

Traders In Purple Pty Ltd

Soil Salinity Assessment

8-24 Nicholson Street, Wollstonecraft NSW

Report No:

3166-SSA-01-170725.v2f

Report Date:

17/10/2025

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DOCUMENT RECORD

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Document Title:	Soil Salinity Assessment - 8-24 Nicholson Street, Wollstonecraft NSW
Site Address:	8-24 Nicholson Street, Wollstonecraft NSW
Client Name:	Traders In Purple Pty Ltd
Site Size:	≈ 3,066 m ²
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PREPARED BY ENVIRONMENTAL GROUP AUSTRALIA PTY LTD ABN: 83 671 599 143

TABLE OF CONTENTS

1	INTRODUCTION.....	3
1.1	Background.....	3
1.2	Objectives	3
1.3	Scope of Work.....	3
2	SITE IDENTIFICATION	5
3	GEOLOGY, ACID SULFATE SOILS, TOPOGRAPHY AND HYDROGEOLOGY	6
4	SALINITY ASSESSMENT PROCESS	7
4.1	Salinity Processes	7
4.2	Salinity	7
4.3	Aggressivity	7
4.4	Sodicity	7
5	FIELDWORK	8
5.1	Soil Sampling	8
5.2	Site Geology	8
5.3	Odours.....	8
5.4	Staining	8
6	LABORATORY	9
7	RESULTS	10
7.1	Salinity Assessment.....	10
7.2	Aggressivity Assessment (Concrete)	10
7.3	Aggressivity Assessment (Steel).....	10
7.4	Sodicity Assessment	11
8	CONCLUSIONS AND RECOMMENDATIONS	12
9	STATEMENT OF LIMITATIONS	13
10	REFERENCES.....	14

1 INTRODUCTION

1.1 Background

Environmental Group Australia Pty Ltd (EGA) was engaged by Traders In Purple Pty Ltd (the client) to undertake a soil salinity assessment for the *in-situ* soil materials within the site at 8-24 Nicholson Street, Wollstonecraft NSW (refer to **Figure 1**).

EGA has the following project appreciation:

- The site covers an area of approximately 3,066 m²;
- The site is proposed for future redevelopment comprising the demolition of on-site structures and construction of a high-density apartment complex and associated infrastructure; and
- A soil salinity assessment of the site is required for inclusion in a development application for the proposed redevelopment.

1.2 Proposed Development

EGA understand that the site currently utilised within a medium-density residential land use setting. The site is proposed for future high-density development consisting of the following:

- Site amalgamation;
- Demolition of existing structures on the land and excavation of basement levels;
- The construction of an 12-storey residential flat building, comprising:
 - 3-levels of basement car parking;
 - Car parking, waste storage, loading and building services located to the lower ground level;
 - 12-levels of residential dwellings, comprising 1, 2 and 3-bedroom apartments;
 - Rooftop communal open space;
- Rooftop servicing and plant;
- Vehicle access and egress from Oxley Street; and
- Landscaping on the ground floor, lower ground floor and on structure to the rooftop communal open space.

1.3 Objectives

The objectives of this investigation were to:

- Assess the potential presence of salinity within the site in regard to potential salinity related risks to the proposed high-density residential development; and
- Provide recommendations for further investigation, management and/or remediation (if warranted).

1.4 Scope of Work

The scope of works undertaken to address the investigation objectives, included:

- Fieldwork including intrusive sampling;
- Laboratory analysis; and
- Data assessment and reporting.

1.5 SEARs Declaration

Declaration		
Name	Thomasine Hulme	
Professional Qualifications	B. Environmental Management	
The undersigned declares that this <i>Preliminary Site Investigation</i> has been prepared in response to the following SEARs requirements issued for the Project on 23 June 2025 for SSD-86462209:		
SEARs item	SEARs Issue and Assessment Requirement	Relevant Section of this Report that addresses SEARs Requirement
12. Ground and Groundwater Conditions	- Assess potential impacts on soil resources and related infrastructure and riparian lands on and near the site and including soil erosion. - Where required provide a Groundwater Impact Assessment in accordance with relevant Groundwater Guidelines. If the proposed development is on land identified as having high salinity or acid sulfate soil potential in an EPI provide a Salinity Management Plan or Acid Sulfate Soil Management Plan that includes appropriate management measures and strategies.	All sections
Signed		
Dated	17 October 2025	

2 SITE IDENTIFICATION

The site identification details, and associated information are presented in **Table 2.1**.

Table 2.1. Site Identification Information

Attribute	Description
Street Address	8-24 Nicholson Street, Wollstonecraft NSW
Lot and Deposited Plan (DP)	Lot B DP385256 (8 Nicholson Street, Wollstonecraft NSW) Lot A DP385256 (10 Nicholson Street, Wollstonecraft NSW) Lot B DP403932 (12 Nicholson Street, Wollstonecraft NSW) Lot A DP403932 (14 Nicholson Street, Wollstonecraft NSW) Lot 2 DP513450 (16 Nicholson Street, Wollstonecraft NSW) Lot 1 DP513450 (16A Nicholson Street, Wollstonecraft NSW) Lot B DP419382 (18 Nicholson Street, Wollstonecraft NSW) Lot A DP419382 (20 Nicholson Street, Wollstonecraft NSW) Lot 2 DP220608 (22 Nicholson Street, Wollstonecraft NSW) Lot 1 DP220608 (24 Nicholson Street, Wollstonecraft NSW)
Geographical Coordinates	33°49'34.0"S 151°11'51.0"E (approximate centre of site)
Site Area	≈ 3,066 m ²
Local Government Area (LGA)	North Sydney Council
Parish	Willoughby
County	Cumberland
Zoning	R4 – High Density Residential (North Sydney Local Environmental Plan 2013)

The locality of the site is set out in **Figure 1**.

The general layout and boundary of the site is set out in **Figure 2**.

3 GEOLOGY, ACID SULFATE SOILS, TOPOGRAPHY AND HYDROGEOLOGY

Regional geology, topography, soil landscape and hydrogeological information are presented in **Table 3.1**.

Table 3.1. Regional Setting Information

Attribute	Description
Climate	A review of the closest weather station to the site (Macquarie Park (Willandra Village), Station Number: 066156) indicated that the climate is relatively mild with average maximum temperatures ranging from 17.3 to 27.5 °C and minimum temperatures ranging from 5.0 – 16.9 °C. Rainfall is relatively varied across the year, ranging from 5.3 days of rain per month in August, to 10.1 average days of rainfall per month in March. Average monthly rainfall varied from 57.9 mm in September up to 152.3 mm in March.
Geology	A review of the Environment NSW ‘eSpade V2.2’ web application (environment.nsw.gov.au/eSpade2WebApp, accessed 9 July 2025), indicated that the site is likely to be underlain by wianamatta Group– Ashfield Shale consisting of laminite and dark grey siltstone and Bringelly Shale which consists of shale, with occasional calcareous claystone, laminite and coal.
Acid Sulfate Soils	A review of the Environment NSW ‘eSpade V2.2’ web application (environment.nsw.gov.au/eSpade2WebApp, accessed 9 July 2025), indicates that the site lies in an area mapped as ‘ No Known Occurrence ’ with respect to acid sulfate soils. This infers that land management activities are not likely to be affected by acid sulfate soil materials. Further assessment of acid sulfate soils in the context of this investigation is considered by EGA as not warranted.
Topography	Gently undulating rises on Wianamatta Shale with local relief 10–30 m and slopes generally <5%, but up to 10%. Crests and ridges are broad (200–600 m) and rounded with convex upper slopes grading into concave lower slopes. Rock outcrop is absent. EGA understands that the site is located at an elevation approximately 83 m to 90 m Australian Height Datum (AHD), gently sloping to the west.
Hydrology and Hydrogeology	Surface water courses proximal to the site includes Berrys Creek, located approximately 560 m to the southwest of the site, a tributary of Flat Rock Creek located approximately 1.11 km to the northeast of the site and Paramatta River located approximately 1.15 km to the southwest of the site. Based on the site topography and distances to the nearest surface water courses, groundwater flow in the vicinity of the site is considered likely to be towards the southeast. A review of the NSW Office of Water groundwater database undertaken on 9 July 2025 indicated there were no registered groundwater features within 500 m of the site.
Adjacent Sensitive Receptors	A review of the Bureau of Meteorology Groundwater Dependent Ecosystem Map was undertaken to determine the closest sensitive ecological receptors. The closest ecological receptors to the site include on-site and adjacent vegetation. A review of the Bureau of Meteorology Groundwater Dependent Ecosystem Atlas indicated that no potential groundwater dependent ecosystems were located within 5 km of the site. The closest sensitive human receptors are the residential properties surrounding the site’s boundary and any future onsite construction workers/ builders.

4 SALINITY ASSESSMENT PROCESS

4.1 Salinity Processes

The *Western Sydney Salinity Code of Practice* (WSROC, 2004) has been adopted for the site as it is considered to present an appropriate salinity process. WSROC (2004) identifies four (4) main salinity models, each process is required to be managed on its own merits.

The models are presented in **Table 4.1** below.

Table 4.1. Western Sydney Salinity Models

Salinity Model	Description
Localized Concentrations of Salinity	Salt concentrations become locally concentrated in low lying, poorly draining areas or locations where surface or sub-surface flow is blocked by an impervious barrier (such as a foundation). High water evaporation rates result in concentrated salt accumulation.
Shale Soil Landscapes	Where duplex (texture contrast) soils exist (as is often the case on shale soil landscapes) water moves more easily through the topsoil than the sub-soil. This generally results in lateral movement of moisture across the top of the less permeable B-Horizon (generally clay). The surface expression of salinity occurs in areas where this water accumulates and seeps to the surface and where evaporation of this moisture causes salts to concentrate. This is common on lower slopes or breaks in slope (such as natural or artificial flats in a mid-slope).
Deep Groundwater Salinity	More typical of the traditional rural model of salinity, this occurs where saline groundwater rises to a level where capillary action allows water and dissolved salts to reach the surface where they concentrate over time. Groundwater rises generally result from above average rainfall, over irrigation, construction of seepage / storm water infiltration pits and of course a reduction in deep rooting trees.
Deep Weathered Soil Landscape	Salinity in these locations is related to deeply weathered soil landscapes made up of fluvial gravel, sand and clay, typically with high sulfate levels. Salinity problems in these locations are often mid-slope due to perched saline water tables.

4.2 Salinity

Soil salinity is often assessed with respect to electrical conductivity of a 1:5 soil:water extract (EC 1:5). This value can be converted to ECe (electrical conductivity of a saturated extract) by multiplication with a factor dependent of soil texture ranging from 6 to 17 depending on soil type. Richards (1954) and Hazelton and Murphy (1992) classify soil salinity on the basis of ECe, and describe the implications of the salinity classes on agriculture.

4.3 Aggressivity

Aggressivity is a function of exposure classification, and is derived from AS 2159-2009 Piling Design and Installation. Aggressivity is characterised by the soil conditions effect on both concrete and steel, and is assessed with respect to Sulfates and Chlorides detected within the soil materials respectively.

4.4 Sodicty

Sodic soils may be affected by very severe surface crusting, very low infiltration and hydraulic conductivity, very hard and dense subsoils, high susceptibility to gully erosion and tunnel erosion. Sodicty also affects the shrink – swell properties of a soil. The general rating of sodicty is outlined in the DLWC (2002) publication *Site Investigations for Urban Salinity* (2002) and is assessed with respect to exchangeable sodium percentage (ESP) detected within the soil materials.

5 FIELDWORK

5.1 Soil Sampling

Soil sampling was undertaken by EGA on the 8 June 2025, by two (2) experienced environmental consultants representing EGA.

A total of eight (8) soil samples were collected from eight (8) sampling locations during the investigation from the in-situ soil materials across the site down to a depth of 1.5 metres below ground surface level (bgs), in line with the recommended sampling density outlined within the Department of Land and Water Conservation (now Department of Water and Energy), *Site Investigations for Urban Salinity* (2002).

Samples were collected at each sampling point and placed in laboratory supplied acid-rinsed glass jars (with Teflon lined lids). The jars were labelled with the project number, sample identifier and date the samples were collected on.

Each sampling point established was marked on a site plan (refer to **Figure 2**).

5.2 Site Geology

The soil materials within the site consisted of Topsoil (approximately 0.0 – 0.3 m bgs), Clay (approximately 0.3 – 1.1 m bgs) and Inferred Natural Clay (approximately 0.6 – 1.5 m bgs). Foreign materials were observed within the topsoil materials at 'BH03' 'BH05' and 'BH08' during the investigation and included glass, tile, plastic, and gravels. A summary of the generalised profile is outlined in **Table 5.2** below.

Table 5.2. Summary of the generalised profile.

TOPSOIL	≈ 0.0 – 0.3 m bgs: Silty CLAY, low plasticity, medium to dark brown, moist
CLAY	≈ 0.3 – 1.1 m bgs: CLAY, medium plasticity, medium to dark brown, dry to moist
INFERRED NATURAL	≈ 0.6 – 1.5 m bgs: CLAY, low to medium plasticity, grey with orange mottling, dry to moist

Please note, that the investigation is limited to the in-situ soil materials defined within this report and is indicative in nature. Soils adjacent or beneath this subject area were not inspected or sampled and are not part of this investigation.

5.3 Odours

Olfactory evidence of odours was not detected or observed within any of the soil materials at the time of the investigation.

5.4 Staining

Visual evidence of staining was not observed within any of the soil materials at the time of the investigation.

6 LABORATORY

The samples collected were transported to ALS Environmental, a NATA accredited laboratory, using chain of custody (COC) protocols. A selection of these samples was scheduled for analysis, with reference to the relevant salinity parameters.

A total of eight (8) samples were submitted for the following Salinity Assessment Suite:

- Electrical Conductivity (EC1:5);
- Electrical Resistivity;
- pH;
- Sulfates;
- Chlorides; and
- Exchangeable Sodium Percentage (ESP).

A copy of the analytical laboratory certificates of analysis and chain of custody documentation is presented in **Attachment 3**.

7 RESULTS

7.1 Salinity Assessment

The sample analytical results were tabulated and compared to the adopted salinity assessment criteria and presented in the **Table 7.1.** below.

Table 7.1. Summary of Analytical Results Compared with Salinity Assessment Criteria.

Class	ECe (ds/m)	Implication
Non-Saline	<2	Salinity effects mostly negligible
Slightly Saline	2 – 4	Yields of sensitive crops affected
Moderately Saline	4 – 8	Yields of many crops affected
Very Saline	8 – 16	Only tolerant crops yield satisfactorily
Highly Saline	>16	Only a few very tolerant crops yield satisfactorily

Salinity classification for the soil materials sampled within the site were found to be **non-saline**.

7.2 Aggressivity Assessment (Concrete)

The sample analytical results were tabulated and compared to the adopted aggressivity assessment criteria (concrete) and presented in the **Table 7.2** below. The exposure classifications for concrete were determined based on the most severe exposure condition.

Table 7.2. Summary of Analytical Results Compared with Aggressivity Criteria (Concrete).

Exposure Conditions			Exposure Classification (Aggressivity)
Sulphates (SO ₄) (mg/kg)	pH	Chlorides (mg/L) (in groundwater)	Soil Conditions – B (Low permeability soils such as Clays and Silts)
<5000	>5.5	<6000	Non-aggressive
5000-10,000	4.5-5.5	6000-12000	Mild
10,000-20,000	4-4.5	12000-30000	Moderate
>20,000	<4	>30000	Severe

Sulphates and pH levels detected within the sampled soil materials are considered to be **non-aggressive** to **mild** towards concrete.

7.3 Aggressivity Assessment (Steel)

The sample analytical results were tabulated and compared to the adopted aggressivity (steel) assessment criteria and presented in the **Table 7.3** overleaf. The exposure classifications for steel were determined based on the most severe exposure condition.

Table 7.3. Summary of Analytical Results Compared with Aggressivity Criteria (Steel).

Exposure Conditions			Exposure Classification (Aggressivity)
Chlorides (mg/kg) (in soil)	pH	Resistivity (Ohms.cm)	Soil Conditions – B (Low permeability soils such as Clays and Silts)
<5000	>5	>5000	Non-aggressive
5000-20,000	4-5	2000-5000	Mild
20,000-16000	3-4	1000-2000	Moderate
>50,000	<3	<1000	Severe

Chloride, pH and resistivity levels detected within the sampled soil materials are considered to be **non-aggressive** to **mild** towards steel.

7.4 Sodicity Assessment

The sample analytical results were tabulated and compared to the adopted sodicity assessment criteria and presented in the **Table 7.4.** below.

Table 7.4. Summary of Analytical Results Compared with Sodidity Assessment Criteria.

ESP%	Implication
<5	Non-sodic
5 – 15	Sodic
>15	Very sodic

Sodicity classification for the soil materials sampled within the site were found to be **non-sodic** to **sodic**.

8 CONCLUSIONS AND RECOMMENDATIONS

Based on EGA's assessment of the desktop review information, fieldwork data and laboratory analytical data, in the context of the proposed redevelopment, EGA makes the following conclusions:

- The soils within the site are considered to be **non-saline**;
- The soils within the site are considered to be **non-aggressive** to **mild** towards concrete;
- The soils within the site are considered to be **non-aggressive** to **mild** towards steel;
- The soils within the site are considered to be **non-sodic** to **sodic**.

Based on these conclusions, EGA makes the following recommendations:

In general, the management strategies should be directed at:

- Minimising the impact of development on the site salinity;
- Minimising the impact of salinity on the proposed development;
- Maintaining as much as practicable the natural water balance;
- Maintaining good drainage;
- Avoiding disturbance or exposure of sensitive soils;
- Retaining or increasing appropriate native vegetation in strategic areas; and
- Implementing building controls and engineering responses where appropriate.

These management strategies generally include:

- Develop the best use of existing topography to minimise cut and fill operations;
- Maintenance and improvement of native vegetation along drainage courses;
- Water management of landscaped areas;
- Utilise native and deep rooted plants in order to minimise soil erosion;
- Minimise exposure of slightly to moderately saline soils in temporary excavation faces;
- Minimise exposure of slightly to moderately saline soils in stockpiles during site works;
- Minimise potential for ponding or water logging areas on the site;
- Provision of lining in temporary ponds with non-saline clays to minimise groundwater recharge through the soils;
- Dispose of excavated slightly to moderately saline soils to locations where salts cannot be leached to the environment;
- Natural drainage patterns to be maintained where possible;
- Drainage infrastructure in vulnerable areas to be installed as soon as practical to avoid excessive water infiltration, ponding of water on site and salt leaching;
- Imported material should be tested for salinity to avoid importing saline soils;
- Roads should have well designed sub soil drainage;
- In fill areas place the soils with highest salinity at the deepest levels;
- Application of gypsum to areas of exposed slightly to moderately saline soils if applicable;
- Concrete of suitable strength and reinforcement cover is to be used for drainage structures and wherever contact with water and increased soil moisture is expected;
- Pipes used for stormwater drainage should be sealed to minimise the risk of leakage;
- Soils that are excavated from either roads or service trenches throughout areas or the site found to be slightly to moderately saline should be re-instated at the same horizontal level or lower where possible; and
- Conduct a comprehensive post-earthworks salinity assessment to determine the final salinity status of each individual lot.

This report, including its conclusions and recommendations, must be read in conjunction with the limitations presented in **Section 9**.

9 STATEMENT OF LIMITATIONS

The findings presented in this report are based on specific searches of relevant, government historical databases and anecdotal information that were made available during the course of this investigation. To the best of our knowledge, these observations represent a reasonable interpretation of the general condition of the site at the time of report completion.

This report has been prepared solely for the use of the client to whom it is addressed and the Principal Planning Authority. No other party is entitled to rely on its findings.

No warranties are made as to the information provided in this report. All conclusions and recommendations made in this report are of the professional opinions of personnel involved with the project and while normal checking of the accuracy of data has been conducted, any circumstances outside the scope of this report or which are not made known to personnel and which may impact on those opinions is not the responsibility of Environmental Group Australia Pty Ltd. Should information become available regarding conditions at the site including previously unknown sources of contamination, EGA reserves the right to review the report in the context of the additional information.

This report must be reviewed in its entirety and in conjunction with the objectives, scope and terms applicable to EGA's engagement. The report must not be used for any purpose other than the purpose specified at the time EGA was engaged to prepare the report.

Logs, figures, and drawings are generated for this report based on individual EGA consultant interpretations of nominated data, as well as observations made at the time site walkover/s were completed.

Data and/or information presented in this report must not be redrawn for its inclusion in other reports, plans or documents, nor should that data and/or information be separated from this report in any way.

Should additional information that may impact on the findings of this report be encountered or site conditions change, EGA reserves the right to review and amend this report.

10 REFERENCES

Department of Land and Water Conservation (now Department of Water and Energy) publication *Site Investigations for Urban Salinity*, 2002.

DIPNR, 2003. Salinity Potential in Western Sydney 1:100 000 Sheet. Department of Infrastructure, Planning and Natural Resources, New South Wales.

Geology of Wollongong – Port Hacking 1:100 000 Geological Series Sheet No 9029 – 9129, NSW Dept of Mines, 1985.

Hazelton, P. A. and Murphy B. W. 1992. A Guide to the Interpretation of Soil Test Results. Department of Conservation and Land Management.

NSW EPA 2022, 'Contaminated Sites: Sampling Design Guidelines'.

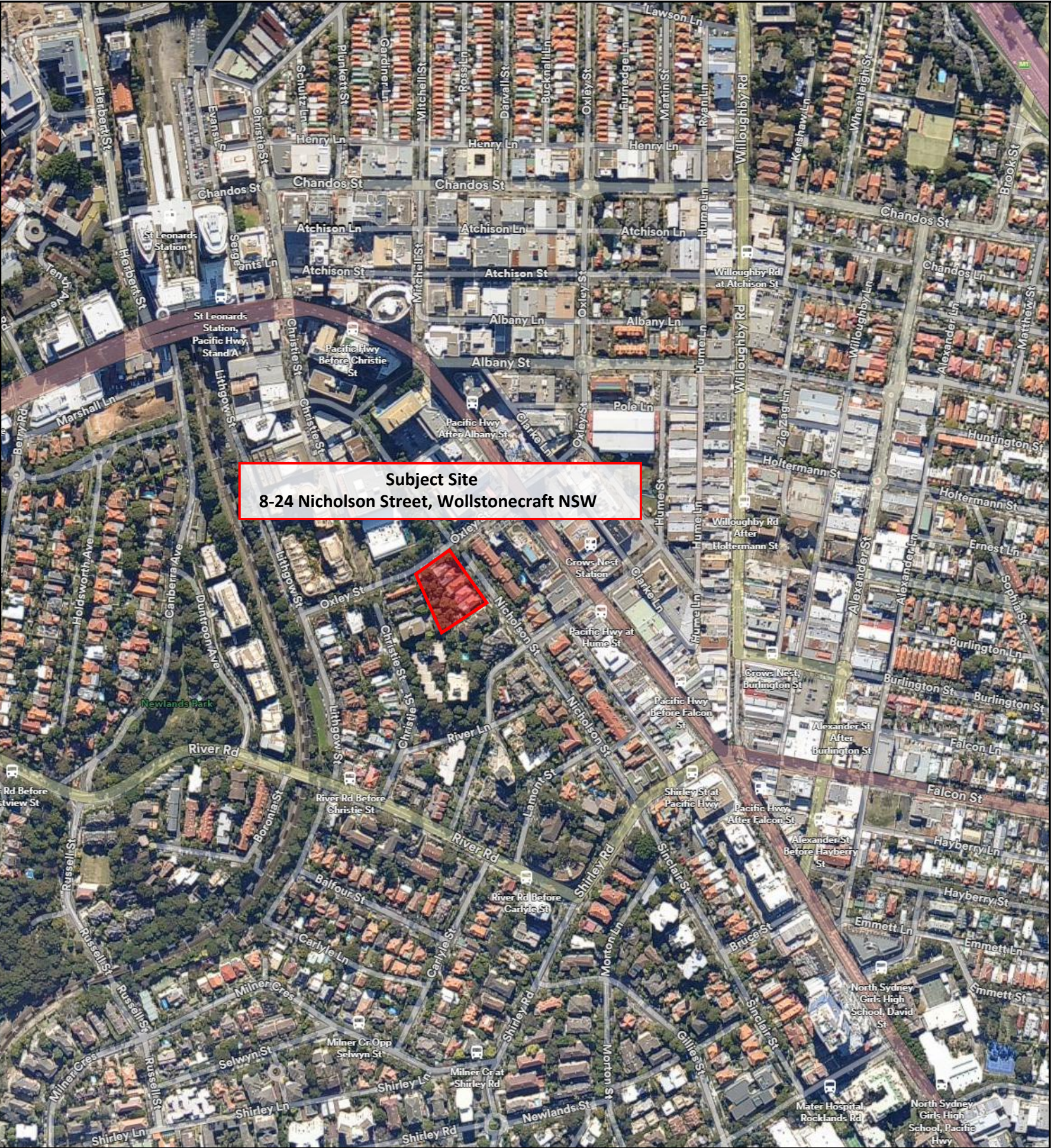
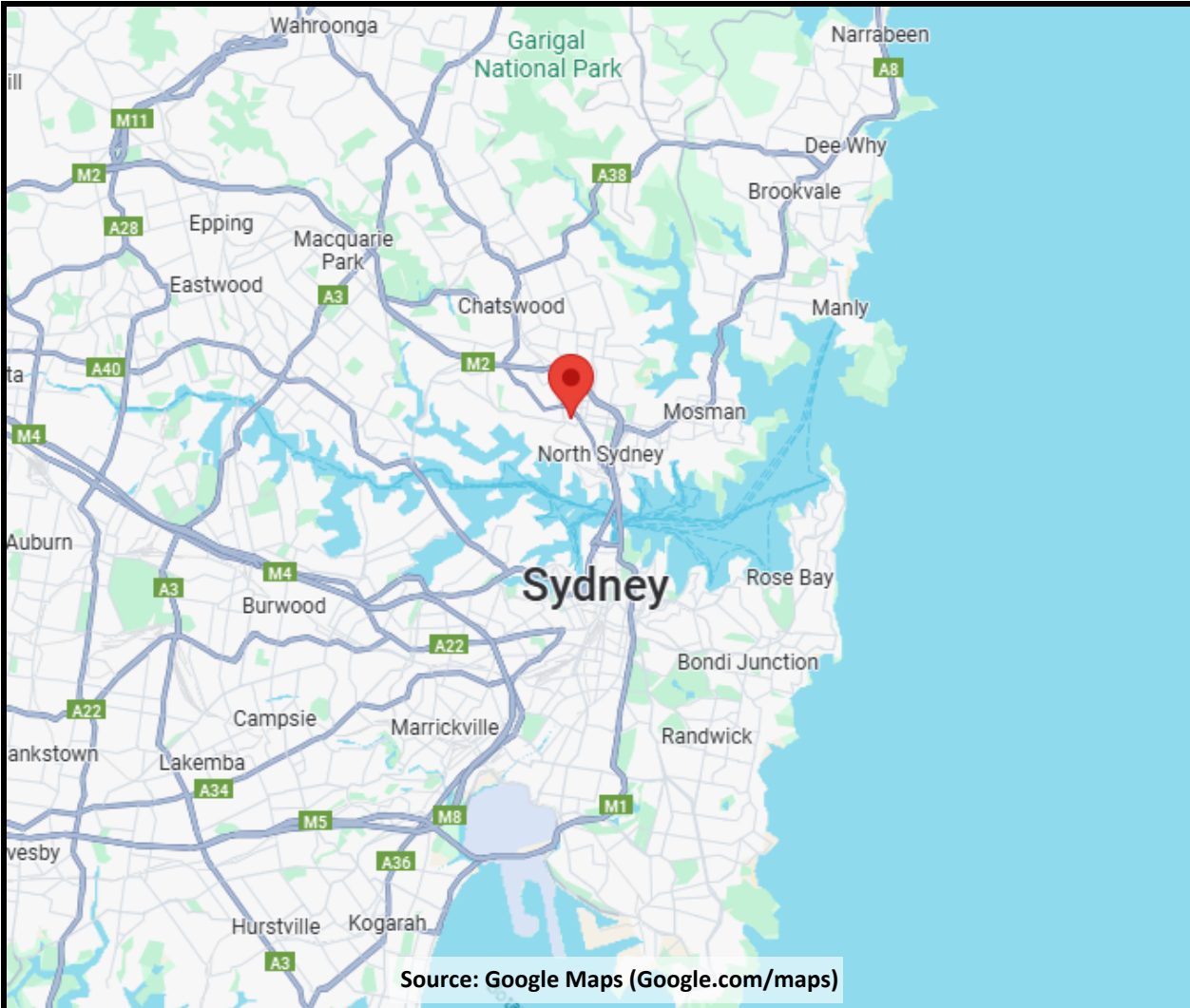
Richards, L. A. (ed.) 1954. Diagnosis and Improvement of Saline and Alkaline Soils. USDA Handbook No. 60, Washington D.C.

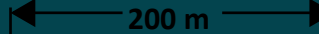
Soil Landscapes of Wollongong and Port Hacking 1:100 000 Sheet. Soil Conservation Service of New South Wales, 1990.

Western Sydney Regional Organisation of Councils (WSROC) publication Salinity Code of Practice, 2004.

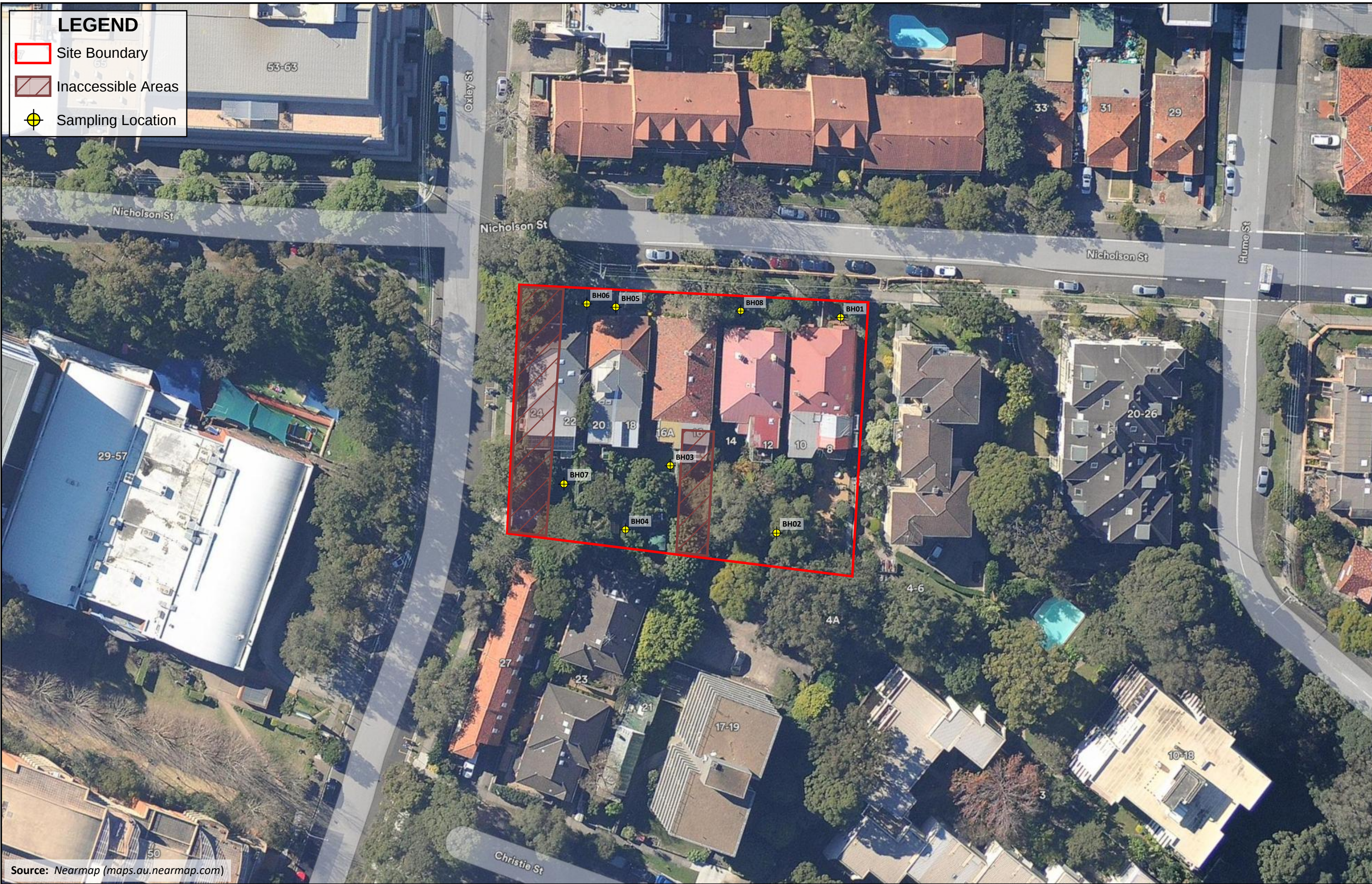
ATTACHMENT 1

FIGURES



	Scale:		Site Locality			
	Client Name:	Traders In Purple Pty Ltd			Figure Number:	1
	Project Name:	Soil Salinity Assessment			Figure Date:	9 July 2025
	Project Location:	8-24 Nicholson Street, Wollstonecraft NSW			Report Number:	3166-SSA-01-170725.v2f





	Scale: 		Site Layout and Sampling Plan			
	Client Name:	Traders In Purple Pty Ltd		Figure Number:	2	
	Project Name:	Soil Salinity Assessment		Figure Date:	9 July 2025	
	Project Location:	8-24 Nicholson Street, Wollstonecraft NSW		Report Number:	3166-SSA-01-170725.v2f	

ATTACHMENT 2

SITE PHOTOGRAPHS



Site Photograph 1. Representative view of soil materials encountered across the site, as observed on 8 July 2025 within sampling location 'BH01'.



Site Photograph 2. View of representative inferred natural CLAY materials (0.6 – 1.5 m bgs) encountered across the site, as observed on 8 July 2025 within sampling location 'BH01'.

ATTACHMENT 3

LABORATORY ANALYTICAL RESULTS SUMMARY TABLE



		Depth		EC	Field Texture	ECe Conversion Factor	ECe	pH	Chloride	Sulfate	Resistivity	ESP	Salinity Rating	Sodicity Rating	Aggressivity Rating (Concrete)	Aggressivity Rating (Steel)
		Units	m bgs	µS/cm	-	-	dS/m	pH unit	mg/kg	mg/kg	Ohm.cm	%	-	-	-	-
		PQL	0.1	10	-	-	10	0.1	10	10	0.5	0.1	-	-	-	-
Sample ID	Reference / Sample Date															
BH01-1.3-1.5	ES2520757001 08/07/2025			22	Light - Medium Clay	8	0.176	5.2	60	20	45400	4	NS	NS	Mild	Non-Aggressive
BH02-1.1-1.2	ES2520757002 08/07/2025			63	Light - Medium Clay	8	0.504	4.5	30	50	15900	10.6	NS	S	Mild	Mild
BH03-0.8-0.9	ES2520757003 08/07/2025			14	Light - Medium Clay	8	0.112	5.2	10	<10	71400	6	NS	S	Mild	Non-Aggressive
BH04-0.6-0.7	ES2520757004 08/07/2025			43	Light - Medium Clay	8	0.344	4.6	20	30	23200	6.5	NS	S	Mild	Non-Aggressive
BH05-0.6-0.7	ES2520757005 08/07/2025			27	Light - Medium Clay	8	0.216	5.1	10	30	37000	3.4	NS	NS	Mild	Mild
BH06-0.6-0.7	ES2520757006 08/07/2025			28	Light - Medium Clay	8	0.224	5.7	50	20	35700	3.2	NS	NS	Non-Aggressive	Mild
BH07-0.7-0.8	ES2520757007 08/07/2025			28	Light - Medium Clay	8	0.224	6.6	160	<10	35700	2.4	NS	NS	Non-Aggressive	Mild
BH08-1.0-1.1	ES2520757008 08/07/2025			30	Light - Medium Clay	8	0.24	6.5	80	<10	33300	2.8	NS	NS	Non-Aggressive	Non-Aggressive

General Notes to Table: | HS = Highly Sodic | NS = Non-Saline / Non-Sodic | SS = Slightly Saline | S = Sodic | MS = Moderately Saline | VS = Very Saline |

Texture based on visual assessment of soils. Texture conversion factor sources from Department of Land and water Conservation, 2002 ' Site Investigations for Urban Salinity' as referenced by WSROC 2004

Salinity Summary		
Non-Saline (NS)	8	100%
Slightly Saline (SS)	0	0%
Moderately Saline (MS)	0	0%
Very Saline (VS)	0	0%

Sodicity Summary		
Non-Sodic (NS)	5	63%
Sodic (S)	3	38%
Very Sodic (VS)	0	0%

Aggressivity Summary (Concrete)		
Non-Aggressive	3	38%
Mild	5	63%
Moderate	0	0%
Severe	0	0%

Aggressivity Summary (Steel)		
Non-Aggressive	4	50%
Mild	4	50%
Moderate	0	0%
Severe	0	0%

ATTACHMENT 4

**LABORATORY ANALYTICAL REPORTS
AND CHAIN OF CUSTODY**



CERTIFICATE OF ANALYSIS

Work Order : **ES2520757**
Client : **ENVIRONMENTAL GROUP AUSTRALIA PTY LTD**
Contact : T Hulme
Address : 36E Fitzroy Street
Marrickville 2204
Telephone : ----
Project : ASS: 3166 - 8-24 Nicholson St, Wollstonecraft
Order number : ----
C-O-C number : ----
Sampler : RACHELLE CONNA
Site : ----
Quote number : ES25ENVGROLIM0001
No. of samples received : 8
No. of samples analysed : 8

Page : 1 of 4
Laboratory : Environmental Division Sydney
Contact : Samiksha Sathish
Address : 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone : +61-2-8784 8555
Date Samples Received : 08-Jul-2025 19:15
Date Analysis Commenced : 10-Jul-2025
Issue Date : 15-Jul-2025 16:51



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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

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

Signatories

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

Signatories	Position	Accreditation Category
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics, Smithfield, NSW



General Comments

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

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

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

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

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

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

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

ø = ALS is not NATA accredited for these tests.

~ = Indicates an estimated value.

- ED007 and ED008: When Exchangeable Al is reported from these methods, it should be noted that Rayment & Lyons (2011) suggests Exchange Acidity by 1M KCl - Method 15G1 (ED005) is a more suitable method for the determination of exchange acidity (H^+ + Al^{3+}).
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH01-1.3-1.5	BH02-1.1-1.2	BH03-0.8-0.9	BH04-0.6-0.7	BH05-0.6-0.7
Sampling date / time					08-Jul-2025 00:00	08-Jul-2025 00:00	08-Jul-2025 00:00	08-Jul-2025 00:00	08-Jul-2025 00:00
Compound	CAS Number	LOR	Unit		ES2520757-001	ES2520757-002	ES2520757-003	ES2520757-004	ES2520757-005
				Result	Result	Result	Result	Result	Result
EA002: pH 1:5 (Soils)									
pH Value	----	0.1	pH Unit		5.2	4.5	5.2	4.6	5.1
EA010: Conductivity (1:5)									
Electrical Conductivity @ 25°C	----	1	µS/cm		22	63	14	43	27
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		20.5	20.6	20.3	20.1	19.7
EA080: Resistivity									
Resistivity at 25°C	----	1	ohm cm		45400	15900	71400	23200	37000
ED007: Exchangeable Cations									
Exchangeable Sodium Percent	----	0.1	%		4.0	10.6	6.0	6.5	3.4
ED040S : Soluble Sulfate by ICPAES									
Sulfate as SO4 2-	14808-79-8	10	mg/kg		20	50	<10	30	30
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	10	mg/kg		60	30	10	20	10



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	BH06-0.6-0.7	BH07-0.7-0.8	BH08-1.0-1.1	----	----
Sampling date / time					08-Jul-2025 00:00	08-Jul-2025 00:00	08-Jul-2025 00:00	----	----
Compound	CAS Number	LOR	Unit		ES2520757-006	ES2520757-007	ES2520757-008	-----	-----
				Result	Result	Result		----	----
EA002: pH 1:5 (Soils)									
pH Value	----	0.1	pH Unit		5.7	6.6	6.5	----	----
EA010: Conductivity (1:5)									
Electrical Conductivity @ 25°C	----	1	µS/cm		28	28	30	----	----
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		22.6	26.1	22.9	----	----
EA080: Resistivity									
Resistivity at 25°C	----	1	ohm cm		35700	35700	33300	----	----
ED007: Exchangeable Cations									
Exchangeable Sodium Percent	----	0.1	%		3.2	2.4	2.8	----	----
ED040S : Soluble Sulfate by ICPAES									
Sulfate as SO4 2-	14808-79-8	10	mg/kg		20	<10	<10	----	----
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	10	mg/kg		50	160	80	----	----

Mandatory Fields				CHAIN OF CUSTODY												Page 1 of 1																							
CLIENT CODE: ENVGROLIM		*PROJECT MANAGER: Thomasine Hulme		SAMPLER: Rachelle								CoC #: (if applicable)																											
*CLIENT: Environmental Group Australia Pty Ltd		*PM MOBILE:		SAMPLER MOBILE: 0448 745 451																																			
OFFICE: (Invoiced Office) 36E Fitzroy Street, Marrickville NSW 2204		ALS QUOTE # (Client PL if blank) ES25ENVGROLIM0001		PURCHASE ORDER NO.:																																			
PROJECT NO./PROJECT: ASS: 3166 - 8-24 Nichilson St, Wollstonecraft				SITE:																																			
*INVOICE TO: (client default if nil) accounts@egau.com.au						X		CC Invoice to PM		BIOSECURITY																													
*EMAIL REPORTS TO: (default to PM if blank) enviro@egau.com.au r.conna@t.hulme@				*ANALYSIS REQUIRED (NB: ALS Quote No. and/or Analysis Suite Codes must be listed to attract suite/quoted price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required). Mark an X in the boxes below analysis to indicate the parameter listed above to be tested on that sample.												Country of Origin: (if not Australia)																							
EDD Format/Type →		EDD Email Address:		* STORAGE REQUIREMENTS Please check box. → Standard Storage time from receipt of samples: Waters - 3 weeks Soils - 2 months ☒ Standard Storage ☐ Extended Storage Specify Disposal Date: Note: Extended storage incurs a fee and requires a signed agreement.		* TURNAROUND Please check box. → (Not all tests can be expedited, contact Client Services for more information) ☒ 5+ days (no surcharge) ☐ 3 day (+15%) ☐ 2 day (+30%) ☐ 1 day (+50%)														Environmental Division Sydney Work Order Reference ES2520757  Telephone : + 61-2-8784 8555																			
Comments: please log as per quote																																							
ALS Use Only		Sample ID		Depth/Description		Date/Time		No. Bottles		MATRIX/SUBMATRIX: Soil/Solid(S) Water(W) Sediments (SD) Dust (D), Product (P), Biota (B), Biosolid (BS)		EGA ENM Suite (Asbestos P/A (grab), pH + EC, TRH/BTEX/PAH/8 Metals)		EGA Contam Suite 2 (TRH/BTEX/PAH/OC/PCB/8 Metals, Asbestos in Bulk Solids)		EGA Contam Suite 3 (TRH/BTEX/PAH/OC/OP/PCB/8 Metals, Asbestos in Bulk Solids)		EGA NEPM Suite 2 (Asbestos NEPM Quantification, TRH/BTEX/PAH/OC/PCB/8 Metals)		EGA NEPM Suite 3 (Asbestos NEPM Quantification, TRH/BTEX/PAH/OC/OP/PCB/8 Metals)		EA200N Asbestos NEPM Quantification		EA200B Asbestos in Bulk Solids		EA003 pH field/fox		resistivity, chlorides, sulfates, pH, conductivity and ESP		PFAS		BTEX		HOLD		Lab QC (additional bottles req.)		Additional Information (Comment on hazards - e.g., asbestos, known high contamination)	
Lab ID																																		Dup		MS			
1		BH01-1.3-1.5				8/07/2025		1		s																													
2		BH02-1.1-1.2				8/07/2025		1		s																													
3		BH03-0.8-0.9				8/07/2025		1		s																													
4		BH04-0.6-0.7				8/07/2025		1		s																													
5		BH05-0.6-0.7				8/07/2025		1		s																													
6		BH06-0.6-0.7				8/07/2025		1		s																													
7		BH07-0.7-0.8				8/07/2025		1		s																													
8		BH08-1.0-1.1				8/07/2025		1		s																													
Recept Detail (Lab Use ONLY)		Chilling Method: Ice: Frozen / Melted		Ice Bricks: Frozen / Thawed		None		Sample Temp at Receipt		°C °C °C		Security Seal Intact (circle) Yes / No / NA(None)		Carrier Details		☐ Courier/Post		☐ Client		Packaging: (Circle) Client #		Hard Esly		Foam Esly		Box/Bag/Other													
Relinquished by: Rachelle Conna		Signature: 		Date/Time: 8/07/2025		Received by: 		Signature: 		Date/Time: 9/7/2025																													
Relinquished by:		Signature:		Date/Time:		Received by:		Signature:		Date/Time: 11.30																													

(extra) 9 WASTE