PRELIMINARY SITE INVESTIGATION

N6898

Warringah Golf Club Limited

PROPOSED DEVELOPMENT AT:

292 Condamine Street

North Manly NSW 2100

Wednesday, 1st February 2023

Report Distribution

Preliminary Site Investigation

Address: 292 Condamine Street, North Manly, NSW 2100

Report No: N6898

Date: Wednesday, 1st February 2023

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0	***FINAL Report***	***N6898***		*-*

Issued By:

Nick Caltabiano

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Executive Summary

NEO Consulting was appointed by Warringah Golf Club Limited (the client) to undertake a Preliminary Site Investigation (PSI) on a property located at 292 Condamine Street, North Manly, NSW, 2100 (Lot 2742 DP752038) with a focus on the proposed development of a new golf club house on near the corner of Kentwell Road and Pittwater Road and is currently zoned as REI- Public Recreation.

The following scope of works were undertaken:

- A site inspection to identify potential sources of contamination on site;
- Historical investigations relating to the site (if any);
- Review of current and historical Certificates of Title;
- Local Council records and planning certificates;
- Review of NSW EPA Contaminated Land Records, POEO Register and PFAS Investigation Program map;
- Review of local geological and hydrogeological information, including an evaluation of the NSW Groundwater registered groundwater bore database;
- Review of Acid Sulphate Soil data maps;
- Development of a Conceptual Site Model (CSM) to identify the connections between potential sources of contamination and exposure pathways, human and/or ecological receptors; and
- Recommendations for additional investigations (if any), based on the identified data gaps and findings of this report.

A site investigation was undertaken on 20th January 2023 by NEO environmental consultants. During the site inspection, a soil investigation program was undertaken with a judgemental approach in accessing locations across proposed development area to identify areas of contamination. Historical investigations confirm the targeted area appears to have tennis courts in the same location onsite since at least 1943 which would likely mean the continuous use of the land as recreational and the low potential impact of any contamination.

Three (3) soil samples were obtained from three (3) borehole locations, each sample was obtained from the current topsoil/fill layer. The samples were submitted to a National Association of Testing Authorities, Australia (NATA) accredited laboratory for analysis of Chemicals of Potential Concern (CoPC) that may have impacted the site during historical or present activities.

Analytical results indicate no exceedance of the NEPM Health and Ecological Assessment Criteria for Commercial/Industrial (D) sites. The consent authority may be satisfied that the required considerations of Cl 4.6 of State Environmental Planning Policy (Resilience and Hazards) 2021are satisfied for the following reasons:

1) Site observations did not indicate significant visible indications of contamination or contaminating sources;
2) Analytical results for all analytes were below the NEPM Health and Ecological Assessment Criteria for Commercial/Industrial (D) sites.

NEO Consulting considers that the potential for significant contamination of soil to be low and find that the site can be made suitable for the proposed development and land use, provided the recommendations within **Section 13** are undertaken.

1. Introduction

1.1 Background

NEO Consulting was appointed by Warringah Golf Club Limited (the client) to undertake a Preliminary Site Investigation (PSI) for the property located at 292 Condamine Street, North Manly, NSW, 2100 (Lot 2742 DP 752038) with a focus on the proposed development of a new golf club house on near the corner of Kentwell Road and Pittwater Road and is currently zoned as REI- Public Recreation.

A site inspection was undertaken on 20th January 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**.

1.2 Objectives

This report provides a preliminary assessment of current and/or historical potentially contaminating activities that may have impacted the soils and will determine if the site is suitable for the proposed development.

1.3 Regulatory Framework

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

- State Environmental Planning Policy (Resilience and Hazard) 2021;
- National Environment Protection Measures (NEPM), 2013;
- NSW Environmental Protection Authority, *Guidelines on the Duty to Report Contamination under Contaminated Land Management Act*, 1997;
- NSW Environmental Protection Authority, *Consultants Reporting on Contaminated Land: Contaminated Land Guidelines,* 2020;
- Protection of the Environment and Operation Act 1997; and
- Protection of the Environment Operations (Waste) Regulations, 2005.

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 on site;
- Historical investigations relating to the site (if any);
- Review of current and historical Certificates of Title;
- Local Council records and planning certificates;
- Review of NSW EPA Contaminated Land Records, POEO Register and PFAS Investigation Program map;
- Review of local geological and hydrogeological information, including an evaluation of the NSW Groundwater registered groundwater bore database;
- Review of Acid Sulphate Soil data maps;
- Development of a Conceptual Site Model (CSM) to identify the connections between potential sources of contamination and exposure pathways, human and/or ecological receptors; and
- Recommendations for additional investigations (if any), based on the identified data gaps and findings of this report.

3. Site Details

Table 1. Site Details

Address	292 Condamine Street, North Manly, NSW, 2100
Deposited plan	Lot 2742/DP752038
Zoning	RE1- Public Recreation
Locality map	Figure 1, Appendix A
Site Boundary	Figure 2, Appendix A
Area	Area of proposed development approx. 1,239.5m^2

Table 2. Surrounding land-use(from the targeted area)

Direction from site	Land-use
North	Pittwater Road, followed by houses
East	Pittwater Road, followed by houses
South	Kentwell Road
West	Golf Course

4. Site Condition

A site inspection was undertaken on 20th January 2023 by NEO Consulting. During the site inspection, the following observations were noted (photographs in **Appendix A**):

- The targeted area for proposed development is currently made up of tennis courts, there are courts which appear to have a cover of astro turf, concrete or a firm synthetic material
- There is spectator seating in the form of park benches and seats surrounding the courts ;
- The site had healthy vegetation growth in the form of grass where there were no concrete coverings and bushes beyond normal access areas
- No evidence of contamination was identified;
- No indications of underground storage of petroleum products were identified;

5. Site History

5.1 History of Site

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

Table 3. Historical aerial images of the site and surrounding area.

Year	Description
1943	The targeted area appears to have the tennis court layout which is similar to the current tennis courts currently located today. This confirms the continuous use of the land as recreational use since 1943, confirming the low likely hood of potential contamination.
2000	The next available aerial image shows the current configuration of the courts.
2022	The courts have likely have additional layers added to the surface which is evident in the change in colour over the years, however the same footprint confirms the same land use over time.

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 within the NSW EPA contaminated land register was undertaken for the site. No results were found for the site or within 200m of the site.

5.4 Protection of the Environment Operation Act (POEO) Public Register

A search on the POEO public register of licensed and delicensed premises (DECC) was undertaken for the site. No results were found for the site or within 200m of the site.

5.5 SafeWork NSW Hazardous Goods

A search was not undertaken with SafeWork NSW for historical dangerous goods stored onsite.

5.6 Product Spill and Loss History

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

5.7 PFAS Investigation Program

The NSW Government PFAS Investigation Program map indicates the site is not currently listed for PFAS contamination investigation and management programs, nor is any site within a 1km radius.

6. Environmental Setting

6.1 Hydrology

A groundwater bore search was conducted on 1st February 2023 and three (3) borehole was present within a 500m radius of the site, GW102334, GW107816 and GW020813.

Table 4. GW102334 drillers log

From (mbgl)	To (mbgl)	Thickness (m)	Drillers Description	Geological Material
0.00	0.50	0.50	Topsoil	Topsoil
0.50	3.00	2.50	SAND YELLOW	Sand
3.00	7.00	4.00	MARINE DARK GREY/CLAY-VERY GREASY	Clay
7.00	11.00	4.00	MARINE WITH 15%SHELL FRAGMENTS, QUARTZ	Quartz
11.00	17.00	6.00	MARINE NO QUARTZ	Quartz
17.00	23.00	6.00	MARINE/5%SHELL FRAGMENT	Sand
23.00	26.00	3.00	MARINE/10%SHELL FRAGMENT	Sand
26.00	28.00	2.00	MARINE/15%SHELL FRAGMENT	Sand
28.00	30.00	2.00	SANDSTONE/BROWN/ GRAIN	Sandstone
30.00	31.00	1.00	SANDSTONE/BROWN/R. QUARTZ	Sandstone
31.00	35.00	4.00	SANDSTONE/GREY/F/G/MINOR CLAY MATRIX	Sandstone
35.00	40.00	5.00	CLAY STONE GREY	Claystone
40.00	60.00	20.00	SANDSTONE/WHITE MINOR QUARTZ	Sandstone

6.2 Geology

Data obtained from the Geological Survey of NSW and the Geoscience Australia Stratigraphic Units Database indicate the site is located within the Hawkesbury Sandstone. This formation is regionally characterized by medium to coarse-grained quartz sandstone, secondary quartz cement, with minor shale and laminate lenses.

6.3. Acid Sulphate Soil

Acid Sulphate Soils (ASS) naturally occur under waterlogged condition and contain iron sulphide minerals. If these soils remain undisturbed, they are considered harmless. However, if disturbed and subsequently oxidised, this reaction can cause damage to the environment and built structures that overlie the ASS. The potential for ASS has been divided into five (5) classes, with Class 1 the highest at risk of ASS. A search of the

DPIE eSpade map viewer was undertaken and indicate that site is located within an area with no known occurrence of ASS.

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 and summarised.

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. Historical on site operations.	Metals, TRH, BTEX, PAH, OCP, OPP, ACM	Low	The presence of imported fill is possible. Historical on site operations may have given rise to contamination events.
Onsite structures	Hazardous material within onsite residential dwellings and sheds.	ACM, SMF, ODS, Lead (paint and/or dust), PCBs	Low	Considering the age of onsite structures presence of these CoPCs are likely. An HMS should be undertaken in order to confirm the presence or absence of COPCs.

Abbreviations: Asbestos Containing Materials (ACM), Benzene, Toluene, Ethylbenzene and Xylene (BTEX), Polycyclic Aromatic Hydrocarbon (PAH), Organophosphate Pesticides (OPP), Organochlorine Pesticides (OCP), Total Recoverable Hydrocarbons (TRH).

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 importation of uncontrolled fill across the site. Historical on site operations. On site structures. On site car parking.	Future site occupant, construction workers, general public, surrounding sensitive receptors	Dermal contact, inhalation/ ingestion of particulates, vapour intrusion.	Complete (current)	Low	The historical land use of the site does not indicate any concerns of significant contamination. If present, impacted soils are to be disposed of off-site in accordance with an unexpected finds protocol.
			Complete (Future)	Low	
	Natural soils	Migration of contamination from fill layer.	Complete (current)	Low	If contamination is present in the fill layer, migration to the natural layer is possible. If present, impacted soils are to be disposed of off-site.
			Complete (Future)	Low	
	Manly Creek located 260m S		Complete (current)	Low	If contamination is present on site, migration to this surface water receptor is possible. If present, impacted soils are to be disposed of off-site.
			Complete (future)	Low	
	Underlying aquifer	Leaching and migration of contaminants through groundwater infiltration.	Complete (current)	Low	Due to existing sealed surfaces, leachability of contaminants is unlikely. If present, contaminated soil and/or groundwater is likely to be remediated.
			Complete (future)	Low	

9. Data Gaps

Hazardous materials within on site structures, considering the proposed demolition.

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
HCB	80
Heptachlor	50
Chlordane	530
Aldrin & Dieldrin	45
Endrin	100
DDD+DDE+DDT	3600
Endosulfan	2000
Methoxychlor	2500
Mirex	100
Arsenic, As	3000
Cadmium, Cd	900
Chromium, Cr	3600
Copper, Cu	240 000
Lead, Pb	1500
Nickel, Ni	6000
Zinc, Zn	400 000
Mercury, Hg	730
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

Assessment Criteria	Commercial/Industrial Soil HSL-D for Vapour Intrusion, 0-<1m depth, Clay, mg/kg	Commercial/Industrial Soil HSL-D for Vapour Intrusion, 1-<2m depth, Clay, mg/kg
Benzene	4	6
Toluene	NL	NL
Ethylbenzene	NL	NL
Xylenes	NL	NL
Naphthalene	NL	NL
TRH C_6-C_{10} - BTEX (F1)	50	280
TRH >C_{10}-C_{16} - N (F2)	90	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
Arsenic, As	160
DDT	640
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, fine-grained soil, mg/kg
Benzene	95
Toluene	135
Ethylbenzene	185
Xylenes	95
BaPyr (BaP)	0.7
TRH C_6-C_{10}	215
TRH >C_{10}-C_{16}	170
TRH >C_{16}-C_{34} (F3)	2500
TRH >C_{34}-C_{40} (F4)	6600

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, fine-grained soil, mg/kg
TRH C_6-C_{10}	800
TRH >C_{10}-C_{16}	1000
TRH >C_{16}-C_{34} (F3)	3500
TRH >C_{34}-C_{40} (F4)	10000

10.6 NEPM Health Screening Level D (HSL-D) – Commercial/Industrial for Asbestos

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

Table 12. Management Limits

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

11. Analytical Results

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

12. Conclusion

Based on the site investigation and analytical results, NEO Consulting considers that the potential for significant contamination of soil to be low. Historical investigations confirm the targeted area appears to have tennis courts in the same location onsite since at least 1943 which would likely mean the continuous use of the land as recreational and the low potential impact of any contamination. We find that the site is suitable for the proposed development and land use, provided the Recommendations within **Section 13** are undertaken.

13. Recommendations

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

- 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.

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:

Sarah Houlahan

Environmental Consultant

Reviewed by:

Nick Caltabiano

Project Manager

NEO CONSULTING

APPENDIX A

Figures and Photographic Log

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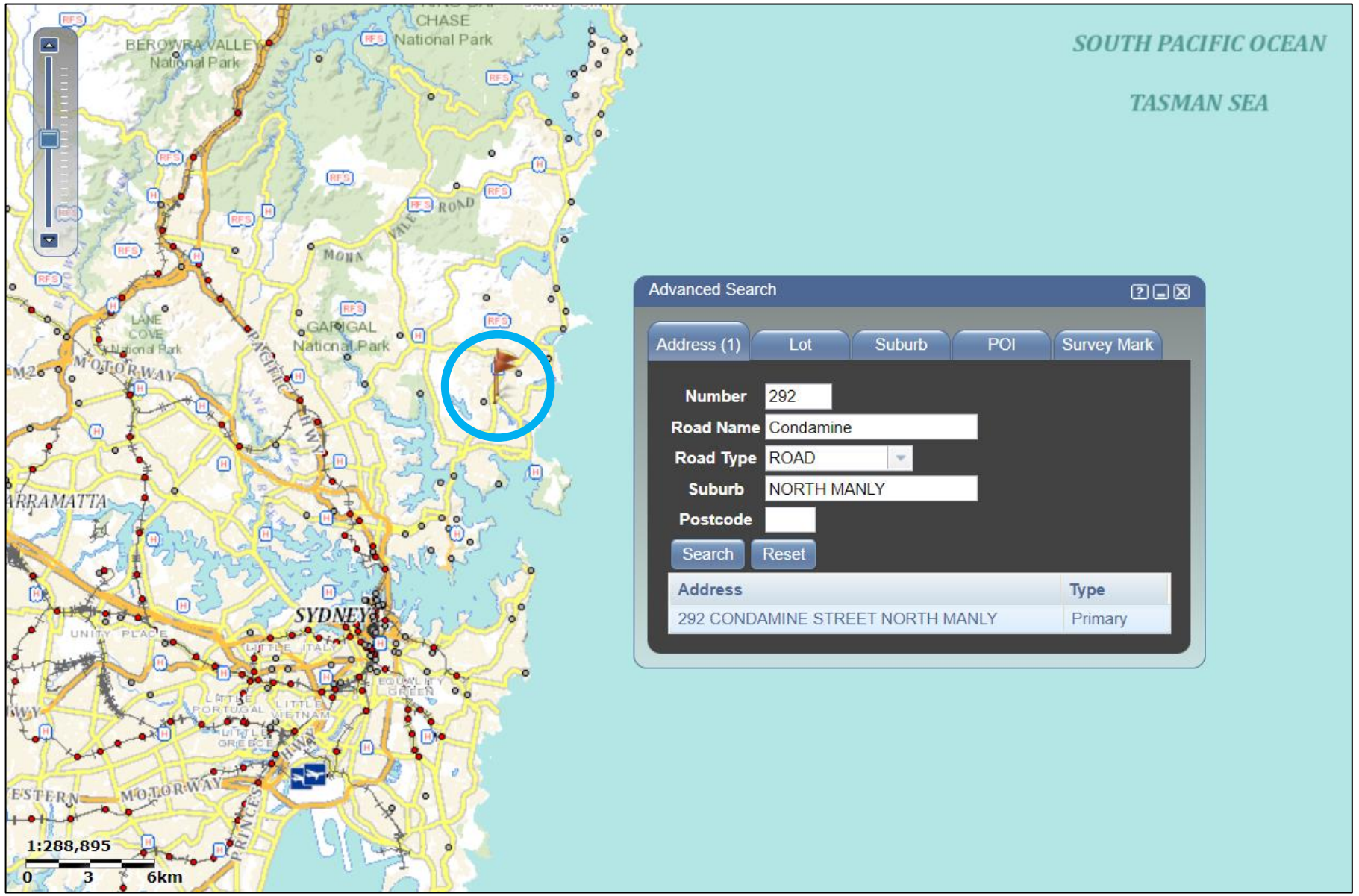
Figure 1. The site is located approximately 11.5km North East of Sydney CBD.



Site location

Source: Six Maps 2023

Figure 1	Locality Map
Project	292 Condamine Road, North Manly, NSW, 2100

Figure 2. 3 targeted primary soil samples were obtained from the site. Site layout from January 2023, showing the surfaces of the courts have obviously been changed overtime, however the footprints of the courts appear to have remained relatively unchanged.

⊗ Sample Locations

Source: Nearmap 2023

Figure 2	Site Area
Project	292 Condamine Road, North Manly, NSW, 2100

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Figure 3. Aerial image of the site and surrounding area 1943. The targeted area shows the same layout of tennis courts as in todays current layout.

Source: NSW Historical Imagery 2023

Figure 3	Aerial Image 1943
Project	292 Condamine Road, North Manly, NSW, 2100

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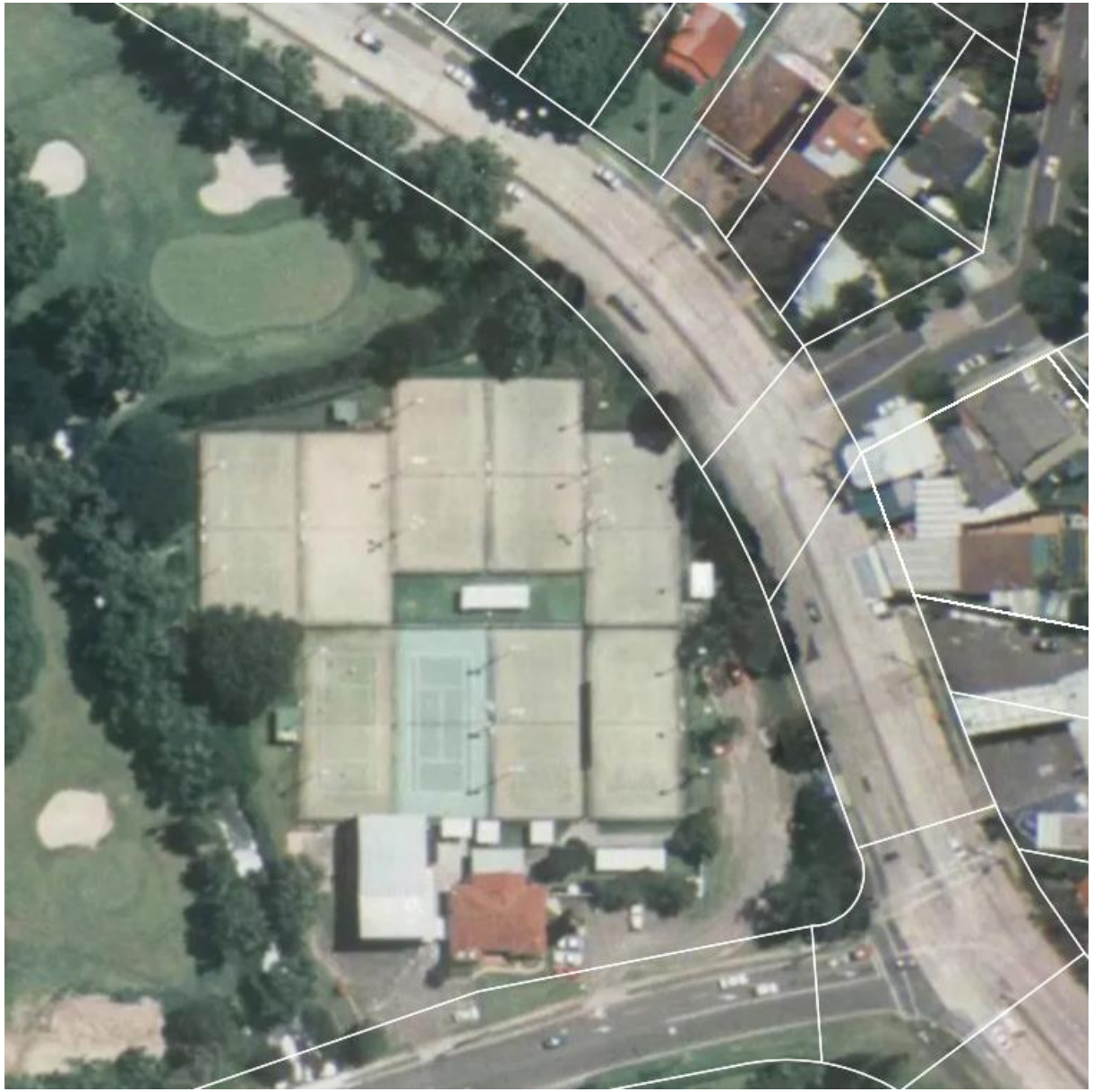
Figure 4. Aerial image of the site from the year 2000 shows a similar layout to todays configuration.



Source: MetroMaps

Figure 4	Aerial Image 2000
Project	292 Condamine Road, North Manly, NSW, 2100

Figure 5. Collection of samples S1, sandy fertile top soil.

Figure 6. Healthy grass in the foreground and tennis courts in the back ground.

Figure 7. Showing the areas around the courts

Figure 8. Showing the multiple courts onsite.

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APPENDIX B

Analytical Results and Laboratory Reports

Table 13. Total Recoverable Hydrocarbon (TRH) analytical results. Values are presented as mg/kg. NL = Not Limiting. F1 = subtract the sum of BTEX concentrations from the C_6-C_{10} aliphatic hydrocarbon fraction. F2 = subtract Naphthalene from the> C_{10}-C_{16} aliphatic hydrocarbon fraction.

Assessment Criteria		TRH C_6-C_{10}	TRH C_6-C_{10} - BTEX (F1)	TRH >C_{10}-C_{16}	TRH >C_{10}-C_{16} - N (F2)	TRH >C_{16}-C_{34} (F3)	TRH >C_{34}-C_{40} (F4)
NEPM 2013 Commercial/Industrial Soil HSL-D for Vapour Intrusion, 0-<1m depth, Clay, mg/kg			50		280		
NEPM 2013 Soil Generic ESL for Commercial/Industrial, fine-grained soil, mg/kg		215		170		2500	6600
NEPM 2013 Management Limits for Commercial/Industrial, fine-grained soil, mg/kg		800		1000		3500	10 000
Sample	Depth (m)	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
S1	0.15	<25	<25	<25	<25	<90	<120
S2	0.15	<25	<25	<25	<25	<90	<120
S3	0.15	<25	<25	<25	<25	<90	<120

Table 14. 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, Clay, mg/kg		4	NL	NL	NL
NEPM 2013 Soil ESL for Commercial/Industrial, fine-grained soil, mg/kg		95	135	185	95
Sample	Depth (m)	mg/kg	mg/kg	mg/kg	mg/kg
S1	0.15	<0.1	<0.1	<0.1	<0.3
S2	0.15	<0.1	<0.1	<0.1	<0.3
S3	0.15	<0.1	<0.1	<0.1	<0.3

Table 15. Polycyclic Aromatic Hydrocarbon (PAH) analytical results. The carcinogenic PAH (Benzo(a)anthracene (BaAnt); Benzo(a)pyrene (BaPyr or BaP); Benzo(b+j) fluoranthene (BbjFl); Benzo(k)fluoranthene (BkFl); Benzo(g,h,i)perylene (BghiPer); Chrysene (Chr); and Dibenz(a,h)anthracene (DBahAnt)) potency is calculated relative to Benzo(a)pyrene to produce a Toxicity Equivalent Factor (TEF). The Toxicity Equivalent Quotient (TEQ) is calculated by multiplying the concentration of each carcinogenic PAH in the sample by its Benzo(a)pyrene (B(a)P) TEF. Total PAH includes Naphthalene (N), 2-methylnaphthalene (2-MN), 1-methylnaphthalene (1-MN), Acenaphthylene (Acy), Acenaphthene (Ace), Fluorene (F), Phenanthrene (P), Anthracene (Ant), Fluoranthene (Fl), Pyrene (Pyr) and the carcinogenic PAHs. Values are presented as mg/kg. 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, Clay, mg/kg		NL			
NEPM 2013 Soil Generic EIL for Commercial/Industrial, mg/kg		370			
Soil ESL for Commercial/Industrial, fine-grained soil, mg/kg			0.7		
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
S1	0.15	<0.1	<0.1	<0.3	<0.8
S2	0.15	<0.1	<0.1	<0.3	<0.8
S3	0.15	<0.1	<0.1	<0.3	<0.8

Table 16. Heavy Metal analytical results. Values are presented as mg/kg.

Assessment Criteria		Arsenic, As	Cadmium, Cd	Chromium, Cr	Copper, Cu	Lead, Pb	Nickel, Ni	Zinc, Zn	Mercury, Hg
NEPM 2013 Commercial/Industrial Soil HIL-D, mg/kg		3000	900	3600	240 000	1500	6000	400 000	730
NEPM 2013 Soil Generic EIL for Commercial/Industrial, mg/kg		160				1800			
Sample	Depth (m)	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
S1	0.15	**3**	<0.3	**7.4**	**11**	**33**	**2.8**	**54**	**0.10**
S2	0.15	**2**	<0.3	**6.7**	**10**	**44**	**2.0**	**80**	**0.17**
S3	0.15	**1**	<0.3	**4.2**	**1.9**	**9**	<0.5	**9.8**	<0.05

Table 17. Pesticides analytical results. Values are presented as mg/kg.

Assessment Criteria		HCB	Heptachlor	Chlordane	Aldrin & Dieldrin	Endrin	DDT	DDD+DDE +DDT	Endosulfan	Methoxychlor	Mirex
NEPM 2013 Commercial/Industrial Soil HIL-D, mg/kg		80	50	530	45	100		3600	2000	2500	100
NEPM 2013 Soil Generic EIL for Commercial/Industrial, mg/kg							640				
Sample	Depth (m)	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
S1	0.15	<0.1	<0.2	<0.2	<0.3	<0.2	<0.2	<0.6	<0.5	<0.1	<0.1
S2	0.15	<0.1	<0.2	<0.2	<0.3	<0.2	<0.2	<0.6	<0.5	<0.1	<0.1
S3	0.15	<0.1	<0.2	<0.2	<0.3	<0.2	<0.2	<0.6	<0.5	<0.1	<0.1

Table 18. Asbestos analytical results. Values are presented as %w/w.

Assessment Criteria		Asbestos		
NEPM 2013 Soil HSL-D, mg/kg		Detected	Bonded ACM	FA and AF
			0.01%w/w	0.001%w/w
Sample	Depth (m)	Y/N	%w/w	%w/w
S1	0.15	N	<0.01	-
S2	0.15	N	<0.01	-
S3	0.15	N	<0.01	-

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:	N6898
Address:	186 Riverstone Parade	Purchase Order No:	**QUOTE NUMER: 322722**
	Riverstone NSW 2765	Results Required Date:	Normal
		Telephone:	0416680375 Fax:
Contact Name:	Nick Caltabiano	Email Results and invoices to :	nick@neoconsulting, admin@neoconsulting, oskar@neoconsulting, sarah@neoconsulting, eshan@neoconsulting
Quotation No:			

SGS ID	Client Sample ID	Sampling Date/ Time	Matrix (Tick as appropriate): Soil Sample	Water Sample	Other___	NO. OF CONTAINERS	ANALYSIS REQUESTED: NEO 1	NEO 2	NEO 3	NEO 4	Asbestos ID	Heavy Metals 8	BTEX
1	S1		X					X			X		
2	S2		X					X			X		
3	S3		X					X			X		

Additional Report Formats

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

Notes/Guidelines/LOR/ Special instructions

SGS EHS Sydney COC
SE242054

Relinquished By:	Date/Time:	Received By:	Date/Time: 20.1.23 7.15
Relinquished By:	Date/Time:	Received By:	Date/Time:
Samples Intact: Yes / No	Temperature: 8.8 °C	Sample Security Sealed: Yes / No	Hazards: *e.g. may contain Asbestos*
Comments / Subcontracting details:			

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Admin
Client	NEO CONSULTING PTY LTD
Address	PO BOX 279 RIVERSTONE NSW 2765
Telephone	0416 680 375
Facsimile	(Not specified)
Email	admin@neoconsulting.com.au
Project	**N6898**
Order Number	**N6898**
Samples	3

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	**SE242054 R0**
Date Received	20/1/2023
Date Reported	30/1/2023

COMMENTS

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

No respirable fibres detected in all soil samples using trace analysis technique.
A portion of the sample supplied has been sub-sampled for asbestos analysis in soil according to SGS In-house procedures. We therefore cannot guarantee that the sub-sample is representative of the entire sample supplied. SGS Industries and Environment recommends supplying approximately 50-100g of sample in a separate container.
Asbestos analysed by Approved Identifier Ravee Sivasubramaniam.

SIGNATORIES

Akheeqar BENIAMEEN
Chemist

Dong LIANG
Metals/Inorganics Team Leader

Ly Kim HA
Organic Section Head

Ravee SIVASUBRAMANIAM
Hygiene Team Leader

Shane MCDERMOTT
Inorganic/Metals Chemist

Teresa NGUYEN
Organic Chemist

VOC's in Soil [AN433] Tested: 24/1/2023

PARAMETER	UOM	LOR	S1 SOIL - 19/1/2023 SE242054.001	S2 SOIL - 19/1/2023 SE242054.002	S3 SOIL - 19/1/2023 SE242054.003
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	<0.3
Total BTEX*	mg/kg	0.6	<0.6	<0.6	<0.6
Naphthalene (VOC)*	mg/kg	0.1	<0.1	<0.1	<0.1

Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 24/1/2023

PARAMETER	UOM	LOR	S1 SOIL - 19/1/2023 SE242054.001	S2 SOIL - 19/1/2023 SE242054.002	S3 SOIL - 19/1/2023 SE242054.003
TRH C6-C9	mg/kg	20	<20	<20	<20
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1
TRH C6-C10	mg/kg	25	<25	<25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 24/1/2023

PARAMETER	UOM	LOR	S1 SOIL - 19/1/2023 SE242054.001	S2 SOIL - 19/1/2023 SE242054.002	S3 SOIL - 19/1/2023 SE242054.003
TRH C10-C14	mg/kg	20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	<45
TRH C29-C36	mg/kg	45	<45	<45	**47**
TRH C37-C40	mg/kg	100	<100	<100	<100
TRH >C10-C16	mg/kg	25	<25	<25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120
TRH C10-C36 Total	mg/kg	110	<110	<110	<110
TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	<210

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 24/1/2023

PARAMETER	UOM	LOR	S1 SOIL - 19/1/2023 SE242054.001	S2 SOIL - 19/1/2023 SE242054.002	S3 SOIL - 19/1/2023 SE242054.003
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0*	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR*	TEQ (mg/kg)	0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	TEQ (mg/kg)	0.2	<0.2	<0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8	<0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8	<0.8	<0.8

OC Pesticides in Soil [AN420] Tested: 24/1/2023

PARAMETER	UOM	LOR	S1 SOIL - 19/1/2023 SE242054.001	S2 SOIL - 19/1/2023 SE242054.002	S3 SOIL - 19/1/2023 SE242054.003
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1
Lindane (gamma BHC)	mg/kg	0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1
o,p'-DDE*	mg/kg	0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2
o,p'-DDD*	mg/kg	0.1	<0.1	<0.1	<0.1
o,p'-DDT*	mg/kg	0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1
Endrin aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1
Endrin ketone	mg/kg	0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1	<1	<1
Total OC VIC EPA	mg/kg	1	<1	<1	<1

OP Pesticides in Soil [AN420] Tested: 24/1/2023

PARAMETER	UOM	LOR	S1 SOIL - 19/1/2023 SE242054.001	S2 SOIL - 19/1/2023 SE242054.002	S3 SOIL - 19/1/2023 SE242054.003
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	<1.7

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 24/1/2023

PARAMETER	UOM	LOR	S1 SOIL - 19/1/2023 SE242054.001	S2 SOIL - 19/1/2023 SE242054.002	S3 SOIL - 19/1/2023 SE242054.003
Arsenic, As	mg/kg	1	**3**	**2**	**1**
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.5	**7.4**	**6.7**	**4.2**
Copper, Cu	mg/kg	0.5	**11**	**10**	**1.9**
Lead, Pb	mg/kg	1	**33**	**44**	**9**
Nickel, Ni	mg/kg	0.5	**2.8**	**2.0**	<0.5
Zinc, Zn	mg/kg	2	**54**	**80**	**9.8**

Mercury in Soil [AN312] Tested: 24/1/2023

PARAMETER	UOM	LOR	S1 SOIL - 19/1/2023 SE242054.001	S2 SOIL - 19/1/2023 SE242054.002	S3 SOIL - 19/1/2023 SE242054.003
Mercury	mg/kg	0.05	**0.10**	**0.17**	<0.05

Moisture Content [AN002] Tested: 24/1/2023

PARAMETER	UOM	LOR	S1 SOIL - 19/1/2023 SE242054.001	S2 SOIL - 19/1/2023 SE242054.002	S3 SOIL - 19/1/2023 SE242054.003
% Moisture	%w/w	1	**14.9**	**9.3**	**7.5**

Fibre Identification in soil [AS4964/AN602] Tested: 27/1/2023

PARAMETER	UOM	LOR	S1 SOIL - 19/1/2023 SE242054.001	S2 SOIL - 19/1/2023 SE242054.002	S3 SOIL - 19/1/2023 SE242054.003
Asbestos Detected	No unit	-	No	No	No
Estimated Fibres*	%w/w	0.01	<0.01	<0.01	<0.01

METHOD	METHODOLOGY SUMMARY
AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN040/AN320	A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
AN040	A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analysis by ASS or ICP as per USEPA Method 200.8.
AN312	Mercury by Cold Vapour AAS in Soils: After digestion with nitric acid, hydrogen peroxide and hydrochloric acid , mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser . Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500
AN403	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the NEPM 1999 (2013), >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). F2 is reported directly and also corrected by subtracting Naphthalene (from VOC method AN433) where available.
AN403	Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Recoverable Hydrocarbons - Silica (TRH-Si) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents .
AN403	The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken . This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependent on the use of specific cleanup /fractionation techniques. Reference USEPA 3510B, 8015B.
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D). Total PAH calculated from individual analyte detections at or above the limit of reporting .
AN420	SVOC Compounds: Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols in soils, sediments and waters are determined by GCMS /ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN433	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf) The fibres detected may or may not be asbestos fibres.
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection /reporting limit (RL) of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."

AN602	The sample can be reported “no asbestos found at the reporting limit (RL) of 0.1 g/kg” (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if- (a) no trace asbestos fibres have been detected (i.e. no ‘respirable’ fibres): (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg: and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.

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-qb/environment-health-and-safety.

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	**N6898**
Order Number	**N6898**
Samples	3

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	**SE242054 R0**
Date Received	20 Jan 2023
Date Reported	30 Jan 2023

COMMENTS

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

No respirable fibres detected in all soil samples using trace analysis technique.
A portion of the sample supplied has been sub-sampled for asbestos analysis in soil according to SGS In-house procedures. We therefore cannot guarantee that the sub-sample is representative of the entire sample supplied. SGS Industries and Environment recommends supplying approximately 50-100g of sample in a separate container.
Asbestos analysed by Approved Identifier Ravee Sivasubramaniam.

SIGNATORIES

Ravee SIVASUBRAMANIAM
Hygiene Team Leader

RESULTS

Fibre Identification in soil — Method AN602

Laboratory Reference	Client Reference	Matrix	Sample Description	Date Sampled	Fibre Identification	Est.%w/w*
SE242054.001	S1	Soil	65g Clay,Sand,Rocks	19 Jan 2023	No Asbestos Found at RL of 0.1g/kg Organic Fibres Detected	<0.01
SE242054.002	S2	Soil	92g Clay,Sand,Rocks,Plant Matter	19 Jan 2023	No Asbestos Found at RL of 0.1g/kg Organic Fibres Detected	<0.01
SE242054.003	S3	Soil	103g Sand,Soil,Rocks,Plant Matter	19 Jan 2023	No Asbestos Found at RL of 0.1g/kg Organic Fibres Detected	<0.01

METHOD SUMMARY

SE242054 R0

METHOD	METHODOLOGY SUMMARY
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf) The fibres detected may or may not be asbestos fibres.
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples , Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection/reporting limit (RL) of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."
AN602	The sample can be reported “no asbestos found at the reporting limit (RL) of 0.1 g/kg” (<0.01%w/w) where AN602 section 4.5 of this method has been followed, and if- (a) no trace asbestos fibres have been detected (i.e. no ‘respirable ’ fibres): (b) the estimated weight of non-respirable asbestos fibre bundles and/or the estimated weight of asbestos in asbestos-containing materials are found to be less than 0.1g/kg: and (c) these non-respirable asbestos fibre bundles and/or the asbestos containing materials are only visible under stereo-microscope viewing conditions.

FOOTNOTES

Amosite	-	Brown Asbestos	NA	-	Not Analysed
Chrysotile	-	White Asbestos	LNR	-	Listed, Not Required
Crocidolite	-	Blue Asbestos	*	-	NATA accreditation does not cover the performance of this service .
Amphiboles	-	Amosite and/or Crocidolite	**	-	Indicative data, theoretical holding time exceeded.
			***	-	Indicates that both * and ** apply.

(In reference to soil samples only) This report does not comply with the analytical reporting recommendations in the Western Australian Department of Health Guidelines for the Assessment and Remediation and Management of Asbestos Contaminated sites in Western Australia - May 2009.

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received.

Where reported: 'Asbestos Detected': Asbestos detected by polarised light microscopy, including dispersion staining.
Where reported: 'No Asbestos Found': No Asbestos Found by polarised light microscopy, including dispersion staining.
Where reported: 'UMF Detected': Mineral fibres of unknown type detected by polarised light microscopy, including dispersion staining. Confirmation by another independent analytical technique may be necessary.

Even after disintegration it can be very difficult, or impossible, to detect the presence of asbestos in some asbestos -containing bulk materials using polarised light microscopy. This is due to the low grade or small length or diameter of asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials.

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 .

STATEMENT OF QA/QC PERFORMANCE

SE242054 R0

CLIENT DETAILS

Contact	Admin
Client	NEO CONSULTING PTY LTD
Address	PO BOX 279 RIVERSTONE NSW 2765
Telephone	0416 680 375
Facsimile	(Not specified)
Email	admin@neoconsulting.com.au
Project	**N6898**
Order Number	**N6898**
Samples	3

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	**SE242054 R0**
Date Received	20 Jan 2023
Date Reported	30 Jan 2023

COMMENTS

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

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

All Data Quality Objectives were met (within the SGS Alexandria Environmental laboratory).

SAMPLE SUMMARY

Sample counts by matrix	3 Soil	Type of documentation received	COC
Date documentation received	20/1/2023	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	8.8°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		

HOLDING TIME SUMMARY

SE242054 R0

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

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

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

Fibre Identification in soil

Method: ME-(AU)-[ENV]AS4964/AN602

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
S1	SE242054.001	LB269796	19 Jan 2023	20 Jan 2023	19 Jan 2024	27 Jan 2023	19 Jan 2024	30 Jan 2023
S2	SE242054.002	LB269796	19 Jan 2023	20 Jan 2023	19 Jan 2024	27 Jan 2023	19 Jan 2024	30 Jan 2023
S3	SE242054.003	LB269796	19 Jan 2023	20 Jan 2023	19 Jan 2024	27 Jan 2023	19 Jan 2024	30 Jan 2023

Mercury in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
S1	SE242054.001	LB269607	19 Jan 2023	20 Jan 2023	16 Feb 2023	24 Jan 2023	16 Feb 2023	30 Jan 2023
S2	SE242054.002	LB269607	19 Jan 2023	20 Jan 2023	16 Feb 2023	24 Jan 2023	16 Feb 2023	30 Jan 2023
S3	SE242054.003	LB269607	19 Jan 2023	20 Jan 2023	16 Feb 2023	24 Jan 2023	16 Feb 2023	30 Jan 2023

Moisture Content

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
S1	SE242054.001	LB269600	19 Jan 2023	20 Jan 2023	02 Feb 2023	24 Jan 2023	29 Jan 2023	27 Jan 2023
S2	SE242054.002	LB269600	19 Jan 2023	20 Jan 2023	02 Feb 2023	24 Jan 2023	29 Jan 2023	27 Jan 2023
S3	SE242054.003	LB269600	19 Jan 2023	20 Jan 2023	02 Feb 2023	24 Jan 2023	29 Jan 2023	27 Jan 2023

OC Pesticides in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
S1	SE242054.001	LB269598	19 Jan 2023	20 Jan 2023	02 Feb 2023	24 Jan 2023	05 Mar 2023	27 Jan 2023
S2	SE242054.002	LB269598	19 Jan 2023	20 Jan 2023	02 Feb 2023	24 Jan 2023	05 Mar 2023	27 Jan 2023
S3	SE242054.003	LB269598	19 Jan 2023	20 Jan 2023	02 Feb 2023	24 Jan 2023	05 Mar 2023	27 Jan 2023

OP Pesticides in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
S1	SE242054.001	LB269598	19 Jan 2023	20 Jan 2023	02 Feb 2023	24 Jan 2023	05 Mar 2023	27 Jan 2023
S2	SE242054.002	LB269598	19 Jan 2023	20 Jan 2023	02 Feb 2023	24 Jan 2023	05 Mar 2023	27 Jan 2023
S3	SE242054.003	LB269598	19 Jan 2023	20 Jan 2023	02 Feb 2023	24 Jan 2023	05 Mar 2023	27 Jan 2023

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
S1	SE242054.001	LB269598	19 Jan 2023	20 Jan 2023	02 Feb 2023	24 Jan 2023	05 Mar 2023	27 Jan 2023
S2	SE242054.002	LB269598	19 Jan 2023	20 Jan 2023	02 Feb 2023	24 Jan 2023	05 Mar 2023	27 Jan 2023
S3	SE242054.003	LB269598	19 Jan 2023	20 Jan 2023	02 Feb 2023	24 Jan 2023	05 Mar 2023	27 Jan 2023

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

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
S1	SE242054.001	LB269604	19 Jan 2023	20 Jan 2023	18 Jul 2023	24 Jan 2023	18 Jul 2023	30 Jan 2023
S2	SE242054.002	LB269604	19 Jan 2023	20 Jan 2023	18 Jul 2023	24 Jan 2023	18 Jul 2023	30 Jan 2023
S3	SE242054.003	LB269604	19 Jan 2023	20 Jan 2023	18 Jul 2023	24 Jan 2023	18 Jul 2023	30 Jan 2023

TRH (Total Recoverable Hydrocarbons) in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
S1	SE242054.001	LB269598	19 Jan 2023	20 Jan 2023	02 Feb 2023	24 Jan 2023	05 Mar 2023	27 Jan 2023
S2	SE242054.002	LB269598	19 Jan 2023	20 Jan 2023	02 Feb 2023	24 Jan 2023	05 Mar 2023	27 Jan 2023
S3	SE242054.003	LB269598	19 Jan 2023	20 Jan 2023	02 Feb 2023	24 Jan 2023	05 Mar 2023	27 Jan 2023

VOC's in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
S1	SE242054.001	LB269599	19 Jan 2023	20 Jan 2023	02 Feb 2023	24 Jan 2023	02 Feb 2023	30 Jan 2023
S2	SE242054.002	LB269599	19 Jan 2023	20 Jan 2023	02 Feb 2023	24 Jan 2023	02 Feb 2023	30 Jan 2023
S3	SE242054.003	LB269599	19 Jan 2023	20 Jan 2023	02 Feb 2023	24 Jan 2023	02 Feb 2023	30 Jan 2023

Volatile Petroleum Hydrocarbons in Soil

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

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
S1	SE242054.001	LB269599	19 Jan 2023	20 Jan 2023	02 Feb 2023	24 Jan 2023	02 Feb 2023	30 Jan 2023
S2	SE242054.002	LB269599	19 Jan 2023	20 Jan 2023	02 Feb 2023	24 Jan 2023	02 Feb 2023	30 Jan 2023
S3	SE242054.003	LB269599	19 Jan 2023	20 Jan 2023	02 Feb 2023	24 Jan 2023	02 Feb 2023	30 Jan 2023

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

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

OC Pesticides in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	S1	SE242054.001	%	60 - 130%	98
	S2	SE242054.002	%	60 - 130%	98
	S3	SE242054.003	%	60 - 130%	95

OP Pesticides in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	S1	SE242054.001	%	60 - 130%	85
	S2	SE242054.002	%	60 - 130%	81
	S3	SE242054.003	%	60 - 130%	84
d14-p-terphenyl (Surrogate)	S1	SE242054.001	%	60 - 130%	93
	S2	SE242054.002	%	60 - 130%	91
	S3	SE242054.003	%	60 - 130%	93

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	S1	SE242054.001	%	70 - 130%	85
	S2	SE242054.002	%	70 - 130%	81
	S3	SE242054.003	%	70 - 130%	84
d14-p-terphenyl (Surrogate)	S1	SE242054.001	%	70 - 130%	93
	S2	SE242054.002	%	70 - 130%	91
	S3	SE242054.003	%	70 - 130%	93
d5-nitrobenzene (Surrogate)	S1	SE242054.001	%	70 - 130%	86
	S2	SE242054.002	%	70 - 130%	86
	S3	SE242054.003	%	70 - 130%	88

VOC's in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	S1	SE242054.001	%	60 - 130%	101
	S2	SE242054.002	%	60 - 130%	103
	S3	SE242054.003	%	60 - 130%	95
d4-1,2-dichloroethane (Surrogate)	S1	SE242054.001	%	60 - 130%	126
	S2	SE242054.002	%	60 - 130%	118
	S3	SE242054.003	%	60 - 130%	124
d8-toluene (Surrogate)	S1	SE242054.001	%	60 - 130%	88
	S2	SE242054.002	%	60 - 130%	96
	S3	SE242054.003	%	60 - 130%	91

Volatile Petroleum Hydrocarbons in Soil

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

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	S1	SE242054.001	%	60 - 130%	101
	S2	SE242054.002	%	60 - 130%	103
	S3	SE242054.003	%	60 - 130%	95
d4-1,2-dichloroethane (Surrogate)	S1	SE242054.001	%	60 - 130%	126
	S2	SE242054.002	%	60 - 130%	118
	S3	SE242054.003	%	60 - 130%	124
d8-toluene (Surrogate)	S1	SE242054.001	%	60 - 130%	88
	S2	SE242054.002	%	60 - 130%	96
	S3	SE242054.003	%	60 - 130%	91

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

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

Mercury in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB269607.001	Mercury	mg/kg	0.05	<0.05

OC Pesticides in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB269598.001		Alpha BHC	mg/kg	0.1	<0.1
		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
		Beta BHC	mg/kg	0.1	<0.1
		Lindane (gamma BHC)	mg/kg	0.1	<0.1
		Delta BHC	mg/kg	0.1	<0.1
		Heptachlor	mg/kg	0.1	<0.1
		Aldrin	mg/kg	0.1	<0.1
		Isodrin	mg/kg	0.1	<0.1
		Heptachlor epoxide	mg/kg	0.1	<0.1
		Gamma Chlordane	mg/kg	0.1	<0.1
		Alpha Chlordane	mg/kg	0.1	<0.1
		Alpha Endosulfan	mg/kg	0.2	<0.2
		p,p'-DDE	mg/kg	0.1	<0.1
		Dieldrin	mg/kg	0.2	<0.2
		Endrin	mg/kg	0.2	<0.2
		Beta Endosulfan	mg/kg	0.2	<0.2
		p,p'-DDD	mg/kg	0.1	<0.1
		Endrin aldehyde	mg/kg	0.1	<0.1
		Endosulfan sulphate	mg/kg	0.1	<0.1
		p,p'-DDT	mg/kg	0.1	<0.1
		Endrin ketone	mg/kg	0.1	<0.1
		Methoxychlor	mg/kg	0.1	<0.1
		Mirex	mg/kg	0.1	<0.1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	98

OP Pesticides in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB269598.001		Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
		Bromophos Ethyl	mg/kg	0.2	<0.2
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
		Diazinon (Dimpylate)	mg/kg	0.5	<0.5
		Dichlorvos	mg/kg	0.5	<0.5
		Dimethoate	mg/kg	0.5	<0.5
		Ethion	mg/kg	0.2	<0.2
		Fenitrothion	mg/kg	0.2	<0.2
		Malathion	mg/kg	0.2	<0.2
		Methidathion	mg/kg	0.5	<0.5
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
	Surrogates	2-fluorobiphenyl (Surrogate)	%	-	83
		d14-p-terphenyl (Surrogate)	%	-	92

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Sample Number	Parameter	Units	LOR	Result
LB269598.001	Naphthalene	mg/kg	0.1	<0.1
	2-methylnaphthalene	mg/kg	0.1	<0.1
	1-methylnaphthalene	mg/kg	0.1	<0.1
	Acenaphthylene	mg/kg	0.1	<0.1
	Acenaphthene	mg/kg	0.1	<0.1
	Fluorene	mg/kg	0.1	<0.1
	Phenanthrene	mg/kg	0.1	<0.1
	Anthracene	mg/kg	0.1	<0.1
	Fluoranthene	mg/kg	0.1	<0.1
	Pyrene	mg/kg	0.1	<0.1
	Benzo(a)anthracene	mg/kg	0.1	<0.1
	Chrysene	mg/kg	0.1	<0.1
	Benzo(a)pyrene	mg/kg	0.1	<0.1

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

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

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

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

Sample Number		Parameter	Units	LOR	Result
LB269598.001		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1
		Benzo(ghi)perylene	mg/kg	0.1	<0.1
		Total PAH (18)	mg/kg	0.8	<0.1
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	86
		2-fluorobiphenyl (Surrogate)	%	-	83
		d14-p-terphenyl (Surrogate)	%	-	92

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

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

Sample Number	Parameter	Units	LOR	Result
LB269604.001	Arsenic, As	mg/kg	1	<1
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.5	<0.5
	Copper, Cu	mg/kg	0.5	<0.5
	Nickel, Ni	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Zinc, Zn	mg/kg	2	<2.0

TRH (Total Recoverable Hydrocarbons) in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB269598.001		TRH C10-C14	mg/kg	20	<20
		TRH C15-C28	mg/kg	45	<45
		TRH C29-C36	mg/kg	45	<45
		TRH C37-C40	mg/kg	100	<100
		TRH C10-C36 Total	mg/kg	110	<110

VOC's in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB269599.001	Monocyclic Aromatic Hydrocarbons	Benzene	mg/kg	0.1	<0.1
		Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
	Polycyclic VOCs	Naphthalene (VOC)*	mg/kg	0.1	<0.1
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	128
		d8-toluene (Surrogate)	%	-	104
		Bromofluorobenzene (Surrogate)	%	-	115
	Totals	Total BTEX*	mg/kg	0.6	<0.6

Volatile Petroleum Hydrocarbons in Soil

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

Sample Number		Parameter	Units	LOR	Result
LB269599.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	128

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

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

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

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

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

Mercury in Soil

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE242058.006	LB269607.014	Mercury	mg/kg	0.05	<0.05	<0.05	200	0
SE242177.002	LB269607.021	Mercury	mg/kg	0.05	<0.05	<0.05	200	0

Moisture Content

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE242058.006	LB269600.011	% Moisture	%w/w	1	24.7	25.3	34	2
SE242177.002	LB269600.022	% Moisture	%w/w	1	15.9	15.7	36	1

OC Pesticides in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE242177.002	LB269598.025		Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
			Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Lindane (gamma BHC)	mg/kg	0.1	<0.1	<0.1	200	0
			Delta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor	mg/kg	0.1	<0.1	<0.1	200	0
			Aldrin	mg/kg	0.1	<0.1	<0.1	200	0
			Isodrin	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			o,p'-DDE*	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Dieldrin	mg/kg	0.2	<0.2	<0.2	200	0
			Endrin	mg/kg	0.2	<0.2	<0.2	200	0
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			o,p'-DDD*	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDT*	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin ketone	mg/kg	0.1	<0.1	<0.1	200	0
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0
			Mirex	mg/kg	0.1	<0.1	<0.1	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	200	0
			Total CLP OC Pesticides	mg/kg	1	<1	<1	200	0
			Total OC VIC EPA	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.15	0.14	30	1

OP Pesticides in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE242054.003	LB269598.027		Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	0.0028649884	200	0
			Bromophos Ethyl	mg/kg	0.2	<0.2	0	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	0.0008293871	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	0.0023440000	200	0
			Dichlorvos	mg/kg	0.5	<0.5	0.0429316602	200	0
			Dimethoate	mg/kg	0.5	<0.5	0.0037720265	200	0
			Ethion	mg/kg	0.2	<0.2	0.0006905828	200	0
			Fenitrothion	mg/kg	0.2	<0.2	0	200	0
			Malathion	mg/kg	0.2	<0.2	0.0009308029	200	0
			Methidathion	mg/kg	0.5	<0.5	0.0030634190	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	0	200	0
			Total OP Pesticides*	mg/kg	1.7	<1.7	0	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4221044314	30	0
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.4656917262	30	1

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Original	Duplicate	Parameter	Units	LOR

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

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

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

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

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

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE242054.003	LB269598.027		Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthylene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluorene	mg/kg	0.1	<0.1	<0.1	200	0
			Phenanthrene	mg/kg	0.1	<0.1	<0.1	200	0
			Anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Chrysene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=0*	mg/kg	0.2	<0.2	<0.2	200	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	mg/kg	0.2	<0.2	<0.2	175	0
			Carcinogenic PAHs, BaP TEQ <LOR=LOR*	mg/kg	0.3	<0.3	<0.3	134	0
			Total PAH (18)	mg/kg	0.8	<0.8	<0.1	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.4	30	0
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	0
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	1

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

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

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE242058.006	LB269604.014	Arsenic, As	mg/kg	1	5	4	51	9
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.5	34	36	31	4
		Copper, Cu	mg/kg	0.5	<0.5	<0.5	200	0
		Nickel, Ni	mg/kg	0.5	1.3	0.8	78	42
		Lead, Pb	mg/kg	1	15	16	36	2
		Zinc, Zn	mg/kg	2	6.4	5.3	64	19
SE242177.002	LB269604.021	Arsenic, As	mg/kg	1	4	4	56	3
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
		Chromium, Cr	mg/kg	0.5	33	29	32	11
		Copper, Cu	mg/kg	0.5	<0.5	<0.5	200	0
		Nickel, Ni	mg/kg	0.5	1.3	1.7	63	24
		Lead, Pb	mg/kg	1	15	13	37	12
		Zinc, Zn	mg/kg	2	4.3	3.7	80	14

TRH (Total Recoverable Hydrocarbons) in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE242054.003	LB269598.027		TRH C10-C14	mg/kg	20	<20	<20	200	0
			TRH C15-C28	mg/kg	45	<45	<45	157	0
			TRH C29-C36	mg/kg	45	47	59	115	22
			TRH C37-C40	mg/kg	100	<100	<100	200	0
			TRH C10-C36 Total	mg/kg	110	<110	<110	200	0
			TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	200	0
		TRH F Bands	TRH >C10-C16	mg/kg	25	<25	<25	200	0
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	148	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0
SE242177.002	LB269598.025		TRH C10-C14	mg/kg	20	<20	<20	200	0
			TRH C15-C28	mg/kg	45	<45	<45	200	0
			TRH C29-C36	mg/kg	45	<45	<45	200	0
			TRH C37-C40	mg/kg	100	<100	<100	200	0
			TRH C10-C36 Total	mg/kg	110	<110	<110	200	0
			TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	200	0
		TRH F Bands	TRH >C10-C16	mg/kg	25	<25	<25	200	0

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

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

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

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

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

TRH (Total Recoverable Hydrocarbons) in Soil (continued)

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE242177.002	LB269598.025	TRH F Bands	TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0

VOC's in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE242058.006	LB269599.014	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
			Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene (VOC)*	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	11.7	12.0	50	3
			d8-toluene (Surrogate)	mg/kg	-	8.4	8.2	50	2
			Bromofluorobenzene (Surrogate)	mg/kg	-	8.9	9.1	50	2
		Totals	Total BTEX*	mg/kg	0.6	<0.6	<0.6	200	0
			Total Xylenes*	mg/kg	0.3	<0.3	<0.3	200	0
SE242177.002	LB269599.022	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
			Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene (VOC)*	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	12.7	12.3	50	3
			d8-toluene (Surrogate)	mg/kg	-	8.9	8.6	50	4
			Bromofluorobenzene (Surrogate)	mg/kg	-	9.7	9.3	50	3
		Totals	Total BTEX*	mg/kg	0.6	<0.6	<0.6	200	0
			Total Xylenes*	mg/kg	0.3	<0.3	<0.3	200	0

Volatile Petroleum Hydrocarbons in Soil

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

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE242058.006	LB269599.014		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	11.7	12.0	30	3
			d8-toluene (Surrogate)	mg/kg	-	8.4	8.2	30	2
			Bromofluorobenzene (Surrogate)	mg/kg	-	8.9	9.1	30	2
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0
SE242177.002	LB269599.022		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	12.7	12.3	30	3
			d8-toluene (Surrogate)	mg/kg	-	8.9	8.6	30	4
			Bromofluorobenzene (Surrogate)	mg/kg	-	9.7	9.3	30	3
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0

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

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

Mercury in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB269607.002		Mercury	mg/kg	0.05	0.23	0.2	70 - 130	114

OC Pesticides in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB269598.002		Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	89
		Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	92
		Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	87
		Dieldrin	mg/kg	0.2	<0.2	0.2	60 - 140	86
		Endrin	mg/kg	0.2	<0.2	0.2	60 - 140	93
		p,p'-DDT	mg/kg	0.1	0.2	0.2	60 - 140	76
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.15	0.15	40 - 130	98

OP Pesticides in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB269598.002		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.6	2	60 - 140	81
		Diazinon (Dimpylate)	mg/kg	0.5	1.6	2	60 - 140	81
		Dichlorvos	mg/kg	0.5	1.4	2	60 - 140	70
		Ethion	mg/kg	0.2	1.4	2	60 - 140	69
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	90
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	92

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB269598.002		Naphthalene	mg/kg	0.1	4.1	4	60 - 140	102
		Acenaphthylene	mg/kg	0.1	3.9	4	60 - 140	97
		Acenaphthene	mg/kg	0.1	4.0	4	60 - 140	100
		Phenanthrene	mg/kg	0.1	3.8	4	60 - 140	96
		Anthracene	mg/kg	0.1	4.0	4	60 - 140	100
		Fluoranthene	mg/kg	0.1	4.1	4	60 - 140	103
		Pyrene	mg/kg	0.1	4.0	4	60 - 140	99
		Benzo(a)pyrene	mg/kg	0.1	4.5	4	60 - 140	114
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	88
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	90
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	92

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

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB269604.002		Arsenic, As	mg/kg	1	340	318.22	80 - 120	108
		Cadmium, Cd	mg/kg	0.3	4.1	4.81	70 - 130	86
		Chromium, Cr	mg/kg	0.5	40	38.31	80 - 120	104
		Copper, Cu	mg/kg	0.5	310	290	80 - 120	107
		Nickel, Ni	mg/kg	0.5	190	187	80 - 120	101
		Lead, Pb	mg/kg	1	93	89.9	80 - 120	103
		Zinc, Zn	mg/kg	2	270	273	80 - 120	97

TRH (Total Recoverable Hydrocarbons) in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB269598.002		TRH C10-C14	mg/kg	20	43	40	60 - 140	106
		TRH C15-C28	mg/kg	45	<45	40	60 - 140	107
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	80
	TRH F Bands	TRH >C10-C16	mg/kg	25	43	40	60 - 140	107
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	102
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	74

VOC's in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB269599.002	Monocyclic	Benzene	mg/kg	0.1	4.8	5	60 - 140	97
	Aromatic	Toluene	mg/kg	0.1	5.1	5	60 - 140	102
		Ethylbenzene	mg/kg	0.1	4.8	5	60 - 140	97
		m/p-xylene	mg/kg	0.2	9.7	10	60 - 140	97
		o-xylene	mg/kg	0.1	5.0	5	60 - 140	100
	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	11.5	10	70 - 130	115

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

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

VOC's in Soil (continued)

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB269599.002	Surrogates	d8-toluene (Surrogate)	mg/kg	-	9.9	10	70 - 130	99
		Bromofluorobenzene (Surrogate)	mg/kg	-	10.1	10	70 - 130	101

Volatile Petroleum Hydrocarbons in Soil

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

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB269599.002		TRH C6-C10	mg/kg	25	73	92.5	60 - 140	79
		TRH C6-C9	mg/kg	20	57	80	60 - 140	71
	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	11.5	10	70 - 130	115
		Bromofluorobenzene (Surrogate)	mg/kg	-	10.1	10	70 - 130	101
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	43	62.5	60 - 140	69

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

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

Mercury in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE242054.001	LB269607.004	Mercury	mg/kg	0.05	0.33	0.10	0.2	117

OP Pesticides in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE242054.001	LB269598.004		Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	-	-
			Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	-	-
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.6	<0.2	2	77
			Diazinon (Dimpylate)	mg/kg	0.5	1.6	<0.5	2	79
			Dichlorvos	mg/kg	0.5	1.4	<0.5	2	66
			Dimethoate	mg/kg	0.5	<0.5	<0.5	-	-
			Ethion	mg/kg	0.2	1.5	<0.2	2	74
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	-	-
			Malathion	mg/kg	0.2	<0.2	<0.2	-	-
			Methidathion	mg/kg	0.5	<0.5	<0.5	-	-
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	-	-
			Total OP Pesticides*	mg/kg	1.7	6.0	<1.7	-	-
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	-	87
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	-	86

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE242054.001	LB269598.004		Naphthalene	mg/kg	0.1	3.9	<0.1	4	96
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
			Acenaphthylene	mg/kg	0.1	3.7	<0.1	4	92
			Acenaphthene	mg/kg	0.1	3.7	<0.1	4	93
			Fluorene	mg/kg	0.1	<0.1	<0.1	-	-
			Phenanthrene	mg/kg	0.1	3.6	<0.1	4	89
			Anthracene	mg/kg	0.1	3.7	<0.1	4	92
			Fluoranthene	mg/kg	0.1	3.9	<0.1	4	96
			Pyrene	mg/kg	0.1	3.7	<0.1	4	91
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	-	-
			Chrysene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(a)pyrene	mg/kg	0.1	4.3	<0.1	4	107
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	-	-
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=0*	TEQ (mg/kg)	0.2	4.3	<0.2	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	TEQ (mg/kg)	0.2	4.4	<0.2	-	-
			Carcinogenic PAHs, BaP TEQ <LOR=LOR*	TEQ (mg/kg)	0.3	4.4	<0.3	-	-
			Total PAH (18)	mg/kg	0.8	30	<0.8	-	-
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.4	0.4	-	84
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.4	0.4	-	87
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	-	86

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

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

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE242054.001	LB269604.004	Arsenic, As	mg/kg	1	54	3	50	102
		Cadmium, Cd	mg/kg	0.3	49	<0.3	50	98
		Chromium, Cr	mg/kg	0.5	57	7.4	50	100
		Copper, Cu	mg/kg	0.5	63	11	50	103
		Nickel, Ni	mg/kg	0.5	53	2.8	50	100
		Lead, Pb	mg/kg	1	80	33	50	94
		Zinc, Zn	mg/kg	2	100	54	50	97

TRH (Total Recoverable Hydrocarbons) in Soil

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

QC Sample	Sample Number	Parameter	Units	LOR

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

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

TRH (Total Recoverable Hydrocarbons) in Soil (continued)

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE242054.001	LB269598.004		TRH C10-C14	mg/kg	20	45	<20	40	100
			TRH C15-C28	mg/kg	45	61	<45	40	102
			TRH C29-C36	mg/kg	45	52	<45	40	76
			TRH C37-C40	mg/kg	100	<100	<100	-	-
			TRH C10-C36 Total	mg/kg	110	160	<110	-	-
			TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	-	-
		TRH F	TRH >C10-C16	mg/kg	25	45	<25	40	100
		Bands	TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	45	<25	-	-
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	40	93
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	-	-

VOC's in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE242054.001	LB269599.004	Monocyclic	Benzene	mg/kg	0.1	4.9	<0.1	5	98
		Aromatic	Toluene	mg/kg	0.1	5.4	<0.1	5	107
			Ethylbenzene	mg/kg	0.1	5.1	<0.1	5	102
			m/p-xylene	mg/kg	0.2	10	<0.2	10	104
			o-xylene	mg/kg	0.1	5.4	<0.1	5	108
		Polycyclic	Naphthalene (VOC)*	mg/kg	0.1	<0.1	<0.1	-	-
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	10.8	12.6	10	108
			d8-toluene (Surrogate)	mg/kg	-	8.9	8.8	10	89
			Bromofluorobenzene (Surrogate)	mg/kg	-	9.3	10.1	10	93
		Totals	Total BTEX*	mg/kg	0.6	31	<0.6	-	-
			Total Xylenes*	mg/kg	0.3	16	<0.3	-	-

Volatile Petroleum Hydrocarbons in Soil

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

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE242054.001	LB269599.004		TRH C6-C10	mg/kg	25	82	<25	92.5	89
			TRH C6-C9	mg/kg	20	55	<20	80	68
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	10.8	12.6	10	108
			d8-toluene (Surrogate)	mg/kg	-	8.9	8.8	10	89
			Bromofluorobenzene (Surrogate)	mg/kg	-	9.3	10.1	-	93
		VPH F	Benzene (F0)	mg/kg	0.1	4.9	<0.1	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	51	<25	62.5	81

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

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

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

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

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

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

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

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

SAMPLE RECEIPT ADVICE

SE242054

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	**N6898**
Order Number	**N6898**
Samples	3

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 20/1/2023
Report Due	Mon 30/1/2023
SGS Reference	**SE242054**

SUBMISSION DETAILS

This is to confirm that 3 samples were received on Friday 20/1/2023. Results are expected to be ready by COB Monday 30/1/2023. Please quote SGS reference SE242054 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	3 Soil	Type of documentation received	COC
Date documentation received	20/1/2023	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	8.8°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

A separate portion was not supplied for Asbestos analysis . A sub-sample will be used from the jar provided.

SAMPLE RECEIPT ADVICE

SE242054

CLIENT DETAILS

Client NEO CONSULTING PTY LTD

Project N6898

SUMMARY OF ANALYSIS

No.	Sample ID	OC Pesticides in Soil	OP Pesticides in Soil	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	Total Recoverable Elements in Soil/Waste	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
001	S1	30	14	26	7	10	11	7
002	S2	30	14	26	7	10	11	7
003	S3	30	14	26	7	10	11	7

CONTINUED OVERLEAF

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

SAMPLE RECEIPT ADVICE

SE242054

CLIENT DETAILS

Client NEO CONSULTING PTY LTD

Project N6898

SUMMARY OF ANALYSIS

No.	Sample ID	Fibre Identification in soil	Mercury in Soil	Moisture Content
001	S1	2	1	1
002	S2	2	1	1
003	S3	2	1	1

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

NEO CONSULTING

APPENDIX C

Property Report and Relevant Site Data

NEO CONSULTING

DEVELOPMENT APPLICATION

NOT FOR CONSTRUCTION

DRAWING SCHEDULE

Issue	Amendment	Date
5.	PRELIMINARY DA	18.03.2022
4.	PRELIMINARY	14.02.2022
3.	PRELIMINARY	03.02.2022
2.	PRELIMINARY	JAN 2022
1.	PRELIMINARY	DEC 2021

ALL DIMENSIONS TO BE VERIFIED ON SITE. DIMENSIONS TO BE TAKEN IN PREFERENCE TO SCALED DIMENSIONS. ANY DISCREPANCIES TO BE REFERRED TO ARCHITECT BEFORE PROCEEDING IF IN DOUBT, ASK!

GROUP ARCHITECTS

GROUP ARCHITECTS
Nominated Architect Julian Brenchley 6246
Group Architects Pty Limited ABN 82 600 366 069
Suite 3.09/55 Miller Street Pyrmont nsw 2009
T: +612 9660 1055 E: info@grouparchitects.com.au

WARRINGAH GOLF CLUB

address
KENTWELL RD
NORTH MANLY

drawing
DRAWING SCHEDULE

SCALE:

ISSUE: 5. DATE: 18.03.2022

DWG No.: GA2020-023-002

DEVELOPMENT APPLICATION

NOT FOR CONSTRUCTION

LOCATION PLAN

Issue	Amendment	Date
5.	PRELIMINARY DA	18.03.2022
4.	PRELIMINARY	14.02.2022
3.	PRELIMINARY	03.02.2022
2.	PRELIMINARY	JAN 2022
1.	PRELIMINARY	DEC 2021

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Suite 3.09/55 Miller Street Pyrmont nsw 2009
T: +612 9660 1055 E: info@grouparchitects.com.au

WARRINGAH GOLF CLUB

address
KENTWELL RD
NORTH MANLY

drawing
LOCATION PLAN

SCALE:

ISSUE: 5. DATE: 18.03.2022

DWG No.: GA2020-023-003

DEVELOPMENT APPLICATION

NOT FOR CONSTRUCTION

OVERALL SITE PLAN

0 10 20 30 40 50

Issue	Amendment	Date
5.	PRELIMINARY DA	18.03.2022
4.	PRELIMINARY	14.02.2022
3.	PRELIMINARY	03.02.2022
2.	PRELIMINARY	JAN 2022
1.	PRELIMINARY	DEC 2021

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Suite 3.09/55 Miller Street Pyrmont nsw 2009
T: +612 9660 1055 E: info@grouparchitects.com.au

WARRINGAH GOLF CLUB

address
KENTWELL RD
NORTH MANLY

drawing
OVERALL SITE PLAN

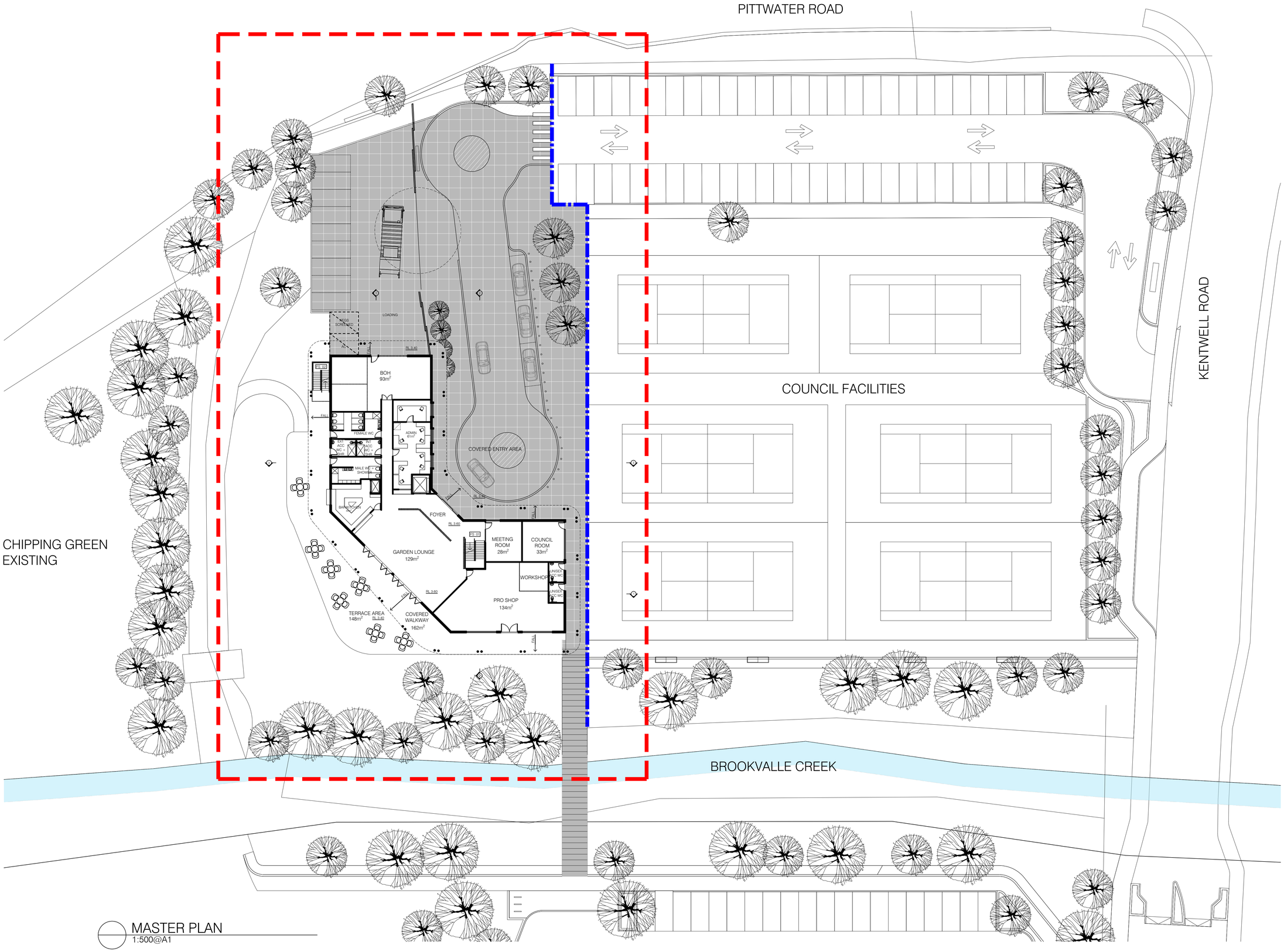
SCALE:

ISSUE: 5. DATE: 18.03.2022

DWG No.: GA2020-023-100

DEVELOPMENT APPLICATION

NOT FOR CONSTRUCTION



MASTER PLAN
1:500@A1

Issue	Amendment	Date
5.	PRELIMINARY DA	18.03.2022
4.	PRELIMINARY	14.02.2022
3.	PRELIMINARY	03.02.2022
2.	PRELIMINARY	JAN 2022
1.	PRELIMINARY	DEC 2021

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Group Architects Pty Limited ABN 82 600 366 069
Suite 3.09/55 Miller Street Pyrmont nsw 2009
T: +612 9660 1055 E: info@grouparchitects.com.au

WARRINGAH GOLF CLUB

address
KENTWELL RD
NORTH MANLY

drawing
MASTER PLAN

SCALE: 1:500 @ A1
ISSUE: 5. DATE: 18.03.2022

DWG No.: GA2020-023-101

DEVELOPMENT APPLICATION

NOT FOR CONSTRUCTION

1 GROUND FLOOR PLAN
1:200@A3

Issue	Amendment	Date
5.	PRELIMINARY DA	18.03.2022
4.	PRELIMINARY	14.02.2022
3.	PRELIMINARY	03.02.2022
2.	PRELIMINARY	JAN 2022
1.	PRELIMINARY	DEC 2021

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T: +612 9660 1055 E: info@grouparchitects.com.au

WARRINGAH GOLF CLUB

address
KENTWELL RD
NORTH MANLY

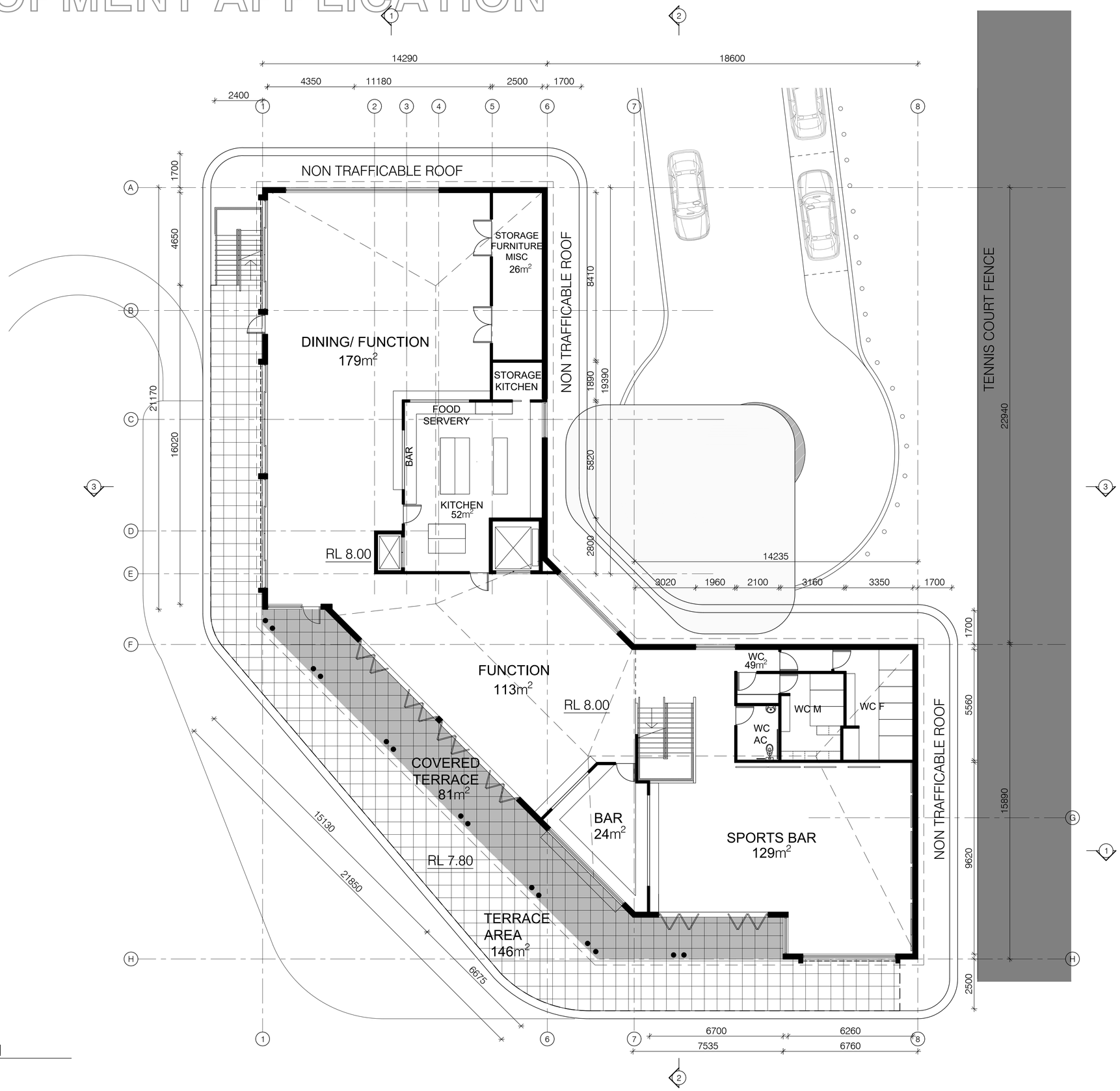
drawing
GROUND FLOOR PLAN

SCALE: 1:100 @ A1
ISSUE: 5. DATE: 18.03.2022

DWG No.: GA2020-023-102

DEVELOPMENT APPLICATION

NOT FOR CONSTRUCTION



2 FIRST FLOOR PLAN
1:200@A3

Issue	Amendment	Date
5.	PRELIMINARY DA	18.03.2022
4.	PRELIMINARY	14.02.2022
3.	PRELIMINARY	03.02.2022
2.	PRELIMINARY	JAN 2022
1.	PRELIMINARY	DEC 2021

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Nominated Architect Julian Brenchley 6246
Group Architects Pty Limited ABN 82 600 366 069
Suite 3.09/55 Miller Street Pyrmont nsw 2009
T: +612 9660 1055 E: info@grouparchitects.com.au

WARRINGAH GOLF CLUB

address
KENTWELL RD
NORTH MANLY

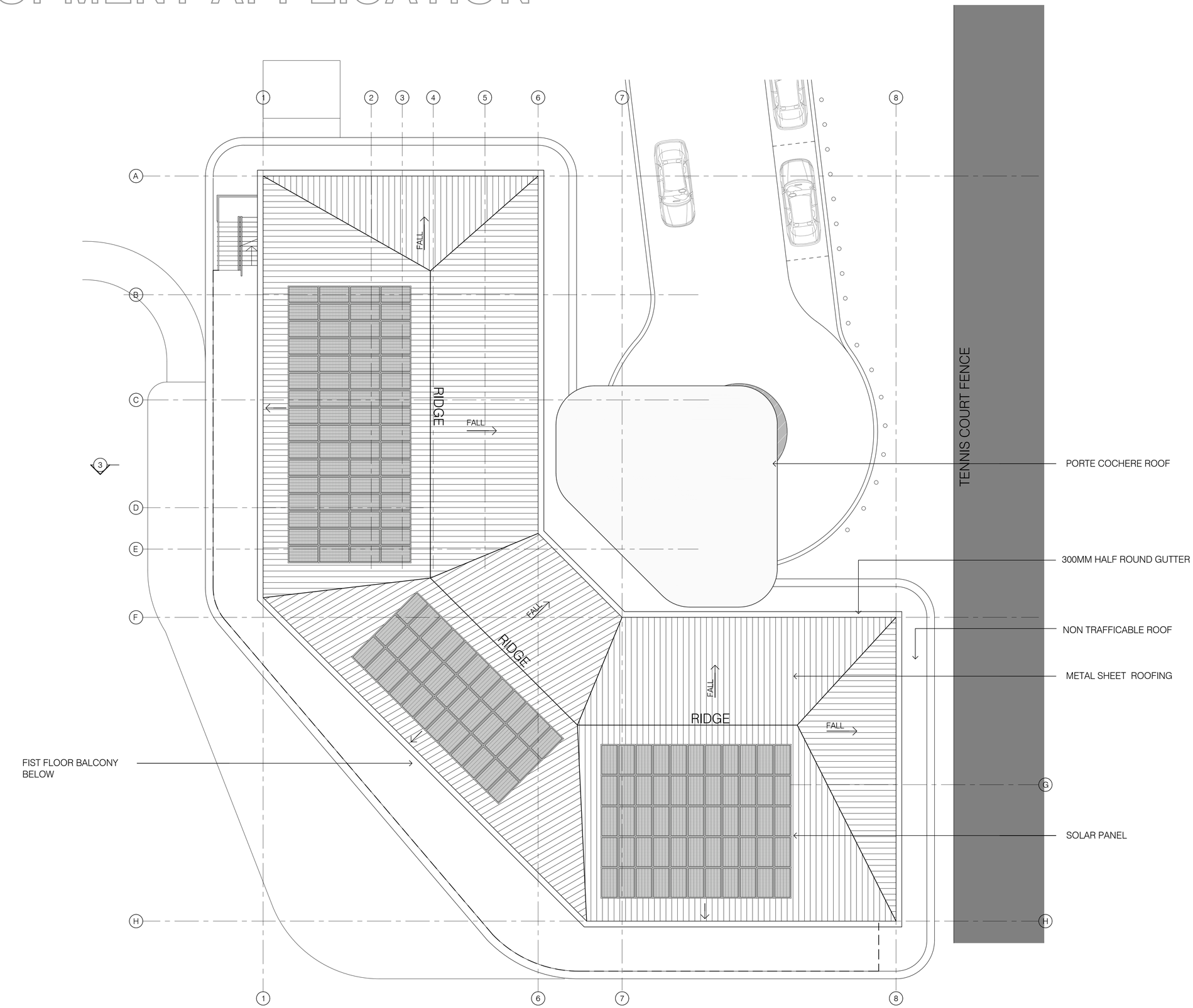
drawing
FIRST FLOOR PLAN

SCALE: 1:100 @ A1
ISSUE: 5. DATE: 18.03.2022

DWG No.: GA2020-023-103

DEVELOPMENT APPLICATION

NOT FOR CONSTRUCTION



3 ROOF PLAN
1:200@A3

Issue	Amendment	Date
5.	PRELIMINARY DA	18.03.2022
4.	PRELIMINARY	14.02.2022
3.	PRELIMINARY	03.02.2022
2.	PRELIMINARY	JAN 2022
1.	PRELIMINARY	DEC 2021

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Nominated Architect Julian Brenchley 6246
Group Architects Pty Limited ABN 82 600 366 069
Suite 3.09/55 Miller Street Pyrmont nsw 2009
T: +612 9660 1055 E: info@grouparchitects.com.au

WARRINGAH GOLF CLUB

address
KENTWELL RD
NORTH MANLY

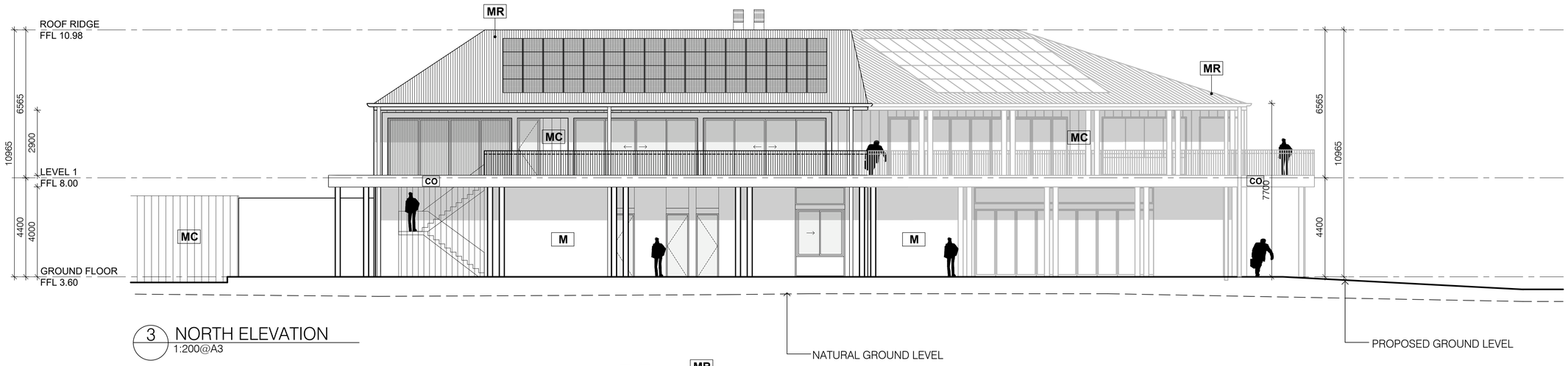
drawing
ROOF PLAN

SCALE: 1:100 @ A1
ISSUE: 5. DATE: 18.03.2022

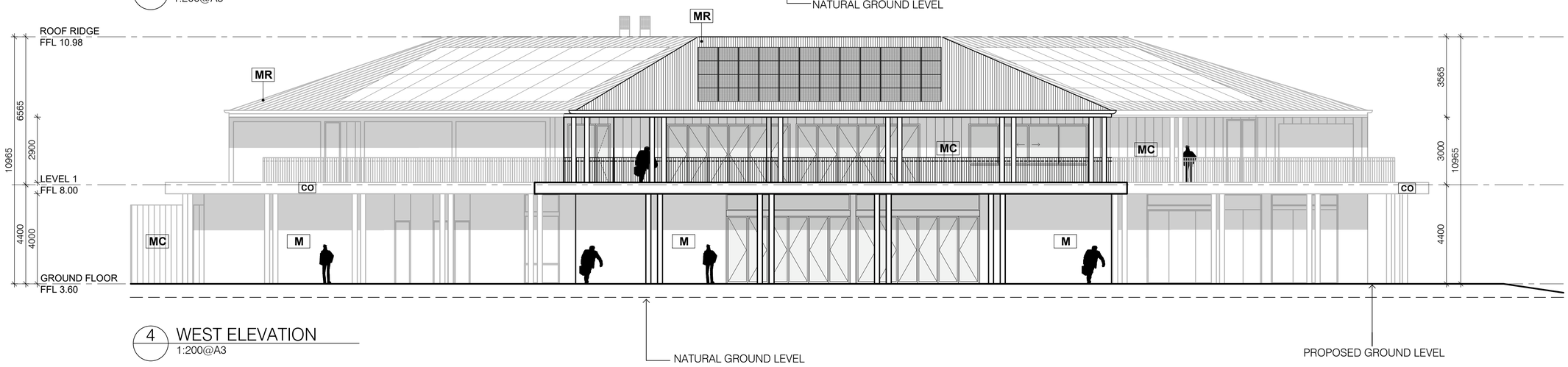
DWG No.: GA2020-023-104

DEVELOPMENT APPLICATION

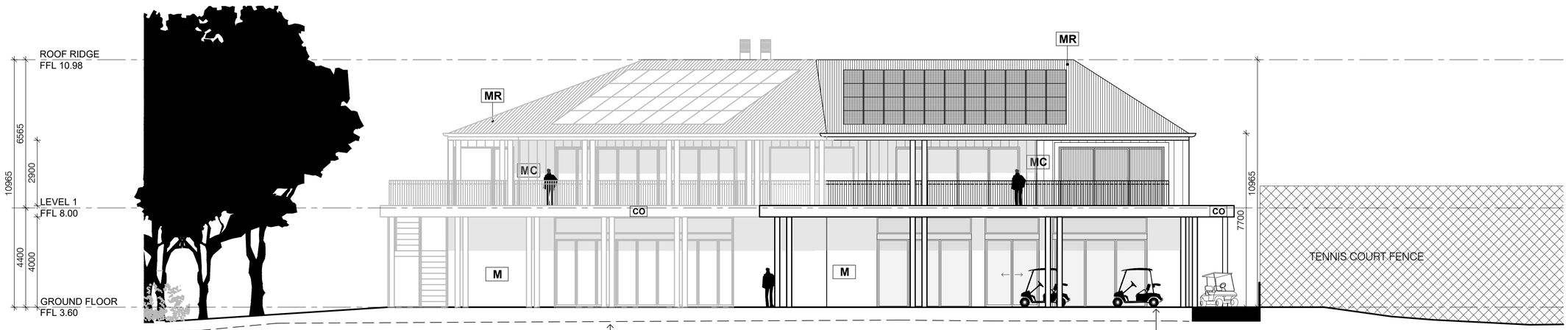
NOT FOR CONSTRUCTION



3 NORTH ELEVATION
1:200@A3



4 WEST ELEVATION
1:200@A3



5 SOUTH WEST ELEVATION
1:200@A3

CO	CONCRETE
BP	BRICK PAVEMENT
M	MASONRY
MR	METAL ROOFING
MC	METAL CLADDING
CG	CLEAR GLASS
CG	COMPACTED GRAVEL
S	SAND
PE	PEBBLE

Issue	Amendment	Date
5.	PRELIMINARY DA	18.03.2022
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Nominated Architect Julian Brenchley 6246
Group Architects Pty Limited ABN 82 600 366 069
Suite 3.09/55 Miller Street Pyrmont nsw 2009
T: +612 9660 1055 E: info@grouparchitects.com.au

WARRINGAH GOLF CLUB

address
KENTWELL RD
NORTH MANLY

drawing
NORTH, WEST, SOUTH-WEST ELEVATIONS

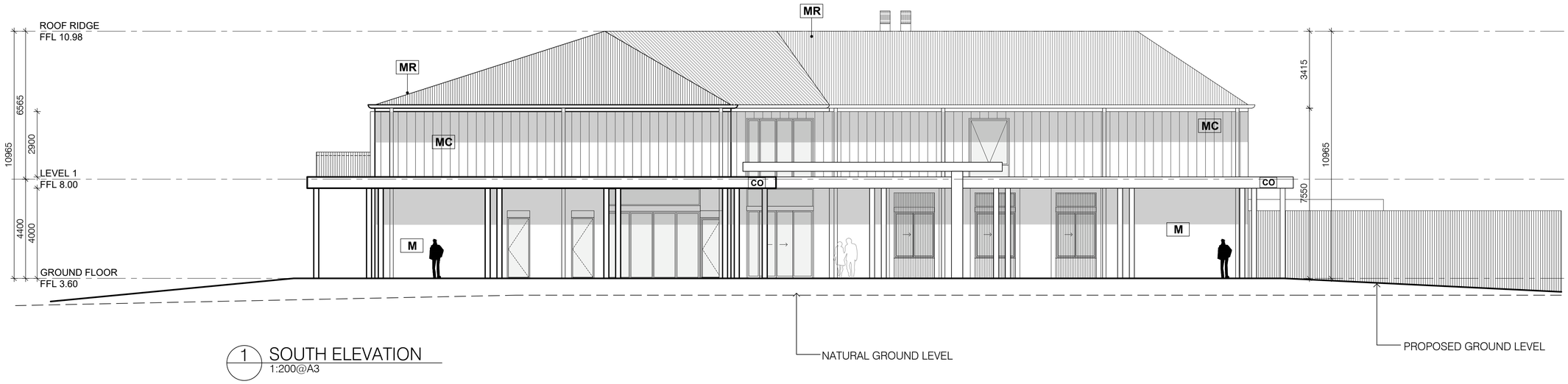
SCALE:

ISSUE: 5. DATE: 18.03.2022

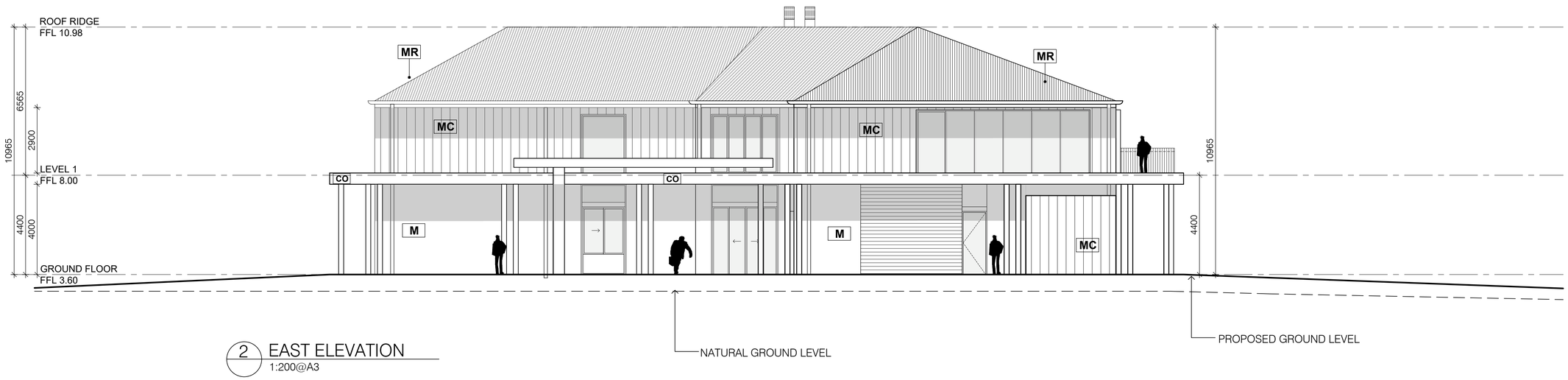
DWG No.: GA2020-023-201

DEVELOPMENT APPLICATION

NOT FOR CONSTRUCTION



1 SOUTH ELEVATION
1:200@A3



2 EAST ELEVATION
1:200@A3

CO	CONCRETE	
BP	BRICK PAVEMENT	
M	MASONRY	
MR	METAL ROOFING	
MC	METAL CLADDING	
CG	CLEAR GLASS	
CG	COMPACTED GRAVEL	
S	SAND	
PE	PEBBLE	

5.	PRELIMINARY DA	18.03.2022
4.	PRELIMINARY	14.02.2022
3.	PRELIMINARY	03.02.2022
2.	PRELIMINARY	JAN 2022
1.	PRELIMINARY	DEC 2021
Issue	Amendment	Date

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Nominated Architect Julian Brenchley 6246
Group Architects Pty Limited ABN 82 600 366 069
Suite 3.09/55 Miller Street Pyrmont nsw 2009
T: +612 9660 1055 E: info@grouparchitects.com.au

WARRINGAH GOLF CLUB

address
KENTWELL RD
NORTH MANLY

drawing
SOUTH AND EAST
ELEVATIONS

SCALE:

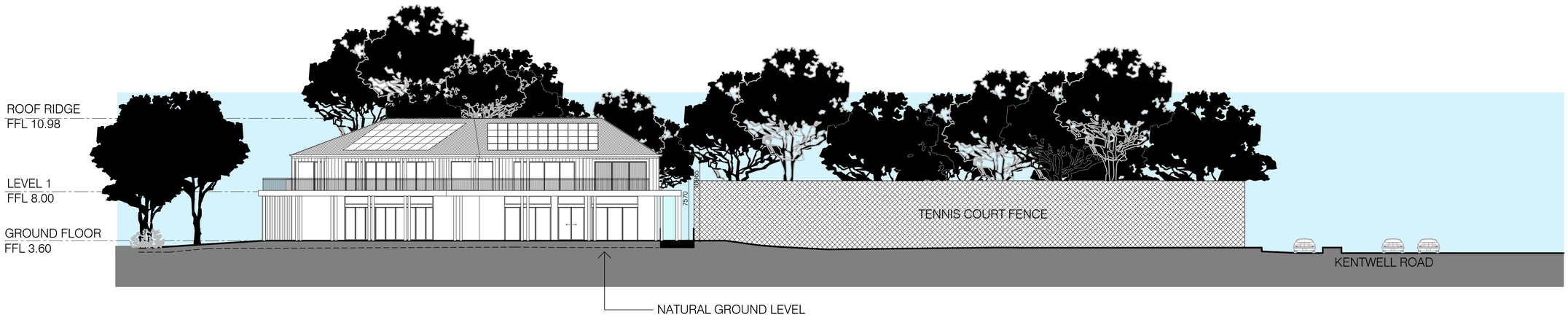
ISSUE: 5. DATE: 18.03.2022

DWG No.: GA2020-006-200

DEVELOPMENT APPLICATION

NOT FOR CONSTRUCTION

6 SOUTH SITE ELEVATION
1:200@A3



7 SOUTH WEST SITE ELEVATION
1:200@A3

8 NORTH SITE ELEVATION
1:200@A3

Issue	Amendment	Date
5.	PRELIMINARY DA	18.03.2022
4.	PRELIMINARY	14.02.2022
3.	PRELIMINARY	03.02.2022
2.	PRELIMINARY	JAN 2022
1.	PRELIMINARY	DEC 2021

ALL DIMENSIONS TO BE VERIFIED ON SITE. DIMENSIONS TO BE TAKEN IN PREFERENCE TO SCALED DIMENSIONS. ANY DISCREPANCIES TO BE REFERRED TO ARCHITECT BEFORE PROCEEDING IF IN DOUBT, ASK!

GROUP ARCHITECTS

GROUP ARCHITECTS
Nominated Architect Julian Brenchley 6246
Group Architects Pty Limited ABN 82 600 366 069
Suite 3.09/55 Miller Street Pyrmont nsw 2009
T: +612 9660 1055 E: info@grouparchitects.com.au

WARRINGAH GOLF CLUB

address
KENTWELL RD
NORTH MANLY

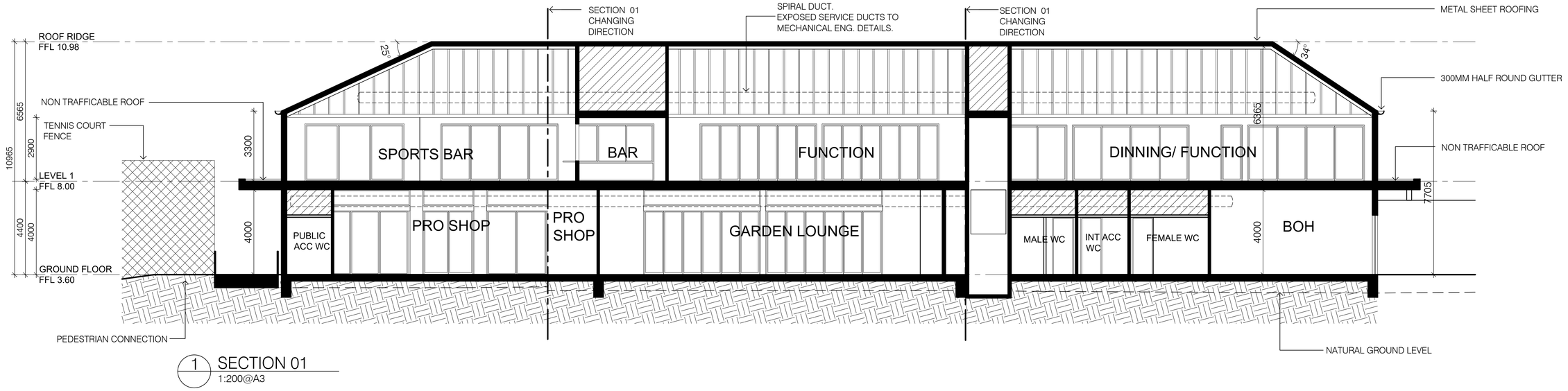
drawing
SITE ELEVATIONS

SCALE: 1:200 @ A1
ISSUE: 5. DATE: 18.03.2022

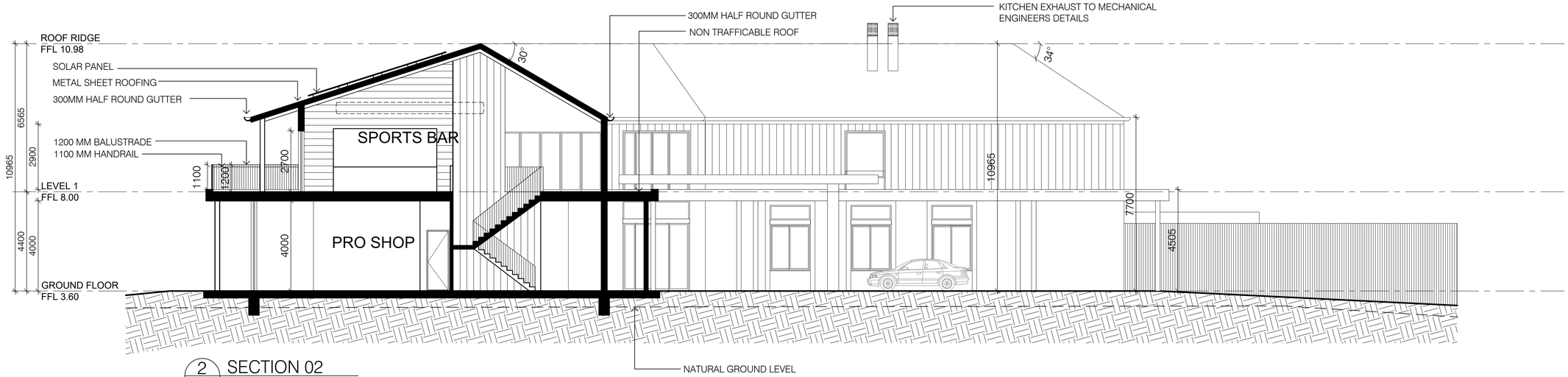
DWG No.: GA2020-023-202

DEVELOPMENT APPLICATION

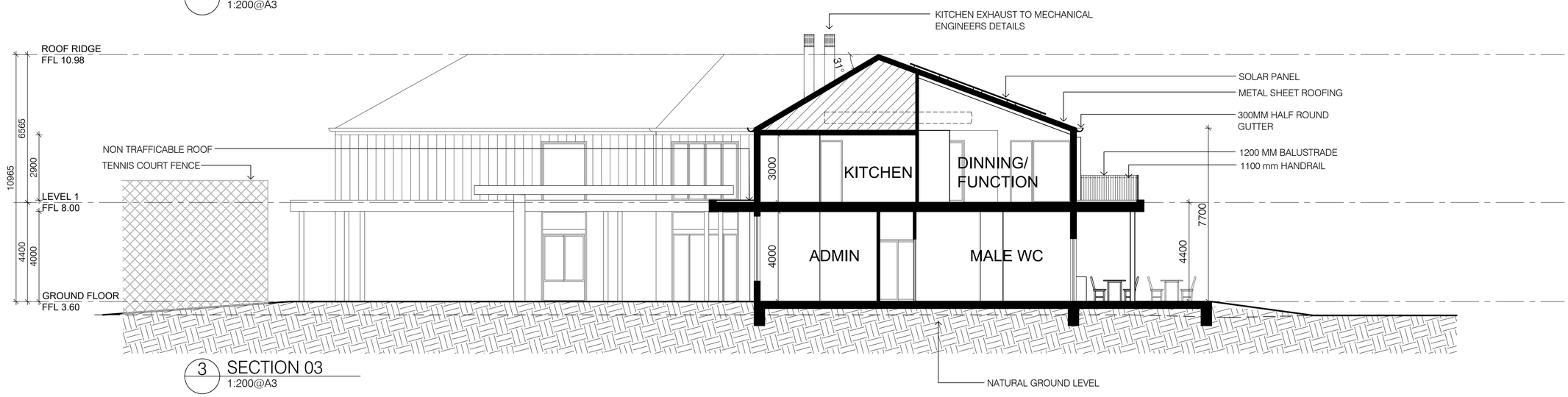
NOT FOR CONSTRUCTION



1 SECTION 01
1:200@A3



2 SECTION 02
1:200@A3



3 SECTION 03
1:200@A3

Issue	Amendment	Date
5.	PRELIMINARY DA	18.03.2022
4.	PRELIMINARY	14.02.2022
3.	PRELIMINARY	03.02.2022
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WARRINGAH GOLF CLUB

address
KENTWELL RD
NORTH MANLY

drawing
SECTIONS 1,2,3

SCALE:

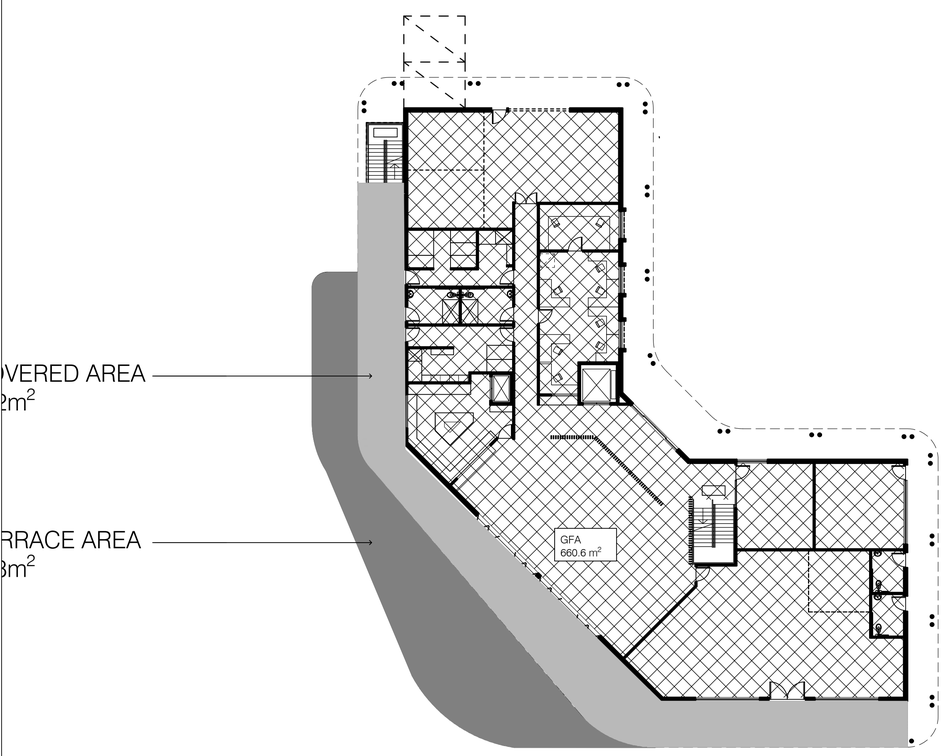
ISSUE: 5. DATE: 18.03.2022

DWG No.: GA2020-006-300

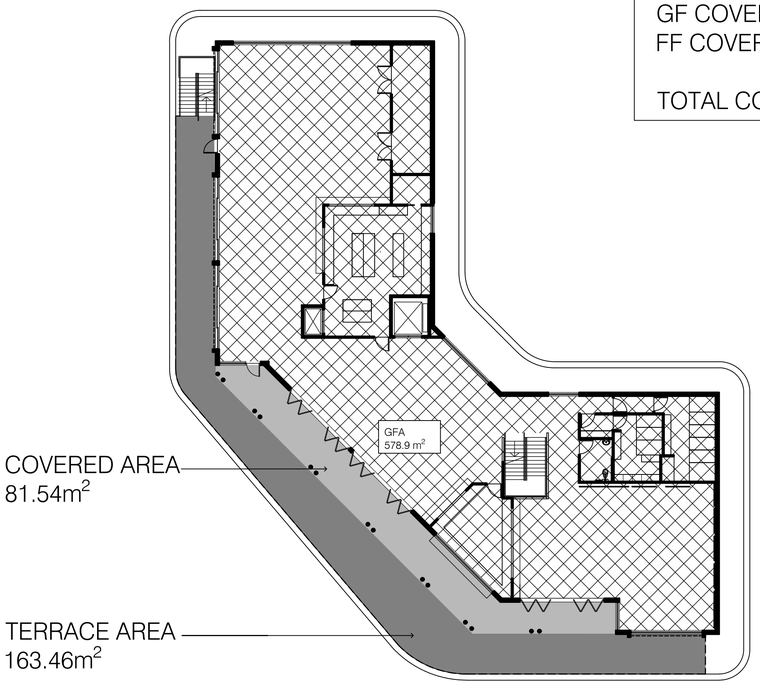
DEVELOPMENT APPLICATION

NOT FOR CONSTRUCTION

GROSS FLOOR AREA	
GFA	
GROUND FLOOR:	660.6 m^2
FIRST FLOOR:	578.9 m^2
TOTAL GFA:	1.239.5 m^2
EXTERNAL AREA	
GF TERRACE:	148 m^2
FF TERRACE:	163.46 m^2
TOTAL TERRACE AREA:	311.46 m^2
GF COVERED AREA:	162 m^2
FF COVERED AREA:	81.54 m^2
TOTAL COVERED AREA:	243.54 m^2



1 GROUND FLOOR GFA
NTS



2 FIRST FLOOR GFA
NTS

Issue	Amendment	Date
5.	PRELIMINARY DA	18.03.2022
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drawing
SITE ELEVATIONS

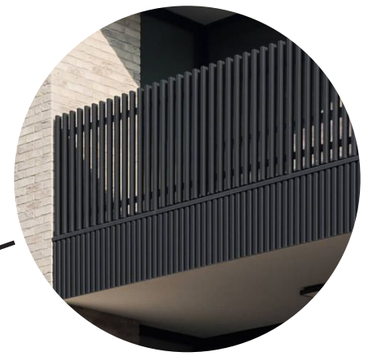
SCALE: 1:200 @ A1
ISSUE: 5. DATE: 18.03.2022

DWG No.: GA2020-023-400

METAL ROOFING

VERTICAL PANEL CLADDING

BLACK FRAMED WINDOWS



BLACK STEEL HANDRAIL

FACEBRICK

OFF FORM CONCRETE

WARRINGAH GOLF CLUB

MARCH 2022

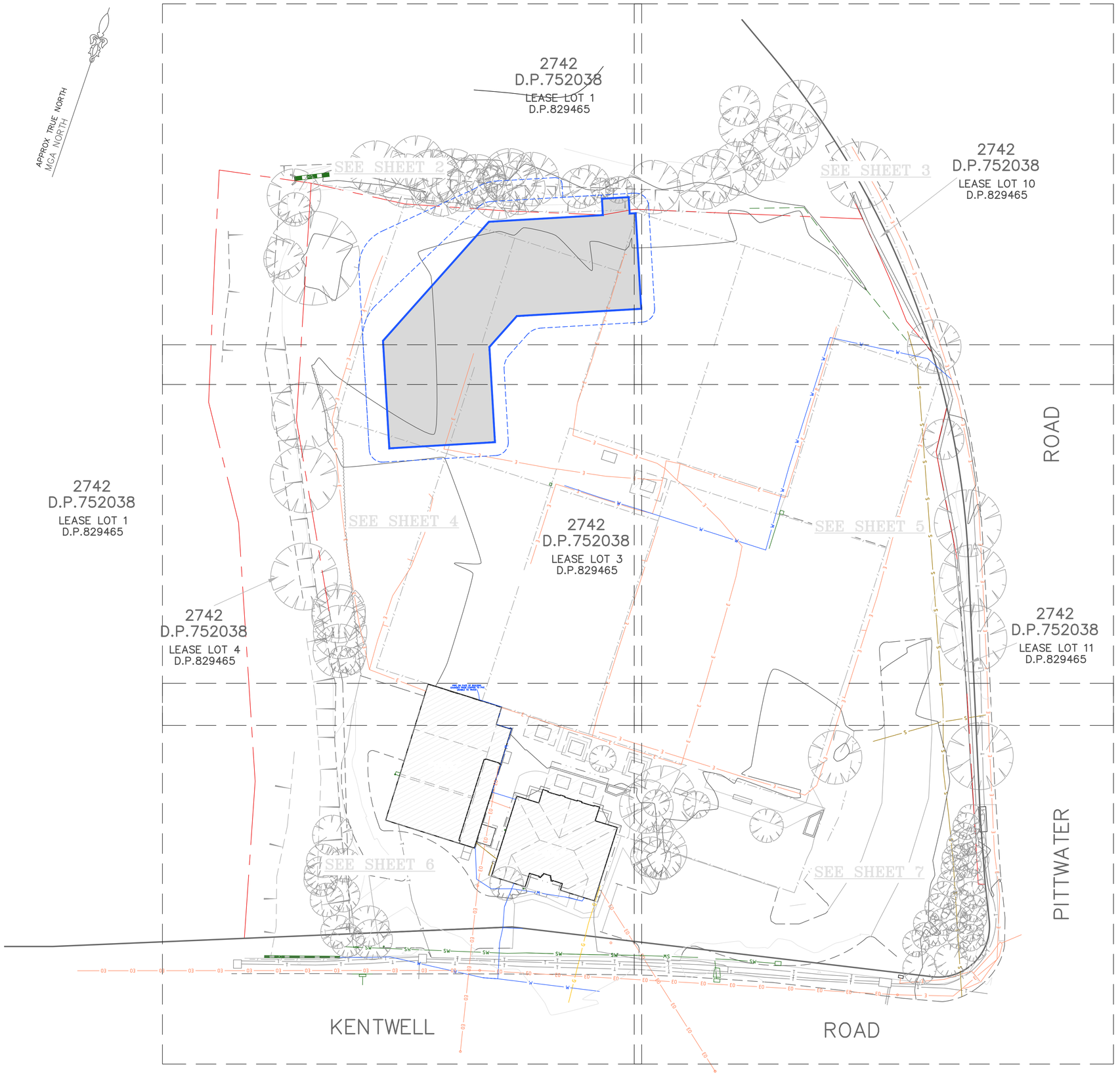
GROUP ARCHITECTS

WARRINGAH GOLF CLUB

MARCH 2022

GROUP
ARCHITECTS

A1



TITLE INDICATES THAT AUTO CONSOL 13394–147 IS SUBJECT TO:

– LAND EXCLUDES MINERALS AND IS SUBJECT TO RESERVATIONS AND CONDITIONS IN FAVOUR OF THE CROWN – SEE CROWN GRANT(S)
– AS TO BOUNDARIES TO RIVERS/LAKES – SEE SECTION 172 CROWN LANDS ACT 1989 AFFECTING LOTS 2743, 2744, 2748 & 2762 IN DP752038
– EASEMENT FOR ELECTRICITY TRANSMISSION LINE CREATED BY NOTIFICATION IN GOVERNMENT GAZETTE 9–1–1931 AFFECTING THE PART OF LOT 2743 IN DP752038 SHOWN IN THE TITLE DIAGRAM
– EASEMENT FOR SEWERAGE CREATED BY NOTIFICATION IN GOVERNMENT GAZETTE 1–12–1961 AFFECTING THE PART OF LOTS 2742 & 2743 IN DP752038 SHOWN IN DP829465
– S351395 EASEMENT FOR WATERMAIN AFFECTING THE PART OF LOT 2742 IN DP752038 SHOWN IN DP590932
– I64061 RESTRICTION(S) ON THE USE OF LAND
– DP1082167 DRAINAGE EASEMENT 1 METRE(S) WIDE AFFECTING THE PART(S) OF LOT 2743 IN DP752038 SHOWN SO BURDENED IN DP1082167
– AJ177736 LEASE TO G8 EDUCATION LIMITED OF PART BEING LOT 1 IN DP810097. EXPIRES: 6/10/2019. OPTION OF RENEWAL: 5 YEARS.
AP933672 VARIATION OF LEASE AJ177736 EXPIRY DATE NOW 6/10/2024. OPTION OF RENEWAL: RELINQUISHED.
– AP819753 LEASE TO MANLY VALE CALABRIA BOWLING SPORTS AND SOCIAL CLUB LIMITED OF PART BEING LOT 1 IN DP866678. EXPIRES: 31/3/2027.

CODE	DEPTH	PIPE DIAMETER
106.78 SSL B 1.31 0.1Ø EOT		
RL. LOCATION QUALITY		NOTE

SUBSURFACE UTILITY INFORMATION

QL-D
IS THE LOWEST OF THE FOUR QUALITY LEVELS STIPULATED IN AS5488. IT IS AN INDICATIVE POSITION COMPILED FROM EXISTING RECORDS, CURSORY SITE INSPECTION, ANECDOTAL EVIDENCE.
QL-C
IS THE NEXT LEVEL UP FROM QL-D. AS5488 STATES THAT QL-C IS A SURFACE FEATURE CORRELATION OR AN INTERPRETATION OF THE APPROXIMATE LOCATIONS AND ATTRIBUTES OF A SURFACE FEATURE USING A COMBINATION OF EXISTING RECORDS (ANECDOTAL EVIDENCE) SONIC BOOM TECHNIQUES AND A SITE SURVEY OF VISIBLE EVIDENCE.
QL-B
ELECTRONICALLY TRACED AS PER AS5488 (DIRECT CONNECTION, INDUCTION, FLEXITRACE/SONDE, FLEXIROD/SONDE) WITH AN ESTIMATED POSITIONAL TOLERANCE OF +/-300MM IN PLAN, +/-500MM IN DEPTH (HIGH CONFIDENCE LEVEL).
QL-A
IS THE HIGHEST QUALITY LEVEL AS PER AS5488 AND CONSISTS OF THE POSITIVE IDENTIFICATION OF THE ATTRIBUTE AND LOCATION OF A SUBSURFACE UTILITY AT A POINT TO AN ABSOLUTE SPATIAL POSITION IN THREE DIMENSIONS. THIS CAN BE ACHIEVED AT OPENED PITS AND IN THE POTHOLES WHERE THE UTILITY IS EXPOSED. HORIZONTAL AND VERTICAL
TOLERANCE: -/+ 50MM.

LEGEND: (SEE NOTES 1)

- E = ELECTRICITY LINE (UNDERGROUND)
- G = GAS LINE (UNDERGROUND)
- S = SEWER LINE (UNDERGROUND)
- SW = STORMWATER LINE (UNDERGROUND)
- T = TELSTRA LINES (UNDERGROUND)
- W = WATER LINE (UNDERGROUND)

NOTES 1

THE PURPOSE OF THIS PLAN IS FOR DESIGN ONLY. CURRENT PLANS ISSUED BY SERVICE PROVIDERS THROUGH "DIAL BEFORE YOU DIG" ARE STILL REQUIRED. CONTRACTORS AND SUBCONTRACTORS WILL NEED TO EXERCISE THEIR OWN "DUTY OF CARE" AND SHOULD MAKE THEIR OWN DIAL BEFORE YOU DIG ENQUIRY BEFORE EXCAVATION/CONSTRUCTION. YOU MUST ENSURE "DIAL BEFORE YOU DIG" ARE CURRENT AS THEY HAVE VARYING EXPIRATION DATES, AND MAY REQUIRE RE-ISSUE OTHERWISE THE INFORMATION ON THIS PLAN MAY NO LONGER BE CURRENT.

WARNING: UNKNOWN SERVICES MAY EXIST THAT COULD NOT BE ELECTRONICALLY DETECTED. THE DIAGRAMS OF THE SERVICE PROVIDER MAY NOT DEPICT ALL ASSETS WITHIN THEIR NETWORK AND SERVICE PROVIDERS MAY SHARE CONDUITS AND /OR TRENCHES AT THIS LOCATION.

WARNING: SINGLE MARKED LINES MAY REPRESENT MULTIPLE CONDUITS, PIPES END/OR CABLES AT THIS LOCATION. THE RECORDING OF DEPTHS AND POSITION OF UTILITIES CANNOT BE GUARANTEED AS CORRECT. WE RECOMMEND NON DESTRUCTIVE DIGGING/POTHOLING TO EXPOSE SERVICES FOR ACCURATE IDENTIFICATION AND DEPTH.

CAUTION: SURESEARCH HAVE SURVEYED AND MARKED OUT EXISTING SERVICES IN THE AREA SPECIFIED BY THE CLIENT. THESE SERVICE LINES HAVE BEEN LOCATED BY ABOVE GROUND SERVICE TRACING METHODS AND HAVE NOT BEEN SIGHTED. CMS SURVEYORS HAVE THEN LOCATED THE LINE MARKED BY SURESEARCH. THE LOCATION OF THESE MARKED SERVICES ARE APPROXIMATE ONLY. THE POSITION OF THE MARKED SERVICE LINES HAS BEEN MADE WITH REFERENCE TO THE RELEVANT SERVICE AUTHORITY DIAGRAMS. ALL SERVICES MAY NOT HAVE BEEN SHOWN AND UTILITY DESCRIPTIONS HAVE BEEN TAKEN FROM UTILITY PROVIDED DIAGRAMS WHERE AVAILABLE. WE RECOMMEND NON DESTRUCTIVE DIGGING/POTHOLING TO EXPOSE MARKED SERVICES TO IDENTIFY AND SHOW EXACT DEPTH AND LOCATION OF SERVICE LINES PRIOR TO EARTHWORKS COMMENCING. UTILITIES PLOTTED ON THE PLAN THAT TERMINATE IN THE SPECIFIED AREA MAY GO TO FEATURES THAT HAVE NOT BEEN SHOWN ON THE BACKGROUND DETAIL SURVEY PROVIDED BY CLIENT. THE RISK REMAINS WITH THE CLIENT AND/OR SUB CONTRACTOR AND THEIR RESPONSIBILITY TO EXERCISE CAUTION AT ALL TIMES.

0 5 10 15 20 25 30

SCALE 1:300@A1
SCALE 1:600@A3

NOTES

- A BOUNDARY SURVEY HAS BEEN UNDERTAKEN.
- IF CONSTRUCTION IS INTENDED TO BE UNDERTAKEN ON OR ADJACENT TO PROPERTY BOUNDARIES THE BOUNDARIES OF THE LAND MUST BE MARKED OR THE BUILDING SETOUT.
WALL THICKNESS CAN BE CONFIRMED BY INTERNAL SURVEY.
- THIS SURVEY IS FOR DESIGN PURPOSES OF THE SUBJECT LAND ONLY THIS PLAN MUST NOT BE USED FOR ANY OTHER MATTER, PURPOSE OR CONSTRUCTION SETOUT.
- TREE SIZES ARE ESTIMATES ONLY.
- THIS PLAN HAS BEEN PREPARED FOR THE EXCLUSIVE USE OF NORTHERN BEACHES COUNCIL.
- RELATIONSHIP OF IMPROVEMENTS TO BOUNDARIES IS DIAGRAMMATIC ONLY. WHERE OFFSETS ARE CRITICAL THEY SHOULD BE CONFIRMED BY FURTHER SURVEY.
- EXCEPT WHERE SHOWN BY DIMENSION LOCATION OF DETAIL WITH RESPECT TO BOUNDARIES IS INDICATIVE ONLY.
- ONLY VISIBLE SERVICES HAVE BEEN LOCATED. UNDERGROUND SERVICES HAVE NOT BEEN LOCATED. DIAL BEFORE YOU DIG SERVICES (ph 1100) SHOULD BE USED AND A FULL UTILITY INVESTIGATION, INCLUDING A UTILITY LOCATION SURVEY, SHOULD BE UNDERTAKEN BEFORE CARRYING OUT ANY CONSTRUCTION ACTIVITY IN OR NEAR THE SURVEYED AREA.
- SEWER MAIN PLOTTED FROM SYDNEY WATER SEWER DIAGRAM. LOCATION SHOULD BE MARKED ON SITE IF CRITICAL.
- CRITICAL SPOT LEVELS SHOULD BE CONFIRMED WITH SURVEYOR.
- CONTOURS SHOWN DEPICT THE TOPOGRAPHY. THEY DO NOT REPRESENT THE EXACT LEVEL AT ANY PARTICULAR POINT. ONLY SPOT LEVELS SHOULD BE USED FOR CALCULATIONS OF QUANTITIES WITH CAUTION.
- CONTOUR INTERVAL - 0.5 metre. - SPOT LEVELS SHOULD BE ADOPTED.
- POSITION OF RIDGE LINES ARE DIAGRAMMATIC ONLY (NOT TO SCALE).
- THE INFORMATION IS ONLY TO BE USED AT A SCALE ACCURACY OF 1:100.
- DO NOT SCALE OFF THIS PLAN / FIGURED DIMENSIONS TO BE TAKEN II PREFERENCE TO SCALED READINGS.
- COPYRIGHT © CMS SURVEYORS 2020.
- NO PART OF THIS SURVEY MAY BE REPRODUCED, STORED IN A RETREVAL SYSTEM OR TRANSMITTED IN ANY FORM, WITHOUT THE WRITTEN PERMISSION OF THE COPYRIGHT OWNER EXCEPT AS PERMITTED BY THE COPYRIGHT ACT 1968.
- ANY PERMITTED DOWNLOADING, ELECTRONIC STORAGE, DISPLAY, PRINT, COPY OR REPRODUCTION OF THIS SURVEY SHOULD CONTAIN NO ALTERATION OR ADDITION TO THE ORIGINAL SURVEY.
- THIS NOTICE MUST NOT BE ERASED.

AREA OF LOT 2742 IN DP752038
17.43 Ha BY TITLE

STEPHEN EMERY
REGISTERED SURVEYOR BOSSI NUMBER 1605

HORIZONTAL DATUM:
CO-ORDINATE SYSTEM:MGA (GDA 2020)
MARKS ADOPTED:PM 740 & D.P.1206258

VERTICAL DATUM:
DATUM: AUSTRALIAN HEIGHT DATUM (AHD)
B.M. ADOPTED:PM 740
R.L. 5.297 (CLASS LB)
SOURCE: S.C.I.M.S. (15/10/2020)

1	FIRST ISSUE	25/11/20

CLIENT:
NORTHERN BEACHES COUNCIL
CIVIC CENTRE, 725 PITTWATER ROAD
DEE WHY, NSW, 2099

SURVEY PLAN
SHOWING DETAIL & LEVELS WITH UNDERGROUND SERVICE LOCATING
OVER PART LOT 2742 IN DP75203
433 PITTWATER ROAD
NORTH MANLY, NSW, 2100

C.M.S. Surveyors Pty Limited
ACN: 096 240 201
PO Box 463 Dee Why NSW 2099
2/99A South Creek Road, Dee Why NSW 2099
Telephone: (02) 9971 4802
Facsimile: (02) 9971 4822
E-mail: info@cmssurveyors.com.au

LGA: NORTHERN BEACHES SHEET 1 OF

SURVEYED	DRAWN	CHECKED	APPROVED
PB	GP	PB	AF

SURVEY INSTRUCTION	SCALE	DATE OF SURVEY
19741	1:300 @ A1 1:600 @ A3	06/11/2020

DRAWING NAME
19741detail
ISSUE 1

CAD FILE
19741detail 1 WITH CLUB OUTLINE.dwg

15 December 2022

Warringah Golf Club Limited
397 Condamine Street
ALLAMBIE HEIGHTS NSW 2100

Dear Sir/Madam,

Application No. **DA2022/2081 - PAN-287528**
Address: **Lot 2742/9999 Condamine Street MANLY VALE and WARRINGAH GOLF COURSE (DISTRICT PARK)Condamine Street NORTH MANLY and , Warringah Golf Course Pro shop 292Condamine Street NORTH MANLY and & Warringah Golf Course Pro shop 292 Condamine Street NORTH MANLY and District Park Tennis and Squash Centre - Clubhouse & District Park Tennis and Squash Centre - Clubhouse Kentwell Road NORTH MANLY**

Request for Additional Information

Council has conducted a review of your application in accordance with Council's *Development Application and Modification Lodgement Requirements (21/22)* and additional information is required in order to assess the proposed development.

Accordingly, you are requested to address the matter(s) listed below by submitting the additional information via the NSW Planning Portal:

1. **Lot, Strata Plan (SP) and Deposited Plan (DP)**
   The details of the property included on the application form do not match Council's records. Please provide corrected address and formal particulars of the property on title, including Lot and DP/SP No. for the land on which the development is to be carried out. In this regard, our records show the property is described as Lot 2742/9999 Condamine Street, Manly Vale.

2. **Access Report**
   An Access Report addressing the relevant provisions of the WDCP 2011 and any other relevant legislation and Australian Standards.

3. **Building Code of Australia (BCA) Report**
   A Building Code of Australia (BCA) Report.

4. **Contaminated Land Report**
   A Preliminary Site Contaminated Land Report as the history of contamination is unknown for the site. The report is to be prepared by, or reviewed and approved, by a certified consultant as defined under NSW EPA Contaminated Land Consultant Certification Policy. The investigation is to be in accordance with relevant industry guidelines including SEPP (Resilience and Hazards) and NSW EPA guidelines.

5. **DWG No: GA2020-023-101c**
   Site Plan zones suggests work outside the site boundary please clarify.

Council has adopted this review and checking procedure in the interests of streamlining the processing of applications, ensuring all applications are *Assessment Ready* and so applications can be processed within a reasonable timeframe.

Should you need to better understand the reason(s) why this information is being requested, you are referred to the *Development Application and Modification Lodgement Requirements (21/22*), which can be found on Council's forms page. Please visit Council's "*Lodge your Application"* page for more information or to access Planning Portal user guides.

You are provided 7 days to submit the additional information via the Planning Portal to avoid the application being returned to you.

Should your application be returned to you, the Planning Portal now provides the option to *Create a new Copy of your DA* allowing applicants to relodge a new application (including the additional documentation) with ease.

Should you wish to speak to an officer to obtain clarification on the above matter(s) prior to submitting the information, please do not hesitate to contact Council's Planning Officer on 1300 434 434 during our business hours of 8.30am to 5.00pm, Monday to Friday.

Your co-operation in this matter is appreciated.

Yours Faithfully

Development Advisory Service Team