<0.1	<0.1	<0.1
Total PAH (18)	µg/L	1	<1	**3**	<1

Trace Metals (Dissolved) in Water by ICPMS [AN318] Tested: 10/7/2023

PARAMETER	UOM	LOR	MW1 WATER - 6/7/2023 SE250441.007	MW2 WATER - 6/7/2023 SE250441.008	MW3 WATER - 6/7/2023 SE250441.009
Lead	µg/L	1	<1	<1	<1

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.
AN020	Unpreserved water sample is filtered through a 0.45µm membrane filter and acidified with nitric acid similar to APHA3030B.
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 AAS or ICP as per USEPA Method 200.8.
AN318	Determination of elements at trace level in waters by ICP-MS technique,, referenced to USEPA 6020B and USEPA 200.8 (5.4).
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	Carcinogenic PAHs may be expressed as Benzo(a)pyrene equivalents by applying the BaP toxicity equivalence factor (NEPM 1999, June 2013, B7). These can be reported as the individual PAHs and as a sum of carcinogenic PAHs. The sum is reported three ways, the first assuming all <LOR results are zero, the second assuming all < LOR results are half the LOR and the third assuming all <LOR results are the LOR.
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.
		NVL	Not validated.	LOR	Limit of Reporting.
**	Indicative data, theoretical holding time exceeded.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		
***	Indicates that both * and ** apply.				

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-gb/environment-health-and-safety.

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

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Project	**P2085**
Order Number	**P2085**
Samples	9

LABORATORY DETAILS

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SGS Reference	**SE250441 R0**
Date Received	7/7/2023
Date Reported	14/7/2023

COMMENTS

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

SIGNATORIES

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VOC's in Soil [AN433] Tested: 11/7/2023

PARAMETER	UOM	LOR	BH1.1 SOIL - 6/7/2023 SE250441.001	BH1.2 SOIL - 6/7/2023 SE250441.002	BH2.1 SOIL - 6/7/2023 SE250441.003	BH3.1 SOIL - 6/7/2023 SE250441.004	BH4.1 SOIL - 6/7/2023 SE250441.005
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	BH4.2 SOIL - 6/7/2023 SE250441.006
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
Total Xylenes*	mg/kg	0.3	<0.3
Total BTEX*	mg/kg	0.6	<0.6
Naphthalene (VOC)*	mg/kg	0.1	<0.1

Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 11/7/2023

PARAMETER	UOM	LOR	BH1.1 SOIL - 6/7/2023 SE250441.001	BH1.2 SOIL - 6/7/2023 SE250441.002	BH2.1 SOIL - 6/7/2023 SE250441.003	BH3.1 SOIL - 6/7/2023 SE250441.004	BH4.1 SOIL - 6/7/2023 SE250441.005
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C9	mg/kg	20	<20	<20	<20	<20	<20
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	BH4.2 SOIL - 6/7/2023 SE250441.006
Benzene (F0)	mg/kg	0.1	<0.1
TRH C6-C9	mg/kg	20	<20
TRH C6-C10	mg/kg	25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 11/7/2023

PARAMETER	UOM	LOR	BH1.1 SOIL - 6/7/2023 SE250441.001	BH1.2 SOIL - 6/7/2023 SE250441.002	BH2.1 SOIL - 6/7/2023 SE250441.003	BH3.1 SOIL - 6/7/2023 SE250441.004	BH4.1 SOIL - 6/7/2023 SE250441.005
TRH C10-C14	mg/kg	20	43	33	<20	<20	<20
TRH C15-C28	mg/kg	45	210	210	<45	<45	81
TRH C29-C36	mg/kg	45	150	140	56	<45	130
TRH C37-C40	mg/kg	100	<100	<100	<100	<100	<100
TRH >C10-C16	mg/kg	25	51	40	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	51	40	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	310	300	<90	<90	160
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	400	390	<110	<110	210
TRH >C10-C40 Total (F bands)	mg/kg	210	360	340	<210	<210	<210

PARAMETER	UOM	LOR	BH4.2 SOIL - 6/7/2023 SE250441.006
TRH C10-C14	mg/kg	20	<20
TRH C15-C28	mg/kg	45	71
TRH C29-C36	mg/kg	45	120
TRH C37-C40	mg/kg	100	<100
TRH >C10-C16	mg/kg	25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25
TRH >C16-C34 (F3)	mg/kg	90	150
TRH >C34-C40 (F4)	mg/kg	120	<120
TRH C10-C36 Total	mg/kg	110	200
TRH >C10-C40 Total (F bands)	mg/kg	210	<210

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 11/7/2023

PARAMETER	UOM	LOR	BH1.1 SOIL - 6/7/2023 SE250441.001	BH1.2 SOIL - 6/7/2023 SE250441.002	BH2.1 SOIL - 6/7/2023 SE250441.003	BH3.1 SOIL - 6/7/2023 SE250441.004	BH4.1 SOIL - 6/7/2023 SE250441.005
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	**0.5**	<0.1	<0.1	<0.1	**0.2**
Pyrene	mg/kg	0.1	**0.4**	<0.1	<0.1	<0.1	**0.2**
Benzo(a)anthracene	mg/kg	0.1	**0.3**	<0.1	<0.1	<0.1	**0.1**
Chrysene	mg/kg	0.1	**0.3**	<0.1	<0.1	<0.1	**0.1**
Benzo(b&j)fluoranthene	mg/kg	0.1	**0.3**	<0.1	<0.1	<0.1	**0.2**
Benzo(k)fluoranthene	mg/kg	0.1	**0.1**	<0.1	<0.1	<0.1	**0.1**
Benzo(a)pyrene	mg/kg	0.1	**0.2**	<0.1	<0.1	<0.1	**0.2**
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	**0.2**	<0.1	<0.1	<0.1	**0.2**
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	**0.2**	<0.1	<0.1	<0.1	**0.2**
Carcinogenic PAHs, BaP TEQ <LOR=0*	TEQ (mg/kg)	0.2	**0.3**	<0.2	<0.2	<0.2	**0.3**
Carcinogenic PAHs, BaP TEQ <LOR=LOR*	TEQ (mg/kg)	0.3	**0.4**	<0.3	<0.3	<0.3	**0.4**
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	TEQ (mg/kg)	0.2	**0.4**	<0.2	<0.2	<0.2	**0.3**
Total PAH (18)	mg/kg	0.8	**2.5**	<0.8	<0.8	<0.8	**1.5**
Total PAH (NEPM/WHO 16)	mg/kg	0.8	**2.5**	<0.8	<0.8	<0.8	**1.5**

PARAMETER	UOM	LOR	BH4.2 SOIL - 6/7/2023 SE250441.006
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	**0.3**
Pyrene	mg/kg	0.1	**0.2**
Benzo(a)anthracene	mg/kg	0.1	**0.2**
Chrysene	mg/kg	0.1	**0.2**
Benzo(b&j)fluoranthene	mg/kg	0.1	**0.2**
Benzo(k)fluoranthene	mg/kg	0.1	**0.1**
Benzo(a)pyrene	mg/kg	0.1	**0.2**
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	**0.2**
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	**0.2**
Carcinogenic PAHs, BaP TEQ <LOR=0*	TEQ (mg/kg)	0.2	**0.3**
Carcinogenic PAHs, BaP TEQ <LOR=LOR*	TEQ (mg/kg)	0.3	**0.4**
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	TEQ (mg/kg)	0.2	**0.3**
Total PAH (18)	mg/kg	0.8	**1.7**
Total PAH (NEPM/WHO 16)	mg/kg	0.8	**1.7**

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 11/7/2023

PARAMETER	UOM	LOR	BH1.1 SOIL - 6/7/2023 SE250441.001	BH1.2 SOIL - 6/7/2023 SE250441.002	BH2.1 SOIL - 6/7/2023 SE250441.003	BH3.1 SOIL - 6/7/2023 SE250441.004	BH4.1 SOIL - 6/7/2023 SE250441.005
Lead, Pb	mg/kg	1	**25**	**19**	**70**	**30**	**250**

PARAMETER	UOM	LOR	BH4.2 SOIL - 6/7/2023 SE250441.006
Lead, Pb	mg/kg	1	**130**

Moisture Content [AN002] Tested: 11/7/2023

PARAMETER	UOM	LOR	BH1.1 SOIL - 6/7/2023 SE250441.001	BH1.2 SOIL - 6/7/2023 SE250441.002	BH2.1 SOIL - 6/7/2023 SE250441.003	BH3.1 SOIL - 6/7/2023 SE250441.004	BH4.1 SOIL - 6/7/2023 SE250441.005
% Moisture	%w/w	1	4.3	4.4	31.4	10.6	11.0

PARAMETER	UOM	LOR	BH4.2 SOIL - 6/7/2023 SE250441.006
% Moisture	%w/w	1	12.0

VOCs in Water [AN433] Tested: 12/7/2023

PARAMETER	UOM	LOR	MW1 WATER - 6/7/2023 SE250441.007	MW2 WATER - 6/7/2023 SE250441.008	MW3 WATER - 6/7/2023 SE250441.009
Benzene	µg/L	0.5	<0.5	<0.5	<0.5
Toluene	µg/L	0.5	<0.5	<0.5	<0.5
Ethylbenzene	µg/L	0.5	<0.5	<0.5	<0.5
m/p-xylene	µg/L	1	<1	<1	<1
o-xylene	µg/L	0.5	<0.5	<0.5	<0.5
Total Xylenes	µg/L	1.5	<1.5	<1.5	<1.5
Total BTEX	µg/L	3	<3	<3	<3
Naphthalene (VOC)*	µg/L	0.5	<0.5	**2.7**	<0.5

Volatile Petroleum Hydrocarbons in Water [AN433] Tested: 12/7/2023

PARAMETER	UOM	LOR	MW1 WATER - 6/7/2023 SE250441.007	MW2 WATER - 6/7/2023 SE250441.008	MW3 WATER - 6/7/2023 SE250441.009
TRH C6-C9	µg/L	40	<40	<40	<40
Benzene (F0)	µg/L	0.5	<0.5	<0.5	<0.5
TRH C6-C10	µg/L	50	<50	**76**	<50
TRH C6-C10 minus BTEX (F1)	µg/L	50	<50	**76**	<50

TRH (Total Recoverable Hydrocarbons) in Water [AN403] Tested: 10/7/2023

PARAMETER	UOM	LOR	MW1 WATER - 6/7/2023 SE250441.007	MW2 WATER - 6/7/2023 SE250441.008	MW3 WATER - 6/7/2023 SE250441.009
TRH C10-C14	µg/L	50	<50	**52**	<50
TRH C15-C28	µg/L	200	<200	<200	<200
TRH C29-C36	µg/L	200	<200	<200	<200
TRH C37-C40	µg/L	200	<200	<200	<200
TRH >C10-C16	µg/L	60	<60	**67**	<60
TRH >C10-C16 - Naphthalene (F2)	µg/L	60	<60	**65**	<60
TRH >C16-C34 (F3)	µg/L	500	<500	<500	<500
TRH >C34-C40 (F4)	µg/L	500	<500	<500	<500
TRH C10-C40	µg/L	320	<320	<320	<320

PAH (Polynuclear Aromatic Hydrocarbons) in Water [AN420] Tested: 10/7/2023

PARAMETER	UOM	LOR	MW1 WATER - 6/7/2023 SE250441.007	MW2 WATER - 6/7/2023 SE250441.008	MW3 WATER - 6/7/2023 SE250441.009
Naphthalene	µg/L	0.1	<0.1	**1.9**	<0.1
2-methylnaphthalene	µg/L	0.1	<0.1	**0.3**	<0.1
1-methylnaphthalene	µg/L	0.1	<0.1	**0.3**	<0.1
Acenaphthylene	µg/L	0.1	<0.1	<0.1	<0.1
Acenaphthene	µg/L	0.1	<0.1	<0.1	<0.1
Fluorene	µg/L	0.1	<0.1	<0.1	<0.1
Phenanthrene	µg/L	0.1	<0.1	<0.1	<0.1
Anthracene	µg/L	0.1	<0.1	<0.1	<0.1
Fluoranthene	µg/L	0.1	<0.1	**0.2**	<0.1
Pyrene	µg/L	0.1	<0.1	**0.2**	<0.1
Benzo(a)anthracene	µg/L	0.1	<0.1	<0.1	<0.1
Chrysene	µg/L	0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	µg/L	0.1	<0.1	**0.1**	<0.1
Benzo(k)fluoranthene	µg/L	0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	µg/L	0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	µg/L	0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	µg/L	0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	µg/L	0.1	<0.1	<0.1	<0.1
Total PAH (18)	µg/L	1	<1	**3**	<1

Trace Metals (Dissolved) in Water by ICPMS [AN318] Tested: 10/7/2023

PARAMETER	UOM	LOR	MW1 WATER - 6/7/2023 SE250441.007	MW2 WATER - 6/7/2023 SE250441.008	MW3 WATER - 6/7/2023 SE250441.009
Lead	µg/L	1	<1	<1	<1

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.
AN020	Unpreserved water sample is filtered through a 0.45µm membrane filter and acidified with nitric acid similar to APHA3030B.
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 AAS or ICP as per USEPA Method 200.8.
AN318	Determination of elements at trace level in waters by ICP-MS technique,, referenced to USEPA 6020B and USEPA 200.8 (5.4).
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	Carcinogenic PAHs may be expressed as Benzo(a)pyrene equivalents by applying the BaP toxicity equivalence factor (NEPM 1999, June 2013, B7). These can be reported as the individual PAHs and as a sum of carcinogenic PAHs. The sum is reported three ways, the first assuming all <LOR results are zero, the second assuming all < LOR results are half the LOR and the third assuming all <LOR results are the LOR.
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.
		NVL	Not validated.	LOR	Limit of Reporting.
**	Indicative data, theoretical holding time exceeded.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		
***	Indicates that both * and ** apply.				

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-gb/environment-health-and-safety.

NEO CONSULTING

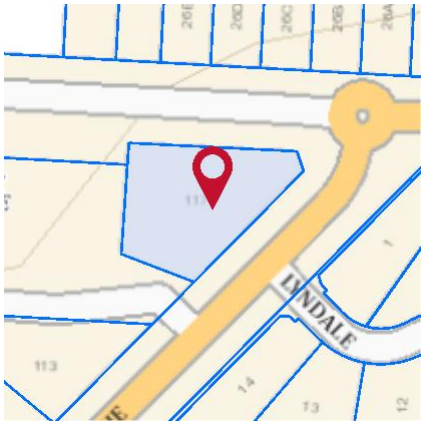
APPENDIX C

Property Report and Relevant Site Data

NEO CONSULTING

Property Report

117 PRINGLE AVENUE BELROSE 2085



Property Details

Address:	117 PRINGLE AVENUE BELROSE 2085
Lot/Section /Plan No:	8/-/DP545948
Council:	NORTHERN BEACHES 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	Warringah Local Environmental Plan 2011 (pub. 14-2-2014)
Land Zoning	E1 - Local Centre: (pub. 21-4-2023)
Height Of Building	8.5 m
Floor Space Ratio	NA
Minimum Lot Size	NA
Heritage	NA
Land Reservation Acquisition	NA
Foreshore Building Line	NA
Landslide Risk Land	Area A - Slope <5
	Area B - Flanking Slopes 5 to 25

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. 21-10-2022)
- 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 (Biodiversity and Conservation) 2021: Sydney Harbour Catchment (pub. 21-10-2022)
- 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

Local Aboriginal Land Council	METROPOLITAN
Regional Plan Boundary	Greater Sydney

Job No 34569685

Phone: 1100
www.byda.com.au

Caller Details

Contact: Nick Caltabiano
Company: Neo Consulting
Address: 186 Riverstone Parade
Riverstone NSW 2765

Caller Id: 3063293
Phone: 0423 834 874
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: Belrose
Working on Behalf of: Private
Enquiry Date: 07/07/2023
Start Date: 08/07/2023
End Date: 22/07/2023
Address:
117 Pringle Av
Belrose NSW 2085

Job Purpose: Excavation
Onsite Activities: 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.byda.com.au**
- **For more information on safe excavation practices, visit www.byda.com.au**

Asset Owner Details

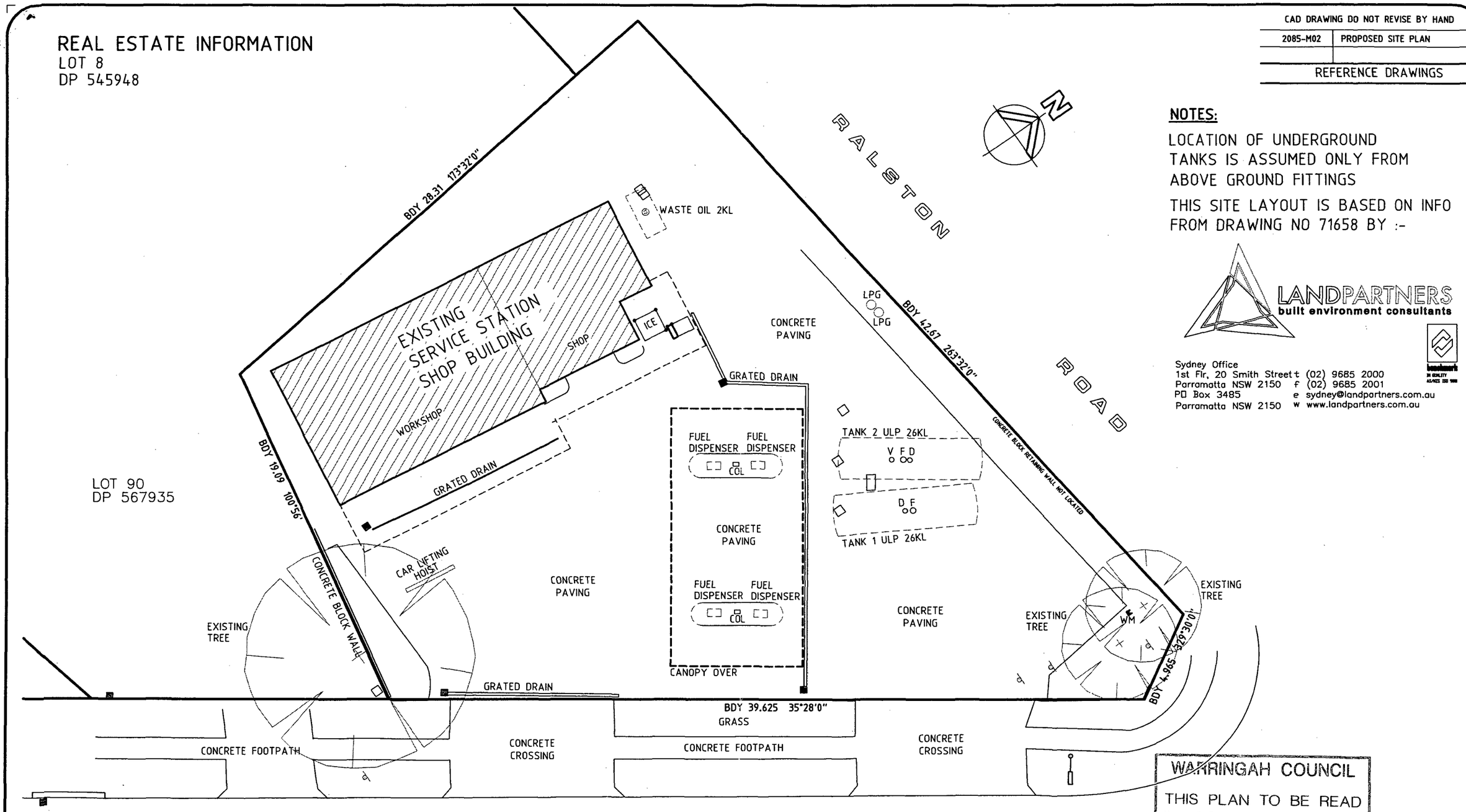
The assets owners listed below have been requested to contact you with information about their asset locations within 2 working days.
Additional time should be allowed for information issued by post. It is **your responsibility** to identify the presence of any underground assets in and around your proposed 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
226777378	Ausgrid	(02) 4951 0899	NOTIFIED
226777379	Jemena Gas North	1300 880 906	NOTIFIED
226777377	NBN Co NswAct	1800 687 626	NOTIFIED
226777376	Northern Beaches Council	0466 015 284	NOTIFIED
226777375	Optus and or Uecomm Nsw	1800 505 777	NOTIFIED
226777380	Sydney Water	13 20 92	NOTIFIED
226777381	Telstra NSW Central	1800 653 935	NOTIFIED

END OF UTILITIES LIST

REAL ESTATE INFORMATION
LOT 8
DP 545948

LOT 90
DP 567935



CAD DRAWING DO NOT REVISE BY HAND	
2085-M02	PROPOSED SITE PLAN
REFERENCE DRAWINGS	

NOTES:

LOCATION OF UNDERGROUND TANKS IS ASSUMED ONLY FROM ABOVE GROUND FITTINGS

THIS SITE LAYOUT IS BASED ON INFO FROM DRAWING NO 71658 BY :-

LANDPARTNERS
built environment consultants

Sydney Office
1st Flr, 20 Smith Street
Parramatta NSW 2150
PO Box 3485
Parramatta NSW 2150
t (02) 9685 2000
f (02) 9685 2001
e sydney@landpartners.com.au
w www.landpartners.com.au

WARRINGAH COUNCIL

THIS PLAN TO BE READ IN CONJUNCTION WITH

CONSENT NUMBER 2008/1482

0 1m 2 3 4 5

No.	AMENDMENT	DATE	DRN
A	INITIAL ISSUE	JUL '08	WS

NOTES
1. FIGURED DIMENSIONS SHALL BE USED IN PREFERENCE TO SCALED DIMENSIONS
2. CONTRACTOR MUST VERIFY ALL DIMENSIONS ON SITE
3. THIS DRAWING MUST NOT BE REPRODUCED WITHOUT CONTACTING THE CONSULTANT FOR LATEST ISSUE
4. THIS DRAWING IS THE PROPERTY OF MYROS DESIGN PTY. LTD. AND NOT TO BE REPRODUCED WITHOUT PERMISSION.

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E-MAIL: myros@tpg.com.au
R. D. FERREIRA
Accredited Dangerous Goods Consultant

FOR AND ON BEHALF OF:
BELROSE SERVICE CENTRE
117 PRINGLE AVENUE, BELROSE, NSW, 2085

LOCATION OF PROJECT
BELROSE - NSW
117 PRINGLE AVENUE
CORNER RALSTON ROAD

DRAWING TITLE
EXISTING SITE PLAN
EXISTING FACILITIES

DRAWN	WS/RDF	CHECKED	RDF
DATE	MAY '08	PLOT DATE	JULY'08
SCALE	1: 200	SHEET SIZE	A3
STATUS:	DEVELOPMENT APPLICATION		
PROJECT No.	DRAWING No.	ISSUE No.	
0508	2085-M01	A	

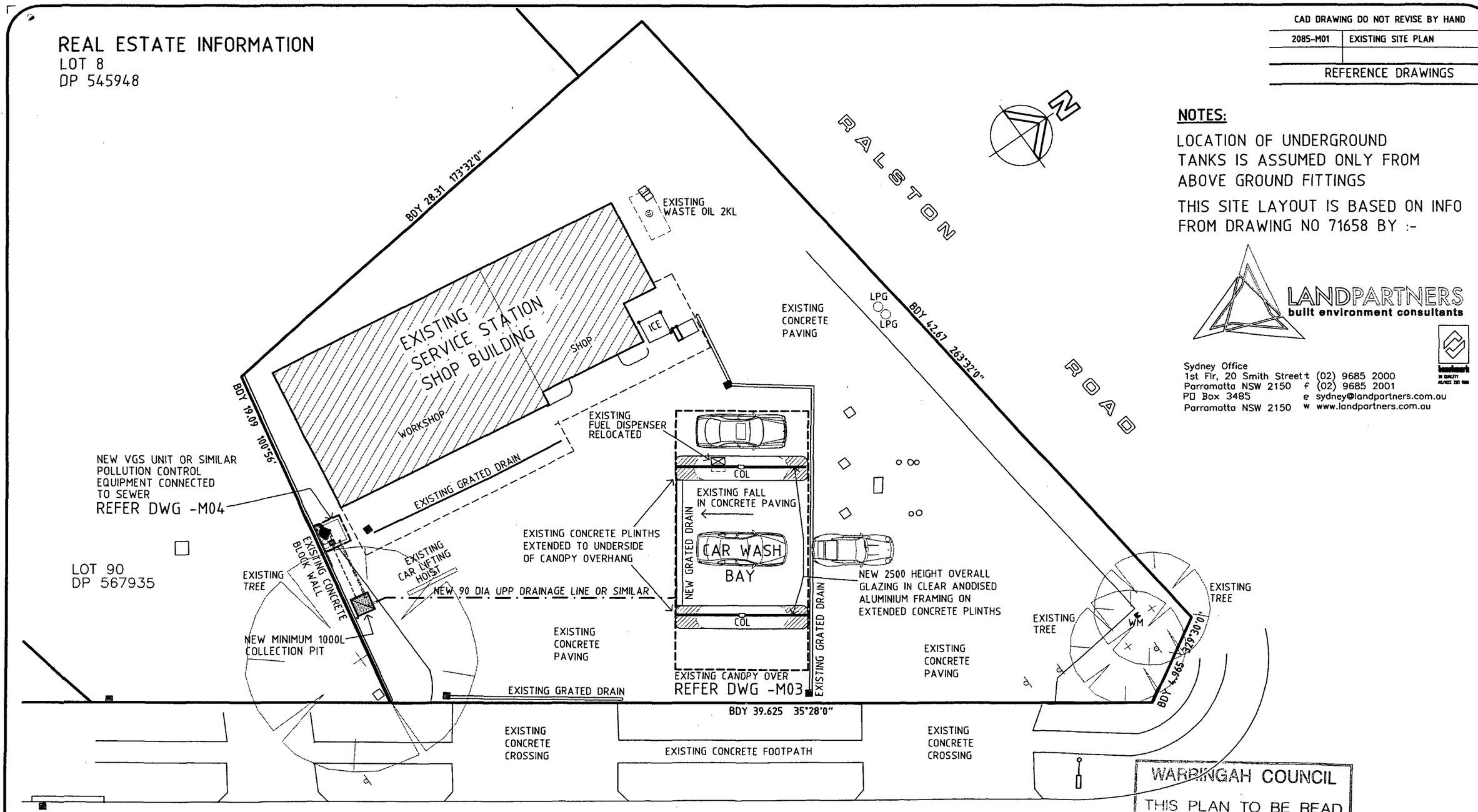
CAD DRAWING DO NOT REVISE BY HAND

2085-M01	EXISTING SITE PLAN

REFERENCE DRAWINGS

REAL ESTATE INFORMATION

LOT 8
DP 545948



NOTES:

LOCATION OF UNDERGROUND TANKS IS ASSUMED ONLY FROM ABOVE GROUND FITTINGS

THIS SITE LAYOUT IS BASED ON INFO FROM DRAWING NO 71658 BY :-

LANDPARTNERS
built environment consultants

Sydney Office
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Parramatta NSW 2150
PO Box 3485
Parramatta NSW 2150
t (02) 9685 2000
f (02) 9685 2001
e sydney@landpartners.com.au
w www.landpartners.com.au

WARRINGAH COUNCIL
THIS PLAN TO BE READ IN CONJUNCTION WITH
CONSENT NUMBER 2008/1482

0 1m 2 3 4 5

No.	AMENDMENT	DATE	DRN
A	INITIAL ISSUE	JUL '08	WS

NOTES
1. FIGURED DIMENSIONS SHALL BE USED IN PREFERENCE TO SCALED DIMENSIONS
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R. D. FERREIRA
Accredited Dangerous Goods Consultant

FOR AND ON BEHALF OF:
BELROSE SERVICE CENTRE
117 PRINGLE AVENUE, BELROSE, NSW, 2085

LOCATION OF PROJECT
BELROSE - NSW
117 PRINGLE AVENUE
CORNER RALSTON ROAD

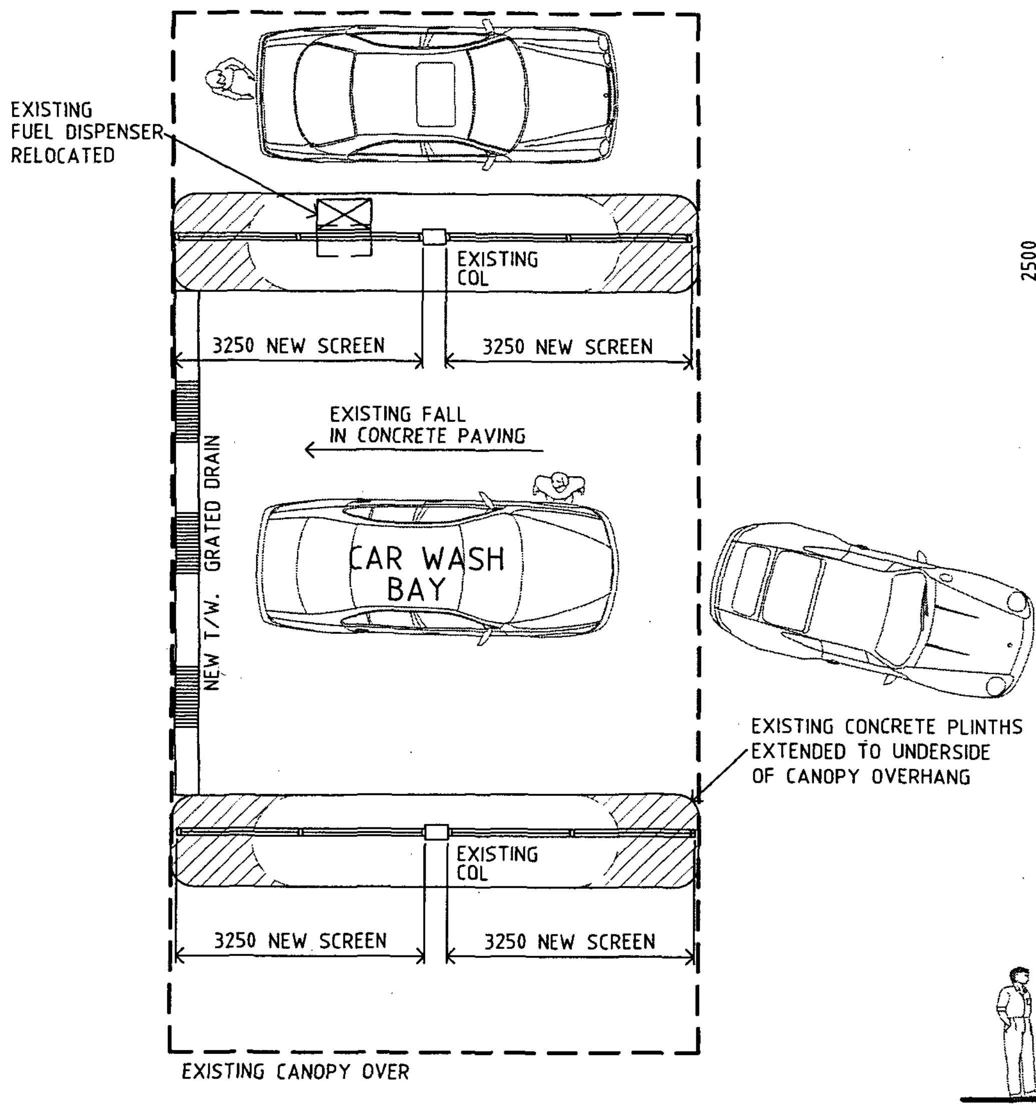
DRAWING TITLE
PROPOSED SITE PLAN
PROPOSED CAR WASH

DRAWN WS/RDF	CHECKED RDF
DATE JUN '08	PLOT DATE JULY'08
SCALE 1: 200	SHEET SIZE A3
STATUS: DEVELOPMENT APPLICATION	
PROJECT No. 0508	DRAWING No. 2085-M02
ISSUE No. A	

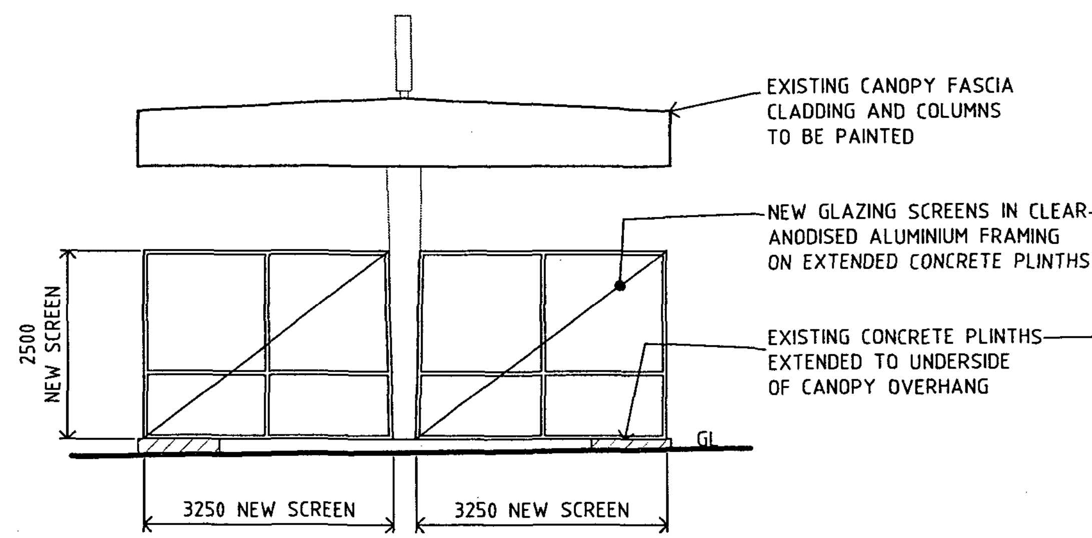
CAD DRAWING DO NOT REVISE BY HAND

2085-M01	EXISTING SITE PLAN

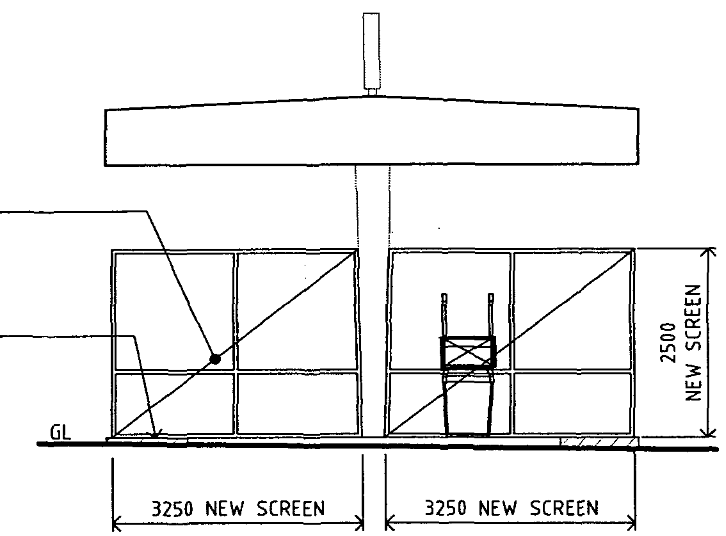
REFERENCE DRAWINGS



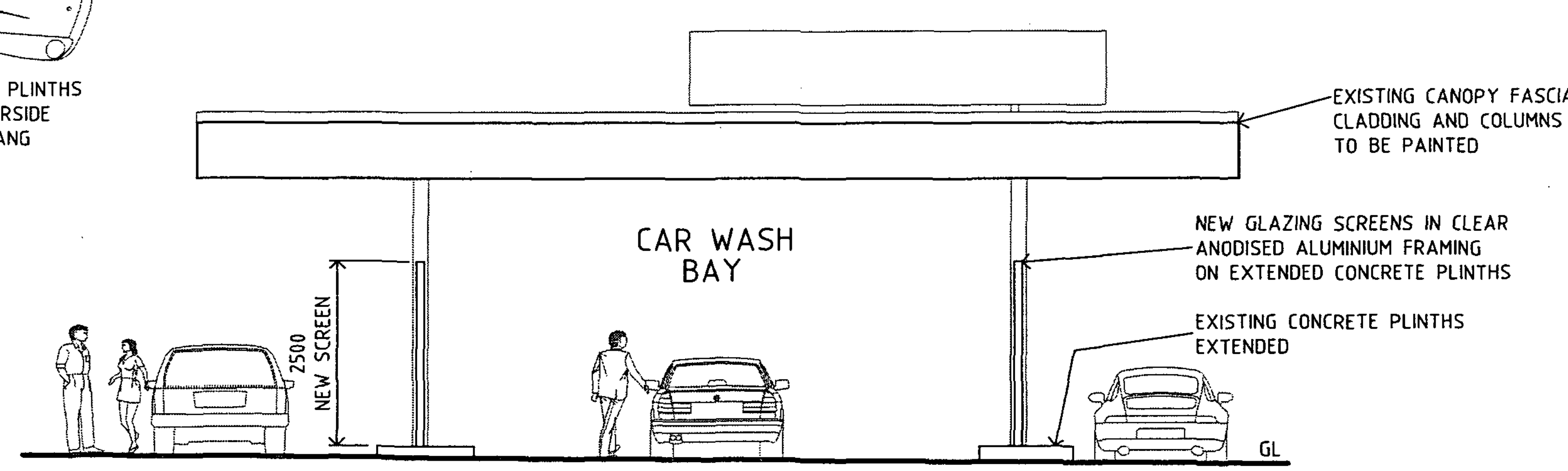
CANOPY PLAN



EAST ELEVATION



WEST ELEVATION



SOUTH ELEVATION
NORTH ELEVATION SIMILAR

...GAH COUNCIL
...S PLAN TO BE READ
... CONJUNCTION WITH
...ENT
...R 2008/1482

0 1m 2 3 4 5

No.	AMENDMENT	DATE	DRN
A	INITIAL ISSUE	JUL '08	WS

NOTES
1. FIGURED DIMENSIONS SHALL BE USED IN PREFERENCE TO SCALED DIMENSIONS
2. CONTRACTOR MUST VERIFY ALL DIMENSIONS ON SITE
3. THIS DRAWING MUST NOT BE REPRODUCED WITHOUT CONTACTING THE CONSULTANT FOR LATEST ISSUE
4. THIS DRAWING IS THE PROPERTY OF MYROS DESIGN PTY. LTD. AND NOT TO BE REPRODUCED WITHOUT PERMISSION.

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MOBILE: 0412 605 843
E-MAIL: myros@tpg.com.au
R. D. FERREIRA
Accredited Dangerous Goods Consultant

FOR AND ON BEHALF OF:
BELROSE SERVICE CENTRE
117 PRINGLE AVENUE, BELROSE, NSW, 2085

LOCATION OF PROJECT
BELROSE - NSW
117 PRINGLE AVENUE
CORNER RALSTON ROAD

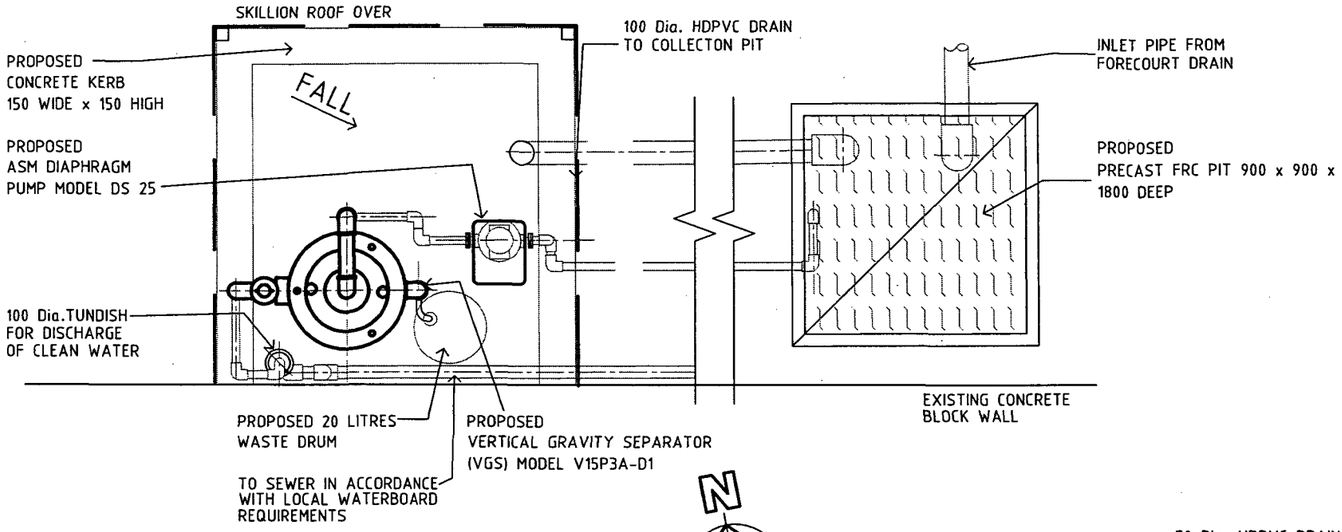
DRAWING TITLE
CANOPY PLAN AND ELEVATIONS
PROPOSED CAR WASH

DRAWN WS	CHECKED RDF
DATE JUN '08	PLOT DATE JULY'08
SCALE 1: 100	SHEET SIZE A3
STATUS: DEVELOPMENT APPLICATION	
PROJECT No. 0508	DRAWING No. 2085-M03 ISSUE No. A

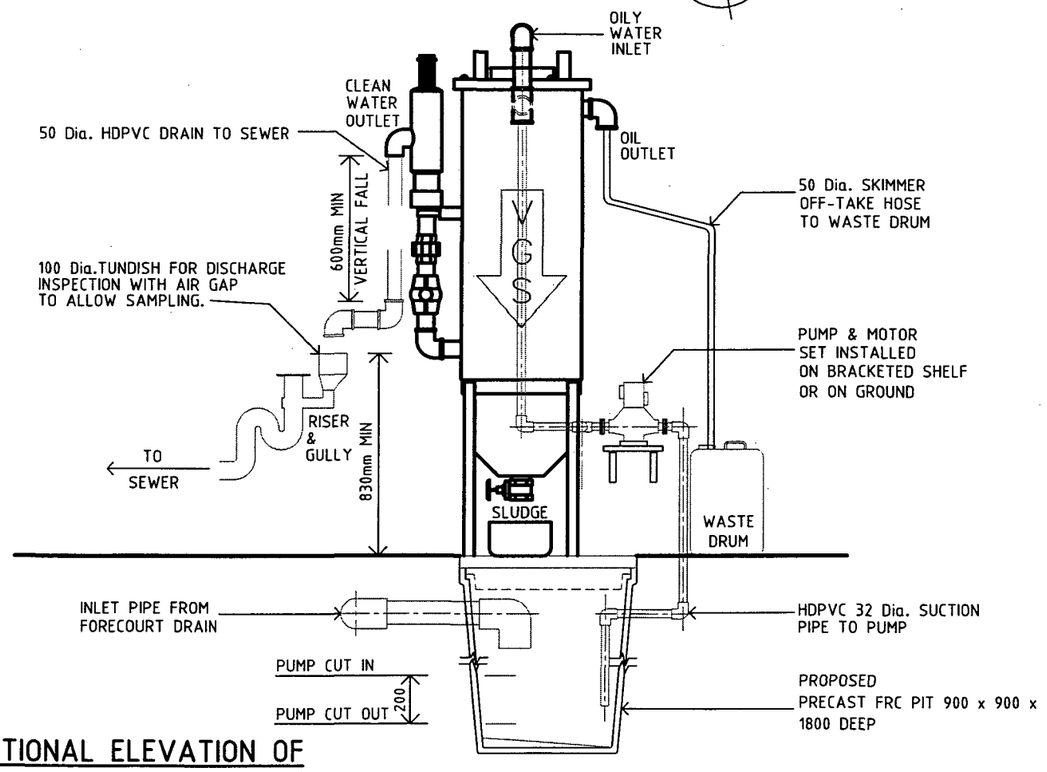
CAD DRAWING DO NOT REVISE BY HAND

2085-M02	PROPOSED SITE PLAN

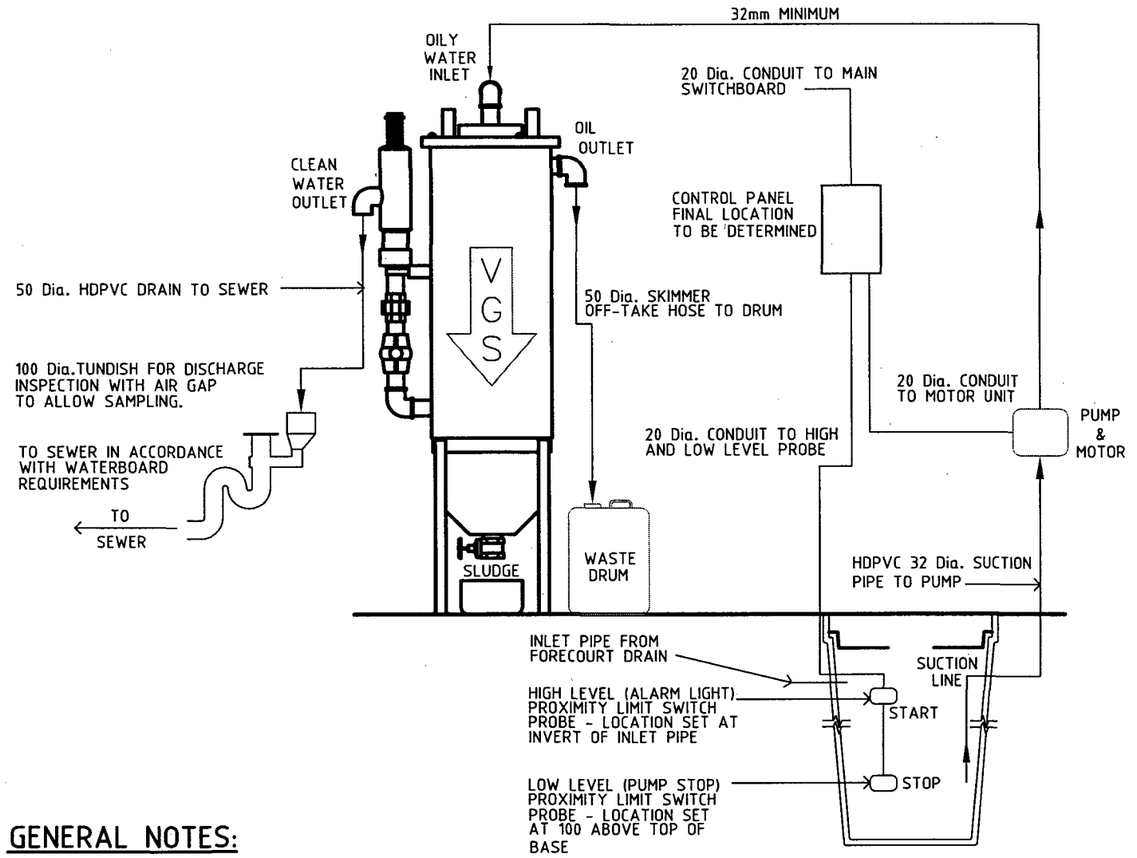
REFERENCE DRAWINGS



PLAN VIEW OF EFFLUENT CONTROL AREA



SECTIONAL ELEVATION OF EFFLUENT CONTROL AREA



SCHEMATIC LAYOUT

NOT TO SCALE

0 250 500 750 1000 1250mm

GENERAL NOTES:

FINAL LOCATION OF CONTROL PANEL TO BE DETERMINED ON SITE

REFER TO SITE LAYOUT PLAN DRAWING No. 2085-M02 FOR FINAL LOCATION WITHIN SIDE AREA

WARRINGAH COUNCIL
THIS PLAN TO BE READ IN CONJUNCTION WITH
CONSENT NUMBER 2008/1482

No.	AMENDMENT	DATE	DRN
A	INITIAL ISSUE	JUL '08	WS

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FOR AND ON BEHALF OF:
BELROSE SERVICE CENTRE
117 PRINGLE AVENUE, BELROSE, NSW, 2085

LOCATION OF PROJECT
BELROSE - NSW
117 PRINGLE AVENUE
CORNER RALSTON ROAD

DRAWING TITLE
PROPOSED EFFLUENT CONTROL
PLAN VIEW, SECTIONAL ELEVATION & SCHEMATIC LAYOUT

DRAWN WS/RDF	CHECKED RDF
DATE JUN '08	PLOT DATE JULY'08
SCALE 1: 25	SHEET SIZE A3
STATUS: DEVELOPMENT APPLICATION	
PROJECT No. 0508	DRAWING No. 2085-M04
	ISSUE No. A

LOT 90
DP 567935

RALSTON ROAD

LOT 8
DP 545948

PRINGLE AVENUE

2000L WASTE OIL UNDERGROUND TANK

SHOP
FL. 155.3

RENDERED SERVICE STATION METAL ROOF

ICEBOX

METAL AWNING

WORKSHOP
FL. 155.29

RIDGE RL. 159.25

CONCRETE AREA

GRATE

LABELLED PULP BUT USED AS ULP 26000L UNDERGROUND TANK

ULP 26000L UNDERGROUND TANK OUT OF ORDER

PUMP

CAR LIFTING HOIST

CONCRETE BLOCK WALL

CONCRETE KERB

GARDEN BED

CONCRETE BLOCK RETAINING WALL NOT LOCATED

GARDEN

KERB

GAS BOTTLE

173°32'0" 28.31

263°32'0" 42.67

19.09 100°56'

39.625

CONCRETE KERB 35°28'0"

GRATE ABT. 0.12 DEEP

GRATE ABT. 0.11 DEEP

GRASS

CONCRETE FOOTPATH

KIP

UPRIGHT

VC

KERB

GUTTER

BM & CUT IN KERB RL. 155.18 (AHD)

2 1 0 1 2 3 4 5 6 7 8 9 10 METRES

SCALE 1:100 AT A1

CLIENT

BELROSE SERVICE CENTRE

PROJECT

DETAIL SURVEY
OF
LOT 8 IN DP 545948
117 PRINGLE AVE,
BELROSE

NOTES

The title boundaries shown hereon were not marked at the time of survey and have been determined by plan dimensions only and not by field survey. Services shown hereon have been located where possible by field survey. If not able to be so located, services have been plotted from the records of relevant authorities where available and have been noted accordingly on the plan. Where such records do not exist or are inadequate a notation has been made hereon.
Prior to any demolition, excavation or construction on the site, the relevant authority should be contacted for possible location of further underground services and detailed locations of all services.

PPP/CF	LPL	DD/MM/YY	COMMENT

LEGEND

- BENCH MARK
- TELEPHONE PIT
- WATER METER
- TREE D= DIAMETER TRUNK S= SPREAD OF CANOPY H= HEIGHT
- WATER HYDRANT
- STOP VALVE
- SEWER ACCESS CHAMBER
- ELECT LIGHT POLE
- CLOTHES HOIST
- GULLY PIT
- POWER POLE
- TELSTRA
- SEWER
- GRATE
- GAS METER
- GATE
- ELECTRICITY
- MAN HOLE
- TAP
- INSPECTION HOLE

Symbols shown are indicative only. The symbol size and orientation does not necessarily represent the real size or orientation of the feature.

- DRAINAGE PIPE U/G
- DRAIN
- ELECT. CABLE A/G
- ELEC. CABLE U/G
- GAS PIPE
- FENCE LINE
- SEWERAGE PIPE
- TELSTRA CABLE
- WATER PIPE

LANDPARTNERS
built environment consultants

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Parramatta NSW 2150
PO Box 3485
Parramatta NSW 2150

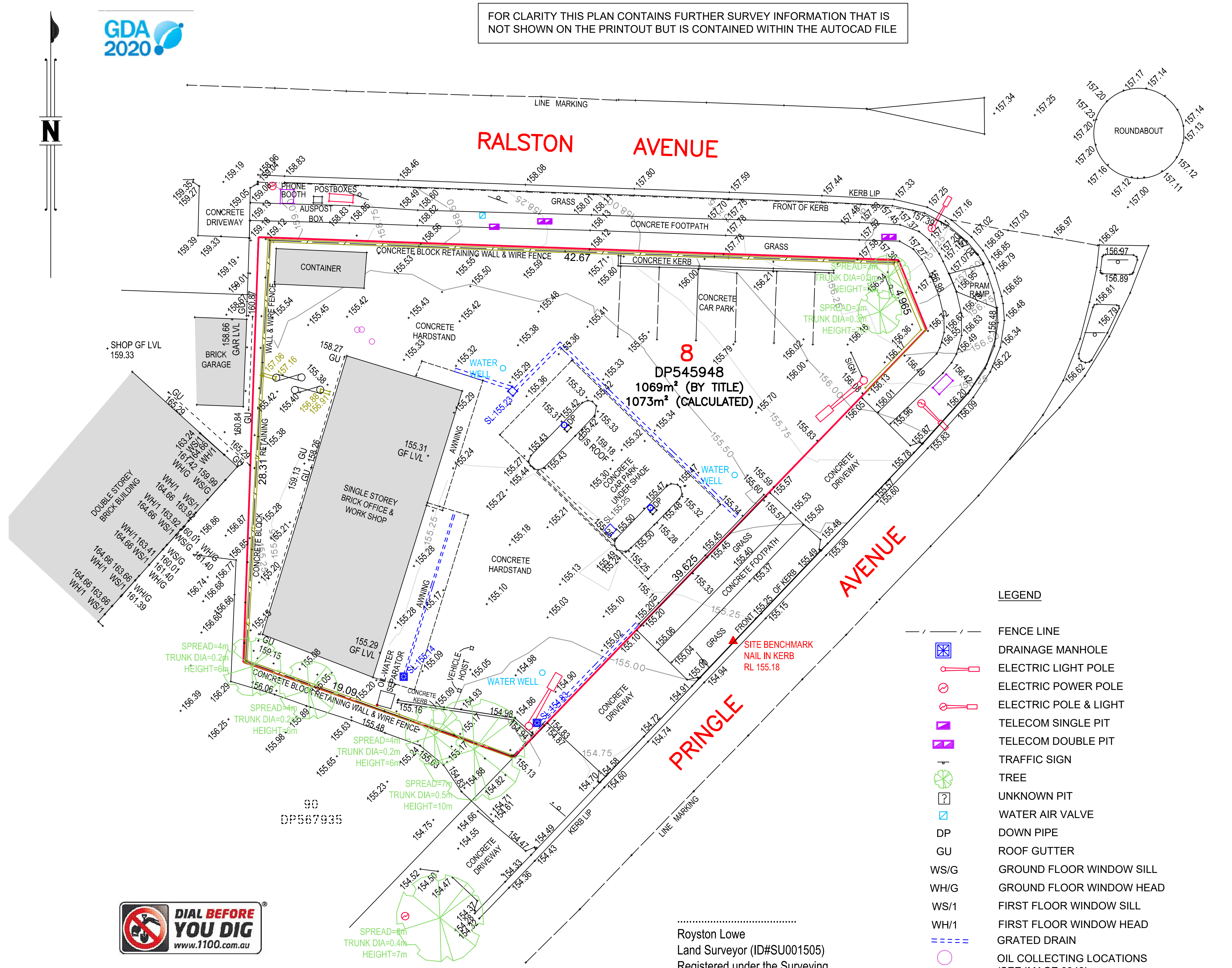
t (02) 9685 2000
f (02) 9685 2001
e sydney@landpartners.com.au
w www.landpartners.com.au

HEIGHT DATUM: AHD	LOCAL AUTHORITY: WARRINGAH COUNCIL
HEIGHT ORIGIN: PM 3403 RL. 156.77	SCALE: 1:100 (A1) 1:200 (A3)
MERIDIAN: MM	CONTOUR INTERVAL:
CO-ORD SYSTEM:	SURVEYOR: BB — DATE OF SURVEY: 1/05/08
CCAD FILE: 71658	DRAWN: DB — DATE: 7/05/08
AUTOCAD FILE: 71658.DGN	CHECKED: BB — DATE: 8/05/08
ARCHIVE FILE:	APPROVED: BP — DATE: 8/05/08

PLAN NUMBER: 71658

SHEET 1 OF 1

FOR CLARITY THIS PLAN CONTAINS FURTHER SURVEY INFORMATION THAT IS NOT SHOWN ON THE PRINTOUT BUT IS CONTAINED WITHIN THE AUTOCAD FILE



A Dial Before You Dig enquiry must be lodged at least two business days prior to starting any excavation or work site project.

Royston Lowe
Land Surveyor (ID#SU001505)
Registered under the Surveying and Spatial Information Act 2002

LEGEND

	FENCE LINE
	DRAINAGE MANHOLE
	ELECTRIC LIGHT POLE
	ELECTRIC POWER POLE
	ELECTRIC POLE & LIGHT
	TELECOM SINGLE PIT
	TELECOM DOUBLE PIT
	TRAFFIC SIGN
	TREE
	UNKNOWN PIT
	WATER AIR VALVE
DP	DOWN PIPE
GU	ROOF GUTTER
WS/G	GROUND FLOOR WINDOW SILL
WH/G	GROUND FLOOR WINDOW HEAD
WS/1	FIRST FLOOR WINDOW SILL
WH/1	FIRST FLOOR WINDOW HEAD
	GRATED DRAIN
	OIL COLLECTING LOCATIONS (SEE IMAGE 0348)

CLIENT

SPEEDWAY PETROLEUM PTY LTD

PROJECT

DETAIL SURVEY
OF
LOT 8 ON DP545948
117 PRINGLE AVENUE, BELROSE

NOTES

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(ii) Services shown hereon have been located where possible by field survey. If not able to be so located, services have been plotted from the records of relevant authorities where available and have been noted accordingly on the plan. Where such records do not exist or are inadequate a notation has been made hereon.

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2	CLP	12/11/2021	ADDITIONAL INFO
1	CLP	29/10/2021	INITIAL ISSUE

SCALE BAR
0m 5 10 15m
SCALE 1:250 (A3)

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Dundas NSW 2117
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w: www.landpartners.com.au

HEIGHT DATUM AHD	LOCAL AUTHORITY NORTHERN BEACHES
HEIGHT ORIGIN PM3403 RL156.764	SCALE 1:250 (A3)
MERIDIAN 56	CONTOUR INTERVAL 0.25 Metre
CO-ORD SYSTEM MGA2020	DRAWN CLP; DATE 29/10/2021
SURVEYOR DW; SURVEY DATE 20/10/2021	CHECKED GR; DATE 29/10/2021
FIELD FILE 75430-DW211020	APPROVED RL; DATE 29/10/2021
UDN SY075430.000.5.2	SHEET 1 OF 1