NSW Site Auditor Scheme

Site Audit Statement

A site audit statement summarises the findings of a site audit. For full details of the site auditor's findings, evaluations and conclusions, refer to the associated site audit report.

This form was approved under the *Contaminated Land Management Act 1997* on 12 October 2017.

For information about completing this form, go to Part IV.

Part I: Site audit identification

Site audit statement no. 0301-2017

This site audit is a:

☑ **statutory audit**

❑ non-statutory audit

within the meaning of the *Contaminated Land Management Act 1997*.

Site auditor details

(As accredited under the *Contaminated Land Management Act 1997*)

Name	James Davis			
Company	Enviroview Pty Ltd			
Address	PO Box 327			
	GLADESVILLE	NSW	Postcode	2110
Phone	0467 375 481			
Email	james.davis@enviroview.com.au			

Site details

Address	4 – 8 Inman Road			
	CROMER	NSW	Postcode	2099

Property description

(Attach a separate list if several properties are included in the site audit.)

Lot 1 in DP 1282038

Local government area	Northern Beaches Council
Area of site (include units, e.g. hectares)	3.7 Ha
Current zoning	E4 – General Industrial

Regulation and notification

To the best of my knowledge:

☑ **the site is** the subject of a declaration, order, agreement, proposal or notice under the *Contaminated Land Management Act 1997* or the *Environmentally Hazardous Chemicals Act 1985,* as follows: (provide the no. if applicable)

- ☑ Declaration no. 20161101
- ❑ Order no.
- ☑ Proposal no. 20221712
- ❑ Notice no.

❑ **the site is not** the subject of a declaration, order, proposal or notice under the *Contaminated Land Management Act 1997* or the *Environmentally Hazardous Chemicals Act 1985*.

To the best of my knowledge:

☑ the site **has** been notified to the EPA under section 60 of the *Contaminated Land Management Act 1997*

❑ the site **has not** been notified to the EPA under section 60 of the *Contaminated Land Management Act 1997*.

Site audit commissioned by

Name	Grant Flannigan
Company	EG Funds Management Pty Ltd
Address	Level 21, Governor Phillip Tower, 1 Farrer Place
	SYDNEY NSW Postcode 2000
Phone	02 9220 7000
Email	gflannigan@eg.com.au

Contact details for contact person (if different from above)

Name	
Phone	
Email	

Nature of statutory requirements (not applicable for non-statutory audits)

❑ Requirements under the *Contaminated Land Management Act* 1997 (e.g. management order; please specify, including date of issue)

❑ Requirements imposed by an environmental planning instrument (please specify, including date of issue)

☑ Development consent requirements under the *Environmental Planning and Assessment Act 1979* (please specify consent authority and date of issue)

Condition of consent for Development Application DA2019/1346 issued by Northern Beaches Council, dated 17 August 2020

❑ Requirements under other legislation (please specify, including date of issue)

Purpose of site audit

❑ **A1** To determine land use suitability

Intended uses of the land:

OR

☑ **A2** To determine land use suitability subject to compliance with either an active or passive environmental management plan

Intended uses of the land: Commercial/Industrial land use

OR

(Tick all that apply)

❑ **B1** To determine the nature and extent of contamination

❑ **B2** To determine the appropriateness of:

- ❑ an investigation plan
- ❑ a remediation plan
- ❑ a management plan

❑ **B3** To determine the appropriateness of a **site testing plan** to determine if groundwater is safe and suitable for its intended use as required by the *Temporary Water Restrictions Order for the Botany Sands Groundwater Resource 2017*

❑ **B4** To determine the compliance with an approved:

voluntary management proposal or

management order under the *Contaminated Land Management Act 1997*

❑ **B5** To determine if the land can be made suitable for a particular use (or uses) if the site is remediated or managed in accordance with a specified plan.

Intended uses of the land:

Information sources for site audit

Consultancies which conducted the site investigations and/or remediation:

Environmental Resources Management Australia (ERM), Trace Environmental, BGL Nominees, Terravale

Titles of reports reviewed:

Environmental Resources Management Australia (ERM). Phase 1 Environmental Site Assessment, 4-10 Inman Road, Dee Why NSW. (Report Ref: 0297050_Phase 1) dated 21 July 2015.

ERM. Phase 2 Environmental Site Assessment, 4-10 Inman Road, Dee Why NSW. Report Ref: 0315053_Ph2ESA_Final V2. dated 3 December 2015.

ERM. Supplementary Phase 2 Environmental Site Assessment, 4-10 Inman Road, De Why NSW. Report Ref: 0315053_Ph2ESA_Final V2, dated 11 December 2015.

ERM. Sub Slab Vapour and Indoor Air Assessment – Building 18, 4-10 Inman Road, De Why NSW. Report Ref: 0315053_Indoor Air SSV, dated 19 December 2015.

ERM. 2016 Characterisation Environmental Site Assessment 4-10 Inman Road, Dee Why, NSW. Report Ref: 0349667_Characterisation ESA_F00, dated 31 January 2017.

ERM. Human Health and Ecological Risk Assessment 4-10 Inman Road, Dee Why, NSW. Report Ref: 0349667_HHERA_F01, dated 28 February 2017.

ERM. Part A Unregulated Area Environmental Site Assessment, 4-10 Inman Road, Dee Why NSW. Report Ref: 0330751 Final, dated 25 October 2017.

ERM. Part B Unregulated Area Environmental Site Assessment, 4-10 Inman Road, Dee Why NSW. Report Ref: 0330752 Final, dated 20 December 2017.

ERM. Air Quality Assessment– Unregulated Area 4-10 Inman Road, Dee Why, NSW. Report Ref: 0371068_Air Quality Assessment_Unregulated Area_Final, dated 19 January 2018.

ERM. Unregulated Areas Remedial Action Plan, 4-10 Inman Road, Dee Why NSW. Report Ref: 0371068_RAP_Unregulated Areas_FINAL dated 22 January 2018.

ERM. Part A Unregulated Area Validation Report, 4-10 Inman Road, Dee Why NSW. Report Ref: 0410233 Final, dated 13 April 2018.

ERM. Part B Unregulated Area Validation Report, 4-10 Inman Road, Dee Why NSW. Report Ref: 0410233_VR02/Final, dated 14 July 2020.

Trace Environmental. Sampling, Analysis, and Quality Plan, 100 South Creek Road, Cromer, NSW. (Report Ref. 26.01a). 1 April 2021

Trace Environmental. Soil Vapour Assessment, 4-10 Inman Road, Cromer, NSW. (Report Ref. 26.01). 14 July 2021.

Terravale Consulting. Vapour Intrusion Risk Assessment, 100 South Creek Road, Cromer, NSW. (Report Ref. 20015_1x_draft). 30 September 2021.

ERM. Groundwater Plume Duration Assessment, Part B Unregulated Area, 4-10 Inman Rd Dee Why. Report Ref: 0537390_Unregulated Area PDA_Final ,dated 8 November 2021.

ERM. Post Remediation Monitoring Report, Part B Unregulated Area. Report Ref: 0537390_PRMP Rpt_Final v2, dated 3 December 2021.

Trace Environmental. Remedial Action Plan – Proposed Commercial Building, 4-10 Inman Road, Cromer, NSW. (Report Ref.: 26.01_Rev0). 9 December 2021.

ERM. Summary of Validation – Part B Unregulated Area, 4-10 Inman Road, Dee Why, New South Wales. Report Ref: 0537390_Validation Summary_V02, dated 25 January 2022.

Costin Roe Consulting. Construction Dewatering Management Plan, 4-10 Inman Road, Cromer NSW. (Report Ref.: Co13674.02-01.d.rpt). (Rev-D). 7 March 2022.

BGL Nominees Pty Ltd. Soil Vapour Venting System – Technical Specification, Proposed Self Storage Unit 1, 4-10 Inman Road, Cromer, NSW 2099. (Report Ref.: 210525NSW_SVV_Spec_220628_draft_combined). 28 June 2022.

BGL Nominees Pty Ltd. SVV Design Letter, Proposed Self Storage Unit 1, 4-10 Inman Road, Cromer, NSW 2099. (Report Ref.: 210525NSW_SVV_Design Letter_220628). 28 June 2022.

Trace Environmental. Data Gap Investigation, 4-8 Inman Road, Cromer, NSW. (Report Ref.: 26.01_DGI_draft_Rev1). 5 September 2022.

Trace Environmental. Remedial Action Plan Addendum – Soil Vapour Intrusion Management Strategy, 4-8 Inman Road, Cromer, NSW. (Report Ref.: 26.01_RAP_Addendu _Rev0). 25 October 2022.

Trace Environmental. Proposed Ambient Air Sampling Strategy, Northern Beaches Business Park Heritage Building, 4-8 Inman Road, Cromer, NSW. (Report Ref.: 26.01 NBBP Heritage Bldg Air Sampling draft). 16 November 2022.

Trace Environmental. Remedial Action Plan Addendum – Southern Landscaping Area 4-8 Inman Road, Cromer, NSW. Report Ref.: 26.01 Rev0, dated 25 October 2022.

Trace Environmental. Indoor Ambient Air Sampling Report, Northern Beaches Business Park Heritage Building, 4-8 Inman Road, Cromer, NSW. (Report Ref.: 26.01 NBBP Cromer Heritage Bldg Ambient Air Report draft). 22 February 2023.

Trace Environmental. Validation Report – Southern Landscaping Area Northern Beaches Business Park 4-8 Inman Road, Cromer, NSW. Report Ref.: 26.01 Rev0, dated 11 September 2023.

Trace Environmental. Validation Report – Soil Vapour Intrusion Management, Northern Beaches Business Park, 4-8 Inman Road, Cromer, NSW. Report Ref.: 26.01 Rev0, dated 11 September 2023.

Trace Environmental. Soil Vapour Venting System Construction Report, Northern Beaches Business Park, 4-8 Inman Road, Cromer, NSW. Report Ref.: 26.01, dated 12 September 2023.

Trace Environmental. Long-Term Environmental Management Plan, Soil Vapour Intrusion Management, Northern Beaches Business Park, 4-8 Inman Road, Cromer, NSW. Report Ref.: 26.01 Rev 0, dated 15 September 2023.

Trace Environmental. Long-Term Environmental Management Plan, Southern Landscaping Area, Northern Beaches Business Park, 4-8 Inman Road, Cromer, NSW. Report Ref.: 26.01 Rev0, dated 15 September 2023.

Other information reviewed, including previous site audit reports and statements relating to the site:

AECOM/Paul Steinwede (Site Auditor) Site Audit Statement (no. PS65) and Site Audit Report, Part A Unregulated Area, 4-10 Inman Road, Dee Why, NSW. Report no. 60484586_Part A Unreg_SAR_A, dated 20 April 2018

AECOM/Paul Steinwede (Site Auditor) Site Audit Statement (no. PS65) and Site Audit Report, Part B Unregulated Area, 4-10 Inman Road, Dee Why, NSW. Report no. 60484586_Part B Unreg_SAR_A, dated 28 March 2022

Site audit report details

Title	Site Audit Report, 4 – 8 Inman Road, Cromer, NSW
Report no. 600182_0301-2017	Date 20 September 2023

Part II: Auditor's findings

Please complete either Section A1, Section A2 or Section B, not more than one section. (Strike out the irrelevant sections.)

- Use **Section A1** where site investigation and/or remediation has been completed and a conclusion can be drawn on the suitability of land uses **without the implementation** of an environmental management plan.
- Use **Section A2** where site investigation and/or remediation has been completed and a conclusion can be drawn on the suitability of land uses **with the implementation** of an active or passive environmental management plan.
- Use **Section B** where the audit is to determine:
    - (B1) the nature and extent of contamination, and/or
    - (B2) the appropriateness of an investigation, remediation or management plan[1], and/or
    - (B3) the appropriateness of a site testing plan in accordance with the *Temporary Water Restrictions Order for the Botany Sands Groundwater Source 2017*, and/or
    - (B4) whether the terms of the approved voluntary management proposal or management order have been complied with, and/or
    - (B5) whether the site can be made suitable for a specified land use (or uses) if the site is remediated or managed in accordance with the implementation of a specified plan.

[1] For simplicity, this statement uses the term 'plan' to refer to both plans and reports.

Section A1

I certify that, in my opinion:

The **site is suitable** for the following uses:

(Tick all appropriate uses and strike out those not applicable.)

☐ Residential, including substantial vegetable garden and poultry

☐ Residential, including substantial vegetable garden, excluding poultry

☐ Residential with accessible soil, including garden (minimal home-grown produce contributing less than 10% fruit and vegetable intake), excluding poultry

☐ Day care centre, preschool, primary school

☐ Residential with minimal opportunity for soil access, including units

☐ Secondary school

☐ Park, recreational open space, playing field

☐ Commercial/industrial

☐ Other (please specify):

_____

OR

☐ I certify that, in my opinion, the **site is not suitable** for any use due to the risk of harm from contamination.

Overall comments:

_____

_____

_____

_____

_____

Section A2

I certify that, in my opinion:

Subject to compliance with the **attached** environmental management plan[2] (EMP), the site is suitable for the following uses:

(Tick all appropriate uses and strike out those not applicable.)

☐ ~~Residential, including substantial vegetable garden and poultry~~

☐ ~~Residential, including substantial vegetable garden, excluding poultry~~

☐ ~~Residential with accessible soil, including garden (minimal home-grown produce contributing less than 10% fruit and vegetable intake), excluding poultry~~

☐ ~~Day care centre, preschool, primary school~~

☐ ~~Residential with minimal opportunity for soil access, including units~~

☐ ~~Secondary school~~

☐ ~~Park, recreational open space, playing field~~

☑ **Commercial/industrial**

☐ ~~Other (please specify):~~

[2] Refer to Part IV for an explanation of an environmental management plan.

EMP details

Title Long-Term Environmental Management Plan, Soil Vapour Intrusion Management, Northern Beaches Business Park, 4-8 Inman Road, Cromer, NSW. Report Ref.: 26.01 Rev 0

Author Trace Environmental

Date 15 September 2023 No. of pages 81

EMP summary

This EMP (attached) is required to be implemented to address residual contamination on the site.

The EMP: (Tick appropriate box and strike out the other option.)

☑ **requires operation and/or maintenance of active control systems**[3]

~~☐ requires maintenance of passive control systems only~~[3]

Purpose of the EMP:

The Long-Term Environmental Management Plan (LTEMP) enables management of residual contamination remaining long-term to enable the site to remain suitable for the proposed land use.

Description of the nature of the residual contamination:

The site has a history of commercial/industrial use which has resulted in groundwater below the southern portion of the Northern Beaches Business Park building impacted with benzene and CVOCs/TCE, with potentially unacceptable risks to human health from vapour intrusion and inhalation from TCE.

Summary of the actions required by the EMP:

The EMP is required to manage soil vapour impacts within the footprint of portions of the Northern Beaches Business Park building. This includes building ventilation and the construction and operation of a sub-slab soil vapour venting system to prevent accumulation of residual vapours beneath the concrete floor.

The management and maintenance of the soil vapour incorporates a mechanical component (building ventilation supplemented with a passive sub slab-venting layer) and ongoing monitoring of the groundwater conditions beneath the site as well as monitoring the ambient air within portions of the building and associated outdoor areas.

How the EMP can reasonably be made to be legally enforceable:

The EMP can reasonably be made enforceable as the Environmental Management Plan will be registered on title by way of Positive Covenant under s 88E(3) *Conveyancing Act 1919* with Northern Beaches Council being the prescribed authority.

[3] Refer to Part IV for definitions of active and passive control systems.

How there will be appropriate public notification:

Notification will be also by way of Positive Covenant under s 88E(3) *Conveyancing Act 1919* with Northern Beaches Council being the prescribed authority, but also future planning certificates for the site prepared by Northern Beaches Council under s 10.7 of the Environmental and Planning Act 1979 will document the presence of the SAS and therefor the Long-term Environmental Management Plans. This is required by s 59(2)(e) of the *Contaminated Land Management Act 1997* and the planning guidelines (Managing Contamination Planning Guidelines Remediation of Land - State Environmental Planning Policy No.55 1998) for contaminated land referred to in Chapter 4 of the State Environmental Planning Policy (Resilience and Hazards) 2021.

~~**Overall comments:**~~

EMP details

Title Long-Term Environmental Management Plan, Southern Landscaping Area, Northern Beaches Business Park, 4-8 Inman Road, Cromer, NSW. Report Ref.: 26.01 Rev0 and Asbestos Register Insert.

Author Trace Environmental

Date 15 September 2023 No. of pages 38 +1

EMP summary

This EMP (attached) is required to be implemented to address residual contamination on the site.

The EMP: (Tick appropriate box and strike out the other option.)

☐ ~~requires operation and/or maintenance of **active** control systems~~[4]

☑ **requires maintenance of passive control systems only**[3]

Purpose of the EMP:

The Long-Term Environmental Management Plan (LTEMP) enables management of residual contamination being asbestos containing materials in soil in the Southern Landscaping Area to enable the site to remain suitable for the proposed land use.

Description of the nature of the residual contamination:

Soils impacted with Asbestos Containing Materials (ACM) have been capped and contained within the area described as the Southern Landscaping area.

For exterior pavement areas, capping comprised of the construction of an impermeable pavement surface over at least 100mm thickness roadbase and/or VENM (or other site-sourced material that has been validated as suitable for use), all overlying a maker layer.

In landscaping areas (which contained trees to be retained as part of the development), the cap was constructed by the placement of 200mm of VENM/topsoil/validated site-sourced fill overlying a marker layer, with the surface of the capping layer designed to prevent erosion by the use of appropriate vegetation, and mulch.

The implemented asbestos containment strategy is considered sufficient to mitigate the exposure risks for on-site users associated with the contained asbestos materials.

Summary of the actions required by the EMP:

At the driveway areas, the concrete capping and the marker layers are to be always maintained to prevent access to the contained fill material, except where required for maintenance purposes.

At the landscaping areas, the capping and marker layers are to be always maintained to prevent access to the contained fill material, except where required for maintenance purposes.

[4] Refer to Part IV for definitions of active and passive control systems.

Inspections of the capping layers must be undertaken every three months (quarterly) or after significant rain event that may cause erosion.

If intrusive works are required beneath the capping/marker layers (i.e., where fill materials beneath the marker layer, including at any utility trenches, are required to be accessed or disturbed). Specific management requirements are prescribed including corrective actions for both planned and unplanned (i.e., unintentional) breaches.

How the EMP can reasonably be made to be legally enforceable:

The EMP can reasonably be made enforceable as the Environmental Management Plan will be registered on title by way of Positive Covenant under s 88E(3) *Conveyancing Act 1919* with Northern Beaches Council being the prescribed authority.

In addition, for Asbestos a person with management or control of a workplace must ensure an asbestos register is prepared and kept at the workplace cl 425 of the *Work Health and Safety Regulation 2017*. An asbestos register has been created that refers to the management of the asbestos contained on site in accordance with the Long-term Environmental Management Plan.

How there will be appropriate public notification:

Notification will be also by way of Positive Covenant under s 88E(3) *Conveyancing Act 1919* with Northern Beaches Council being the prescribed authority, but also future planning certificates for the site prepared by Northern Beaches Council under s 10.7 of the *Environmental and Planning Act 1979* will document the presence of the SAS and therefor the Long-term Environmental Management Plans. This is required by s 59(2)(e) of the *Contaminated Land Management Act 1997* and the planning guidelines (Managing Contamination Planning Guidelines Remediation of Land - State Environmental Planning Policy No.55 1998) for contaminated land referred to in Chapter 4 of the State Environmental Planning Policy (Resilience and Hazards) 2021.

~~**Overall comments:**~~

Section B

Purpose of the plan[5] which is the subject of this audit:

I certify that, in my opinion:

(B1)

☐ The nature and extent of the contamination **has** been appropriately determined

☐ The nature and extent of the contamination **has not** been appropriately determined

AND/OR (B2)

☐ The investigation, remediation or management plan **is** appropriate for the purpose stated above

☐ The investigation, remediation or management plan **is not** appropriate for the purpose stated above

AND/OR (B3)

☐ The site testing plan:

- ☐ **is** appropriate to determine
- ☐ **is not** appropriate to determine

if groundwater is safe and suitable for its intended use as required by the *Temporary Water Restrictions Order for the Botany Sands Groundwater Resource 2017*

AND/OR (B4)

☐ The terms of the approved voluntary management proposal* or management order** (strike out as appropriate):

- ☐ **have** been complied with
- ☐ **have not** been complied with.

*voluntary management proposal no.

**management order no.

AND/OR (B5)

The site **can be made suitable** for the following uses:

(Tick all appropriate uses and strike out those not applicable.)

☐ Residential, including substantial vegetable garden and poultry

☐ Residential, including substantial vegetable garden, excluding poultry

[5] For simplicity, this statement uses the term 'plan' to refer to both plans and reports.

☐ Residential with accessible soil, including garden (minimal home-grown produce contributing less than 10% fruit and vegetable intake), excluding poultry

☐ Day care centre, preschool, primary school

☐ Residential with minimal opportunity for soil access, including units

☐ Secondary school

☐ Park, recreational open space, playing field

☐ Commercial/industrial

☐ Other (please specify):

IF the site is remediated/managed* in accordance with the following plan (**attached**):

*Strike out as appropriate

Plan title

Plan author

Plan date No. of pages

SUBJECT to compliance with the following condition(s):

Overall comments:

Part III: Auditor's declaration

I am accredited as a site auditor by the NSW Environment Protection Authority (EPA) under the *Contaminated Land Management Act 1997.*

Accreditation no. 0301

I certify that:

- I have completed the site audit free of any conflicts of interest as defined in the *Contaminated Land Management Act 1997,* and
- with due regard to relevant laws and guidelines, I have examined and am familiar with the reports and information referred to in Part I of this site audit, and
- on the basis of inquiries I have made of those individuals immediately responsible for making those reports and obtaining the information referred to in this statement, those reports and that information are, to the best of my knowledge, true, accurate and complete, and
- this statement is, to the best of my knowledge, true, accurate and complete.

I am aware that there are penalties under the *Contaminated Land Management Act 1997* for wilfully making false or misleading statements.

Signed 

Date 20 September 2023

Part IV: Explanatory notes

To be complete, a site audit statement form must be issued with all four parts.

How to complete this form

Part I

Part I identifies the auditor, the site, the purpose of the audit and the information used by the auditor in making the site audit findings.

Part II

Part II contains the auditor's opinion of the suitability of the site for specified uses or of the appropriateness of an investigation, or remediation plan or management plan which may enable a particular use. It sets out succinct and definitive information to assist decision-making about the use or uses of the site or a plan or proposal to manage or remediate the site.

The auditor is to complete either Section A1 or Section A2 or Section B of Part II, **not** more than one section.

Section A1

In Section A1 the auditor may conclude that the land is *suitable* for a specified use or uses OR *not suitable* for any beneficial use due to the risk of harm from contamination.

By certifying that the site is *suitable*, an auditor declares that, at the time of completion of the site audit, no further investigation or remediation or management of the site was needed to render the site fit for the specified use(s). **Conditions must not be** imposed on a Section A1 site audit statement. Auditors may include **comments** which are key observations in light of the audit which are not directly related to the suitability of the site for the use(s). These observations may cover aspects relating to the broader environmental context to aid decision-making in relation to the site.

Section A2

In Section A2 the auditor may conclude that the land is *suitable* for a specified use(s) subject to a condition for implementation of an environmental management plan (EMP).

Environmental management plan

Within the context of contaminated sites management, an EMP (sometimes also called a 'site management plan') means a plan which addresses the integration of environmental mitigation and monitoring measures for soil, groundwater and/or hazardous ground gases throughout an existing or proposed land use. An EMP succinctly describes the nature and location of contamination remaining on site and states what the objectives of the plan are, how contaminants will be managed, who will be responsible for the plan's implementation and over what time frame actions specified in the plan will take place.

By certifying that the site is suitable subject to implementation of an EMP, an auditor declares that, at the time of completion of the site audit, there was sufficient information satisfying guidelines made or approved under the *Contaminated Land Management Act 1997*

(CLM Act) to determine that implementation of the EMP was feasible and would enable the specified use(s) of the site and no further investigation or remediation of the site was needed to render the site fit for the specified use(s).

Implementation of an EMP is required to ensure the site remains suitable for the specified use(s). The plan should be legally enforceable: for example, a requirement of a notice under the CLM Act or a development consent condition issued by a planning authority. There should also be appropriate public notification of the plan, e.g. on a certificate issued under s.149 of *the Environmental Planning and Assessment Act 1979*.

Active or passive control systems

Auditors must specify whether the EMP requires operation and/or maintenance of active control systems or requires maintenance of passive control systems only. Active management systems usually incorporate mechanical components and/or require monitoring and, because of this, regular maintenance and inspection are necessary. Most active management systems are applied at sites where if the systems are not implemented an unacceptable risk may occur. Passive management systems usually require minimal management and maintenance and do not usually incorporate mechanical components.

Auditor's comments

Auditors may also include **comments** which are key observations in light of the audit which are not directly related to the suitability of the site for the use(s). These observations may cover aspects relating to the broader environmental context to aid decision-making in relation to the site.

Section B

In Section B the auditor draws conclusions on the nature and extent of contamination, and/or suitability of plans relating to the investigation, remediation or management of the land, and/or the appropriateness of a site testing plan in accordance with the *Temporary Water Restrictions Order for the Botany Sands Groundwater Source 2017*, and/or whether the terms of an approved voluntary management proposal or management order made under the CLM Act have been complied with, and/or whether the site can be made suitable for a specified land use or uses if the site is remediated or managed in accordance with the implementation of a specified plan.

By certifying that a site *can be made suitable* for a use or uses if remediated or managed in accordance with a specified plan, the auditor declares that, at the time the audit was completed, there was sufficient information satisfying guidelines made or approved under the CLM Act to determine that implementation of the plan was feasible and would enable the specified use(s) of the site in the future.

For a site that *can be made suitable*, any **conditions** specified by the auditor in Section B should be limited to minor modifications or additions to the specified plan. However, if the auditor considers that further audits of the site (e.g. to validate remediation) are required, the auditor must note this as a condition in the site audit statement. The condition must not specify an individual auditor, only that further audits are required.

Auditors may also include **comments** which are observations in light of the audit which provide a more complete understanding of the environmental context to aid decision-making in relation to the site.

Part III

In **Part III** the auditor certifies their standing as an accredited auditor under the CLM Act and makes other relevant declarations.

Where to send completed forms

In addition to furnishing a copy of the audit statement to the person(s) who commissioned the site audit, statutory site audit statements must be sent to

- the **NSW Environment Protection Authority**: nswauditors@epa.nsw.gov.au or as specified by the EPA

  AND

- the **local council** for the land which is the subject of the audit.

TRACE ENVIRONMENTAL

Long-Term Environmental Management Plan

Soil Vapour Intrusion Management

Northern Beaches Business Park

4-8 Inman Road, Cromer, NSW

15 September 2023

Long-Term Environmental Management Plan – Soil Vapour Intrusion Management

Northern Beaches Business Park, 4-8 Inman Road, Cromer, NSW

Prepared for:
EG Funds Management Pty Ltd

Revision	Date	Author	Approver	Issued
Draft	6 September 2023	KH	AK	6 September 2023
Draft Rev1	6 September 2023	KH	AK	6 September 2023
Draft Rev2	14 September 2023	KH	AK	14 September 2023
Rev0	15 September 2023	KH	AK	15 September 2023

Author	Approved
Ken Henderson Principal Environmental Scientist B.Sc. (Hons Geology) EIANZ CEnvP (SC) #SC40922	Andrew Kita Principal Engineer B.Eng. (Geol., Hons.)

Ref. No.:	26.01
Disclaimer:	THIS DOCUMENT IS SUBJECT TO LIMITATIONS NOTED

Shop 2, 793-799 New Canterbury Road
Dulwich Hill NSW
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Table of Contents

Figures

Title **Figure**

Appendices

1 Introduction

TRACE Environmental was engaged by EG Funds Management Pty Ltd (EG) to prepare a Long-Term Environmental Management Plan (EMP) for a portion of the Northern Beaches Business Park (NBBP) located at 4-8 Inman Road, Cromer, NSW, Lot 1 in DP1282038 ('the site'). A Site Location Plan is presented in **Figure 1**, and a figure showing the boundaries of the site is shown in **Figure 2**.

This EMP is a requirement for the management of soil vapour impacts within the footprint of portions of the NBBP building. This includes building ventilation and the construction and operation of a sub-slab soil vapour venting system (SVVS) to prevent accumulation of residual vapours beneath the concrete floor.

This is considered an 'active' EMP as the management and maintenance of the soil vapour issues incorporates a mechanical component (building ventilation supplemented with a passive sub slab-venting layer).

1.1 Background

The site details are summarised below in **Table 1-1**.

Table 1-1: Summary of Site Identification Details

ID Element	Description
Site Address	4-8 Inman Road, Cromer, NSW 2099
Lot/DP	Lot 1 in DP1282038
Local Council	Northern Beaches Council
Site Coordinates	33°44'19.9"S 151°17'13.8"E
Zoning	IN1 General Industrial
Approximate Site Elevation	15-30m Australian Height Datum (AHD)
Approximate Site Area (entire NBBP site)	36,630m²

The site was historically owned by Roche Products Pty Ltd (Roche). Previous environmental investigations identified groundwater impacted with benzene and chlorinated volatile organic compounds (CVOCs; primarily trichlorethylene [TCE]), and Roche commissioned Environmental Resources Management (ERM) to implement a remediation program. However, the NBBP building has been constructed over the impacted groundwater plume, and additional management is required to address associated potential vapour intrusion (VI) risks to users of the building. These requirements were outlined in a Remedial Action Plan (RAP) Addendum[1], which included construction of the SVVS beneath a portion of the building, noting the building ventilation system also provides a method of vapour mitigation.

This strategy also requires ongoing monitoring of the groundwater conditions beneath the site as well as monitoring the ambient air within portions of the building and associated outdoor areas. As part of the remedial strategy, the areas of the site subject to this EMP require ongoing management and maintenance. The construction of the SVVS was documented in a separate Validation Report[2].

[1] TRACE Environmental (2022), *Remedial Action Plan Addendum – Soil Vapour Intrusion Management Strategy, 4-8 Inman Road, Cromer, NSW* (Rev0), draft dated 9 September 2022 and finalised 24 October 2022.

[2] TRACE Environmental (2023), *Validation Report - Soil Vapour Intrusion Management Strategy*, Northern Beaches Business Park, *4-8 Inman Road, Cromer, NSW,* 11 September 2023.

Additional detail of the site and site conditions are outlined below in **Section 2**. The location of the area of the site subject to this EMP is shown on **Figures 2** and **3**, with as-built diagrams showing the installed SVVS included in **Appendix A**. Photographs of key items provided in **Appendix B**.

1.2 Objectives

This EMP is required to detail the ongoing management requirements for the maintenance of the building venting methods and venting structures and associated ongoing monitoring requirements.

1.3 Legislative Requirements

Reporting was carried out in accordance with the following guidelines, regulations and standards:

- *Contaminated Land Management Act 1997*, NSW;
- NSW EPA (2015), *Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act*, Updated September 2015;
- NSW EPA (2017), *Contaminated Sites Guidelines for the NSW Site Auditor Scheme, Third Edition*, October 2017;
- NSW EPA (2020), *Consultants Reporting on Contaminated Land: Contaminated Land Guidelines*, April 2020, updated May 2020;
- NSW EPA (2020), *Guidelines for the Assessment and Management of Hazardous Ground Gases*, NSW EPA, December 2019, amended May 2020;
- NSW EPA (2022), *Practice Note – Preparing Environmental Management Plans for Contaminated Land*, January 2022;
- Protection of the Environment Operations (POEO) Act 1997;
- Work Health and Safety Act 2011 and Work Health and Safety Regulation 2017.

The requirements for this EMP were also outlined in the Northern Beaches Council of Determination for DA approval DA2019/1346 for the NBBP development.

1.4 Enforceability

Section 3.4.6 of EPA (2017) outlines the conditions that must be met for a NSW Environment Protection Authority (EPA) accredited Site Auditor to include the implementation of an EMP as a condition on a Site Audit Statement (SAS). One of the conditions states that the EMP can reasonably be made to be legally enforceable, for example because compliance with it is a requirement of development consent conditions issued by the relevant planning authority. Another condition states that, '*…there will be appropriate public notification of any restrictions applying to the land to ensure that potential purchasers or other interested individuals are aware of the restrictions, for example appropriate notations on a planning certificate issued under s.149(2) of the Environmental Planning and Assessment Act or a covenant registered on the title to land under s.88B of the Conveyancing Act 1919.*'

The requirements of this EMP will apply indefinitely or until such time as a SAS can be prepared by Site Auditor stating that an EMP is not required.

1.5 Review and Revision of the EMP

Review of this EMP is required ensure that the EMP remains up to date, relevant and effective for managing the contamination remaining at the site. The process will include checking that the EMP remains consistent with changes in legislative and regulatory requirements or changes in industry best practice.

The EMP shall be reviewed annually (at a minimum), with the first review to be conducted approximately one year from the date of this report (unless additional reviews are required as outlined below). The reviews (and any required revisions) must be undertaken by a qualified Environmental Consultant to ensure that the management requirements outlined in this document are being maintained and are effective.

Additional reviews and/or revisions must also be undertaken by a qualified Environmental Consultant in consideration of the following:

- Upon completion of any structural works conducted at areas of the site applicable to this EMP (as described below in **Section 2** and shown on **Figure 3**). This includes any repairs to the SVVS components/basement floor slab, noting that the applicable building areas are also subject to periodic inspections (as outlined below in **Section 3.4**) which may highlight the need for review and revision of the EMP (depending on the outcome of the inspection); and
- The EMP must be reviewed and revised following a change of landowner/strata corporation/body corporate/managing agent, if there is a change in the site's land use, and/or for works requiring development consent.

EMP revisions are to be reviewed by an NSW EPA accredited Site Auditor and by Northern Beaches Council. Copies of any revised EMP are to be distributed, by the landowner/strata corporation/body corporate/managing agents, to the key stakeholders, including Northern Beaches Council and any future landowners, for notification and ongoing implementation. The landowner/strata corporation/body corporate/managing agents are to also provide copies of any revised versions of the EMP to leaseholders/tenants.

2 Site Conditions

Based on the information sourced from the previous assessments (as discussed above in **Section 1.1**), the contamination status of the site as it relates to the noted groundwater contaminant plume (benzene, CVOCs/TCE) is summarised in a conceptual site model (CSM) outlined in **Table 2-1**.

Table 2-1: Conceptual Site Model

CSM Element	Description
Site History/Contaminant Sources	The site was previously an operational pharmaceutical manufacturing and distribution facility, which has been redeveloped as the NBBP. The site has a history of commercial/industrial use which has resulted in groundwater impacted with benzene and TCE at the southern portion of the site.
Current and Future Use	The NBBP comprises self-storage units and car parking at the lowest level ('basement' level), with warehouse facilities, offices and driveways at the overlying levels.
Site Geology	Previous investigations indicate that the site is underlain by sand and clayey sand, which generally grades to sandstone with depth. Portions of the site have also been historically filled with gravelly sand to depths of up to approximately 1.5mbgs.
Site Hydrogeology	Groundwater was previously found to be generally unconfined within the weathered sandstone aquifer beneath the site, with the inferred groundwater to flow in a southerly direction.
COPCs	Groundwater is impacted with benzene and TCE. A previously conducted health risk assessment (as outlined in the TRACE Environmental [2022]) RAP Addendum) concluded that there are potentially unacceptable risks to human health from VI from TCE.
Potential Human Receptors	Current and future human receptors include third parties, visitors and employees/workers. Intrusive maintenance workers may also be expected to undertake works periodically.
Potential Exposure Pathways	Potential exposure pathways for the building include the following: • Accumulation of vapours inside the building from impacted soil, groundwater and/or soil vapour, and subsequent inhalation of vapours; • Outdoor vapour migration from impacted soil, groundwater and/or soil vapour, and subsequent inhalation of vapours; • Vapour inhalation from impacted soil, groundwater and/or soil vapour during intrusive maintenance works; and • Direct contact with impacted soil during intrusive maintenance works.
Potential Environmental Receptors	A tributary to Dee Why Creek is located near/at the eastern boundary of the site, running from north to south, which drains into Dee Why Creek, located approximately 250m to the south of the site.

The portions of the building applicable to this EMP includes the following areas (refer to **Figure 3**):

- Two self-storage unit areas comprising Self-Storage Area #1 (SSA#1) at the south-eastern portion of the basement and Self-Storage Area #2 (SSA#2) at the south-western portion of the basement. The SVVS underlies SSA#1; and

- A car park area at the northern portion of the building basement.

Construction of the SVVS beneath SSA#1 includes the following components (described from top to bottom):

- Concrete floor slab. Joints between the concrete slabs and at the blockwork wall (between SSA#1 and the car park) are caulked with grey 'Sikaflex Tank N'. The bases of some support columns within SSA#1 are also sealed with a grey coating membrane (refer to photographs in **Appendix B** for detail);
- Silting geotextile and damp-proof membrane (200µm polyethylene 'Builders' Film');
- Void former (Polyfabrics 50mm Drain Cel Rainsmart 50mm Nero Void); and
- A substrate layer (50mm) of compacted sand/compact crush rock and silting geotextile.

The SVVS also comprises inlet and outlet pipework:

- Inlet pipework (PVC 150mm diameter) and air inlets comprising (refer to **Figure 4** and photographs in **Appendix B**):
    - 'Mushroom cap' inlets (11) – installed along the eastern wall of SSA#1 (installed externally to the eastern wall and adjoining landscaping area along the eastern boundary); and
    - Inlet bollards (11) – installed at the access driveway on Level 1 above SSA#2 (seven bollards) and at the entranceway to both self-storage areas (four bollards). Associated pipework extends beneath the easternmost portion of SSA#2 and connects to the SVVS beneath SSA#1 as shown on **Figure 4**.
- Outlet pipework (PVC 225mm diameter) and outlet vent (wind-driven 'whirlybird' ventilators shown on **Figure 4**) with brass sample monitoring ports installed in the risers.

Groundwater monitoring wells (refer to photographs in **Appendix B**) are also located throughout the basement areas. Each monitoring well includes a bolt-down gatic cover and an orange expandable airtight well cap. Each gatic of the monitoring wells installed at the SSA#1 area of the basement is also filled with a non-shrink grout.

The above components are shown in as-built diagrams provided in **Appendix A** with components shown on **Figure 4**. Photographs of the key SVVS components and building areas are provided in **Appendix B**.

The SSA#1, SSA#2 and car park areas also include a ventilation system which comprises Australian Standard (AS1668.2) design requirement for self-storage facilities (5L/s for every 1m^2) which equates to an air exchange rate (AER) of 5.81.

3 Site Management Plan

3.1 Overview

The following sections outline general site management practices that will need to be undertaken to ensure proper operation of the soil vapour mitigation strategy.

The objectives of these management practices include:

- Responsible environmental management of the site;
- Provide open communication and consultation with all stakeholders;
- Carry out regular audits and inspections (per **Section 3.4**) of the applicable areas of the building and document protocols to be undertaken during any required maintenance activities (such as floor/foundation repairs, below ground utility repairs);
- Conduct ongoing monitoring of the sub-slab (SVVS) air spaces and the ambient air (to be conducted by the appointed Environmental Consultant); and
- Minimise outstanding corrective actions.

The outcomes of implementing the control measures include:

- All personnel are aware of their environmental responsibility;
- Record all unexpected findings and inform personnel working on the site;
- Record all non-conformances and evidence of corrective actions taken;
- No adverse environmental impacts result from any incidents or emergencies on site; and
- Minimise potential disruption to works due to environmental incidents or breaches.

3.2 Key Stakeholders and Responsibilities

This EMP must be maintained on file by the landowner and any strata corporation/body corporate and be reviewed and implemented where required.

Copies of the EMP are to be distributed, by the landowner/strata corporation/body corporate/managing agents, to the key stakeholders (such as leaseholders/tenants), including Northern Beaches Council and any future landowners, for notification and ongoing implementation.

The responsibilities for specific key stakeholders to whom this EMP applies are outlined below in **Table 3-1**.

Table 3-1: Key Stakeholders Responsibilities – Basement Level (SSA#1, SSA#2 and Car Park)

Stakeholder	Responsibility
Landowner/Strata Corporation/Body Corporate	• Appoint a designated representative/Site Manager to ensure SVVS components are maintained (**Section 3.3**) and conduct regular inspections (**Section 3.4**); • Ensure contractors (including any other sub-contractors) that must conduct repairs within the SSA#1, SSA#2 and car park areas are provided a copy of this EMP and are aware of their responsibilities (referenced below); • Ensure the requirements of the EMP are successfully implemented; • Notify key stakeholders (including tenants/leaseholders) and any future landowners of the residual contamination at the site, and provide these stakeholders with copies of the EMP (and any revisions per **Section 1.5** above); • Engage an appropriately qualified and experienced Environmental Consultant to revise the EMP (per **Section 1.5** above) and conduct ongoing monitoring of the ambient air and soil vapour associated with the SVVS (referenced below); and • Liaise with Council and a NSW EPA accredited Site Auditor relating to any EMP revisions or other requirements and submit any EMP revisions to Council.
Site Workers	Ensure operations and intrusive works are conducted in accordance with the requirements of this EMP. Works must also be undertaken in accordance with other relevant statutory requirements, including current Workplace, Health & Safety (WH&S) legislation. Relevant sections of this EMP that apply include **Section 3.3** (building maintenance), **Section 3.4** (informal inspections), **Section 3.6** (worker hygiene) and **Section 3.7** (unexpected finds).
Environmental Consultant working on behalf of the Landowner/Strata Corporation/Body Corporate	Conduct ongoing monitoring of the SVVS and ambient air conditions (indoors/outdoors) and associated reporting, prepare EMP revisions (as/if necessary) and respond to any non-conformances. Relevant sections of this EMP that apply include **Section 1.5** (EMP revisions), **Section 3.3** (building/SVVS maintenance where required), **Section 3.4** (informal inspections), **Section 3.5** (ongoing SVVS/ambient air monitoring), **Section 3.6** (providing advice on worker hygiene) and **Section 3.7** (unexpected finds).
Environmental Consultant working on behalf of former Site Owner (Roche)	Ensure groundwater monitoring wells are maintained per the specifications of this document. Relevant sections of this EMP that apply include **Section 3.4.2** (maintenance of monitoring wells) and **Section 3.7** (unexpected finds).
Leaseholders/Tenants	Compliance with EMP and notify the landowner of any maintenance issues
Northern Beaches Council	Advising/confirming if EMP revision is required following site works. Review and approval of EMP revisions.
NSW EPA Accredited Site Auditor	Review and approval of any EMP revisions, review of ongoing SVVS/ambient air monitoring reports (as noted in **Section 3.5**).

3.3 Maintenance of the Building Floor and SVVS

At the SSA#1, SSA#2 and car park areas (**Figure 3**), the building floor and SVVS components (as described above in **Section 2**) are to be maintained as constructed at all times to ensure these structures are intact and the integrity of the floor/SVVS are maintained as designed. Inspections of these areas/components (as referenced below in **Section 3.4**), as well as any observations noted from site tenants, will assist in making sure appropriate actions are taken to properly maintain these structures/areas.

Planned and/or unplanned breaches of the basement floor and/or SVVS may occur. This section outlines the procedures to be followed in the event of such breaches (such as non-conformances//breaches that may be identified during the required inspections), along with rectification requirements. This includes the following considerations:

- No cracks in the floor are present. Specialised sealing of cracks or penetrations within SSA#1 will be required to maintain the integrity of the SVVS, and any repairs conducted at the car park or SSA#2 areas will be conducted to ensure the concrete floor is restored as originally designed;

- No new penetrations (such as new utility conduits) should be installed at any areas within the SSA#1, SSA#2 and car park. However, any new penetrations (if required) are to be designed such that the potential for cracking is minimised and in consideration of the as-built diagrams in **Appendix A**. Prior to commencement of any such new work, the appointed Environmental Consultant must be consulted to advise on appropriate construction methods required for any new penetrations, noting different areas of the basement have different requirements (for example, additional steps are required to ensure no damage is incurred to the SVVS; refer to next bullet for detail); and

- Prior to any repairs to the concrete floor/foundations at the entirety of SSA#1 and the easternmost portion of SSA#2 (as shown on **Figure 4**), the appointed Environmental Consultant must first be consulted to verify that the repairs do not have the potential to damage the SVVS components. The SVVS manufacturer, BGL, may also need to be consulted to provide recommendations. All concrete cutting/removal/drilling activities associated with the floor of SSA#1 and SSA#2 must be assessed by the SVVS manufacturer, BGL, prior to commencing works for appropriate methodology. This will include the preparation of a work plan based on the proposed scope of works. Specialised sealing of cracks or penetrations within SSA#1 will also be required (as referenced above).

Existing penetrations will also need to be inspected and maintained, such as SVVS components (outlined below in **Section 3.4.1**) and existing monitoring wells (outlined below in **Section 3.4.2**). Vapour monitoring will also be required to following any repairs/modifications to the system as outlined below in **Section 3.5**.

3.4 Inspections

Inspections of the basement level are to be undertaken monthly, and consider the following:

- Inspections will be undertaken by a designated representative for the site, either the Site Manager or an appointed designee. For consistency, inspections should be undertaken by the same individual;

- Non-conformances are to be immediately reported to the Site Manager and addressed as soon as possible, noting additional consultation with the appointed Environmental Consultant may be required (refer also to **Section 4.1** below for additional detail);

- The *Building Inspection Form* included in **Appendix C** will need to be completed for each inspection, and each completed form kept on file with this EMP. The inspection form provides details of the observations that need to be considered and associated Required Actions. If required, photographic documentation should also be included with the inspection findings (depending on the nature of the finding);

- Informal inspections may also be conducted as necessary, such as following complaints by tenants or customers if the concrete floor is compromised (for whatever reason). As referenced above in **Table 3-1**, tenants/leaseholders are to be made aware of this EMP and should notify the landowner of any maintenance issues;

- A copy of each completed inspection form will be kept on file with this EMP and be made available for review by the relevant stakeholders and/or consent authorities (as necessary).

Inspections will include the following areas, as also noted on the inspection form in **Appendix C**:

3.4.1 SVVS and Building Inspections and Management

The following SVVS components and building areas will require inspection:

- The floor of the entire basement level per **Figures 3** and **4** (SSA#1, SSA#2 and the car park). This includes: inspection for cracks associated with the floors (including at foundation pillars, walls) and any penetrations (such as monitoring wells discussed below); inspecting for potential spills/chemical odours or unexpected finds (as outlined below in **Section 3.7**); and inspection for areas of ponded water;

- Nine SVVS outlet risers that extend to 'whirlybird' vents at the roof of the overlying warehouse (**Figure 4**). Vents should be rotating freely, in particular during windy conditions;

- 'Mushroom cap' air inlets (11) associated with the SVVS along the eastern wall of SSA#1 (**Figure 4**). Inlets should be free of debris and not blocked or damaged to allow air to flow the system; and

- The eastern area of SSA#2 as shown on **Figure 4**, which contains 11 air inlet bollards associated with the SVVS, with seven in the driveway at Level 1 above SSA#2 and four in the lower-level entranceway (from South Creek Road) to both self-storage unit areas. Bollards/inlets should be free of debris and not blocked or damaged to allow air to flow through the system.

The SVVS manufacturer, BGL, may also need to be consulted to provide recommendations for any repairs needed to any of the SVVS components. All concrete cutting/removal/drilling activities associated with the floor of SSA#1 must be assessed by the SVVS manufacturer, BGL, prior to commencing works for appropriate methodology. This will include the preparation of a work plan based on the proposed scope of works.

Observations of the building ventilation system must also be undertaken to confirm that the system is operating as intended, and the Site Manager must be immediately notified if the system does not appear to be operating (i.e., stagnant air/no air flow etc.). Refer to the *Building Inspection Form* included in **Appendix C** for associated inspection requirements. It is noted that the building ventilation system is under warranty for 12 months from the effective date of completion, which includes a preventative maintenance program that continues for 12 months. Paramount Airconditioning (Aust) Pty Ltd is responsible for the implementation and management of equipment and material supplier warranties including breakdown service of systems installed during this 12-month period. After the warranty period has expired, the Landowner/Strata Corporation/Body Corporate will need to enter into a preventative maintenance agreement with a qualified maintenance contractor to maintain the equipment/system. Details of the operation and maintenance are provided in a separate *Mechanical Services Operation and Maintenance Manual*[3].

[3] *Mechanical Services Operation and Maintenance Manual for 1250 NBBP Cromer, 4-100 Inman Road, Cromer, NSW, 2099* prepared by Paramount Airconditioning (Aust) Pty Ltd.

3.4.2 Groundwater Monitoring Well Inspections and Management

Ongoing groundwater monitoring using the existing groundwater well network is conducted by the Environmental Consultant appointed by the former site owner. Monitoring wells must be maintained and inspected to ensure they remain intact and are not damaged to create a preferential pathway for subsurface vapours to enter the air spaces of the building.

The Environmental Consultant conducting groundwater sampling works must also be provided a copy of this EMP to ensure that the monitoring wells are being maintained as designed.

As noted above in **Section 3.4.1**, inspections of the monitoring wells are required. This must include inspections as conducted by the Environmental Consultant during groundwater sampling works, as well as during the monthly inspections as conducted by the Site Manager (or an appointed designee).

These inspections will include the following:

- Ensuring the well cap plug is replaced to the top of the PVC standpipe of the monitoring well;
- Ensuring the monitoring well gatic cover is properly placed and bolted down after sampling;
- Reporting evidence of damage or cracking in the vicinity of the monitoring wells to the Site Manager; and
- Inspecting the gatic of the monitoring wells installed within SSA#1 to ensure that the inside of the gatic is lined with non-shrink grout (refer to photographs in **Appendix B**).

Any monitoring well that is not required for future monitoring will be abandoned per the requirements of the National Uniform Drillers Licensing Committee (2012) *Minimum Construction requirements for Water Bores in Australia, Third Edition*. The Environmental Consultant must be consulted prior to undertaking any monitoring well maintenance, abandonment or replacement works. Any replacement monitoring wells installed within SSA#1 will need to consider the requirements of **Section 3.3** above, noting that all concrete cutting/removal/drilling activities associated with the floor of SSA#1 must be assessed by the SVVS manufacturer, BGL, prior to commencing works for the appropriate methodology. Replacement monitoring wells installed within SSA#1 (if required) will need to be constructed and maintained per construction drawings provided in **Appendix A** and per recommendations of the Environmental Consultant.

3.5 SVVS and Ambient Air Monitoring

Ongoing monitoring of the ambient air within the basement structure (and strategic outdoor locations) and soil vapour within the sub-slab void is required to verify that the SVVS will continue to be suitable to mitigate potential VI issues to future site users. This includes monitoring following any repairs/modifications to the concrete floor of SSA#1. Ongoing monitoring will also allow additional future decisions to be made, including whether decisions can be made on the requirement to continue with maintaining the SVVS.

The monitoring requirements include:

- Assessment of ambient air within and surrounding the basement level to verify the implemented gas protection measures are effective in ensuring vapours are not accumulating within the completed structure or are at levels that can be unacceptable for human health;

- Assessment of the sub-slab vapour conditions including at outlet vents associated with the SVVS;
- Laboratory analysis of soil vapour (sub-slab) and ambient air (indoor and outdoor) samples for VOCs (including TCE); and
- Assessment of analytical results against previously established assessment criteria.

Landowner/Strata Corporation/Body Corporate is responsible for ensuring the monitoring is conducted in accordance with this EMP, including appointing the Environmental Consultant to undertake the required sampling. The monitoring/sampling requirements, including required sampling frequencies, are outlined in the Sampling and Analysis Quality Plan (SAQP) provided in **Appendix D**.

The Environmental Consultant will prepare monitoring reports as necessary for submittal to the site owner/occupier and NSW EPA accredited Site Auditor, and the reports will outline recommendations for any corrective actions that may be required and/or recommendations for ongoing monitoring. The completed monitoring reports will be kept on file with the EMP.

3.6 Maintenance of Below Ground Spaces - Work Health and Safety

Prior to conducting any works that may include works within below ground confined spaces within the basement levels, the works will be discussed with the appointed Environmental Consultant to determine if there is a potential inhalation risk associated with vapour accumulation. Below ground confined spaces are considered to comprise stormwater pits located within the carpark portion of the basement. At these locations, the Environmental Consultant will determine if surveillance monitoring and/or specific personal protective equipment (PPE) (such as respirators) will be required.

It is anticipated that surveillance monitoring, where required, will include monitoring of lower explosive level (LEL), oxygen and photoionisation detector (PID) levels in the vicinity of the work zone using a calibrated LEL/PID field instrument. **Table 3-2** below summarises the monitoring/action levels (as per levels measured using a PID/LEL meter during the works) and the appropriate actions to be taken.

Table 3-2: Air Monitoring Levels and Appropriate Actions

Hazard	Measured Level	Action
Explosive atmosphere is immediate work area	1 to 5% LEL	Investigate with caution
	≥5 LEL	Explosive hazard - withdraw from area immediately
Oxygen concentration	<19.5%	Move out of area and challenge gas detector. Re-test area. Remove all personnel from work area if low oxygen levels persist.
	19.5 – 23.5%	Continue to investigate with caution.
	>23.5%	Move out of area and challenge gas detector. Discontinue investigation monitoring, fire hazard potential. Consult specialist.
Volatile Contaminants	Background to 5ppm	Continue to monitor.
	>5ppm to <10ppm over 1 minute	Continue to monitor, consider use of half-face respirator with organic vapour cartridges. Stop work may also be actioned depending on conditions.
	>10ppm to <20ppm over 1 minute	Continue to monitor, move upwind, wear a half-face respirator with organic vapour cartridges.
	>20ppm over 12 minutes	Stop work.

At all times workers must be vigilant for signs of contamination (i.e., chemical odours), and if signs of contamination are observed, work must be immediately stopped, and the appointed Environmental Consultant must be contacted for further advice and/or any additional surveillance monitoring.

3.7 Unexpected Finds

It is not anticipated that unexpected finds will be encountered during ongoing operation of the building and SVVS components. However, site personnel will be vigilant for other hazardous materials that may be encountered during future works including chemical odours (such as chemical odours or chemical spills inside the building areas) as noted on the inspection forms in **Appendix C**.

If hazardous materials or chemical odours are uncovered/discovered during future works (including spills of chemicals and/or odours noted in the building areas), access to the area will need to be restricted (i.e., fence the area if appropriate), and an investigation into the nature of the risk of the materials will be required to determine the appropriate response and document the actions. **Any suspect materials or odours will need to be reported to the Site Manager immediately.**

Any spills that occur should be confined to a limited area as quickly as possible to reduce potential damage to the SVVS, however, care should be taken in wearing appropriate PPE and using appropriate equipment when coming in to contact with potentially harmful chemicals.

The appointed Environmental Consultant will also need to be immediately notified of the issues. The SVVS manufacturer, BGL, should also be notified immediately following spills/chemicals that may potentially damage the SVVS. It may be necessary to notify the Site Auditor, local Council and/or the NSW EPA in the event of a serious unexpected find which could cause potential risks to human health and/or the environment.

4 Corrective Actions and Incident Reporting

4.1 Corrective Actions

As noted above, ongoing maintenance, inspections and monitoring of the SVVS and associated building areas are required to ensure proper operation of the soil vapour mitigation strategy. The required inspection (**Section 3.4**) and monitoring (**Section 3.5**) program has been designed to identify non-conformances that require corrective action to achieve the objectives.

As referenced above in **Table 3-1** (**Section 3.2**), the Landowner/Strata Corporation/Body Corporate is responsible to ensure the requirements of the EMP are successfully implemented.

In the event of any non-conformances that are identified, the following must be implemented:

- The Site Manager (or the appointed designee) must be notified in the first instance (noting the Site Manager/designee may also first identify any non-conformances during the required monthly inspections);
- The Site Manager/designee will immediately notify the Landowner/Strata Corporation/Body Corporate of the actions requiring attention and take steps to immediately undertake any corrective actions/repairs. This will include immediately notifying the appointed Environmental Consultant to assess the non-conformance and provide advice on any surveillance monitoring or other special requirements associated with any corrective actions/repairs that may be required;
- The appointed Environmental Consultant may also need to contact the manufacturer of he SVVS, BGL Nominees Pty Ltd, to provide advice on any corrective actions required to protect and/or repair SVVS components prior to conducting the works;
- The Landowner/Strata Corporation/Body Corporate will liaise with Council and a NSW EPA accredited Site Auditor in the event of a non-conformance that results in a potential risk to human health or the environment (to be advised by the appointed Environmental Consultant);
- The Landowner/Strata Corporation/Body Corporate will appoint the qualified Environmental Consultant to ensure that the EMP is reviewed and updated accordingly (per **Section 1.5**); and
- The Landowner/Strata Corporation/Body Corporate will submit any EMP revisions to the appointed Site Auditor, Council and leaseholders/tenants (per **Section 1.5**).

As the designated site personnel (such as the Site Manager/designee) may change, it is recommended that a separate contact sheet be kept with this EMP that outlines the following key contacts:

- The Site Manager and his/her designee;
- The Landowner/Strata Corporation/Body Corporate;
- The appointed Environmental Consultant;
- The SVVS manufacturer - BGL Nominees Pty Ltd;

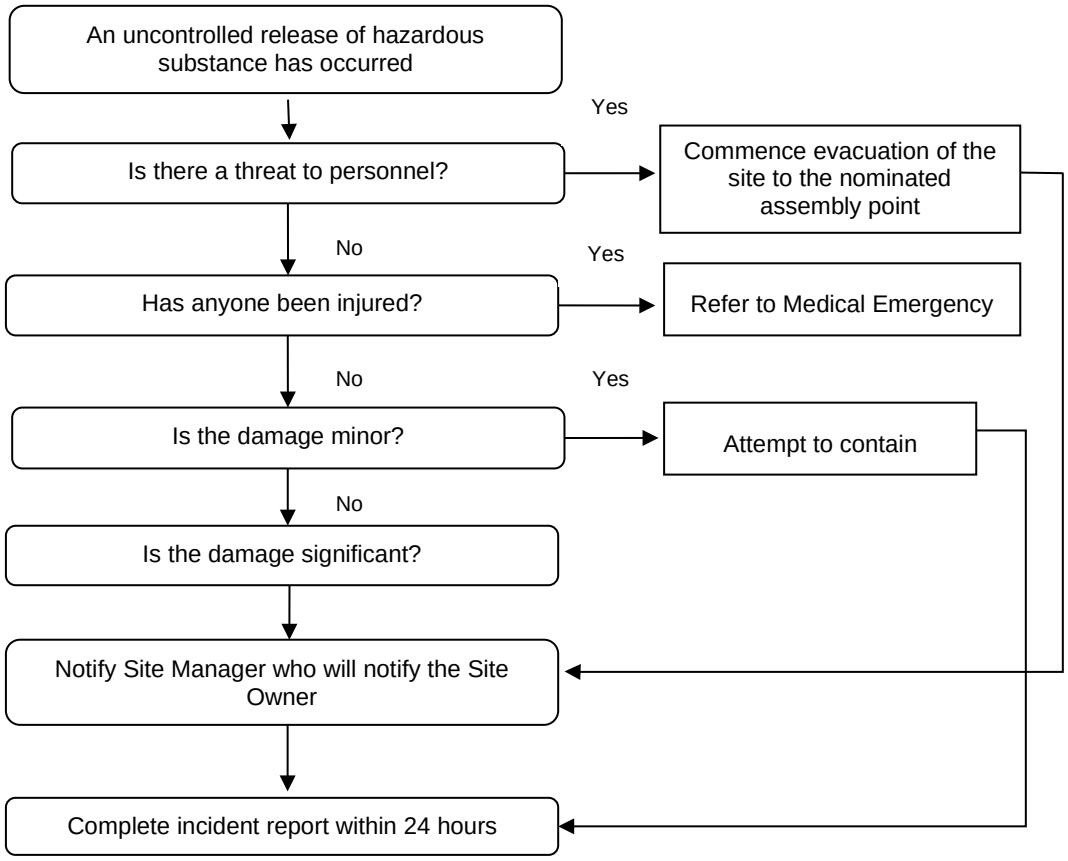
- The appointed building ventilation system maintenance contractor;
- The appointed EPA accredited Site Auditor; and
- Council contact.

The contact sheet must be updated when any of the above key contacts change.

4.2 Environmental Incident

In the event of an environmental incident, the actions outlined in **Figure A** below shall be taken. In the event of a serious environmental incident, local Council and the EPA will be informed.

Figure A: Environmental Incident Flowchart



4.3 Incident Reporting

Site personnel are required to verbally report incidents, accidents and near-misses to their immediate project manager (if applicable) and/or the building Site Manager immediately after an event has occurred. It is the responsibility of the building Site Manager to notify the site owner (Landowner/Strata Corporation/Body Corporate) representative immediately after the occurrence of an environmental incident and to prepare and

forward a completed incident report within 24 hours. The following emergency contacts are provided in the event of an emergency:

Contact	Service	Address	Phone Number
Northern Beaches Hospital	Emergency Department	105 Frenchs Forest Road West, Frenchs Forest 2086	(02) 9105 5000
Hospital Poisons Information Centre	Poisons Information Service	N/A	13 11 26
NSW EPA	Report Pollution	N/A	131 555
Dee Why Police Station	Police	1 Saint David Avenue, Dee Why 2099	(02) 9971 3399
Fire, Ambulance or Police	Dial - 000		

5 References

- *Contaminated Land Management Act 1997*, NSW.
- NSW EPA (2015), *Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act*, Updated September 2015.
- NSW EPA (2017), *Contaminated Sites Guidelines for the NSW Site Auditor Scheme, Third Edition*, October 2017.
- NSW EPA (2020), *Consultants Reporting on Contaminated Land: Contaminated Land Guidelines*, April 2020, updated May 2020.
- NSW EPA (2020), *Guidelines for the Assessment and Management of Hazardous Ground Gases*, NSW EPA, December 2019, amended May 2020.
- NSW EPA (2022), *Practice Note – Preparing Environmental Management Plans for Contaminated Land*, January 2022.
- Paramount Airconditioning (Aust) Pty Ltd, *Mechanical Services Operation and Maintenance Manual for 1250 NBBP Cromer, 4-100 Inman Road, Cromer, NSW, 2099*.
- Protection of the Environment Operations (POEO) Act 1997.
- TRACE Environmental (2022), *Remedial Action Plan Addendum – Soil Vapour Intrusion Management Strategy, 4-8 Inman Road, Cromer, NSW* (Rev0), 24 October 2022.
- TRACE Environmental (2023), *Validation Report – Soil Vapour Intrusion Management Strategy, Northern Beaches Business Park, 4-8 Inman Road, Cromer, NSW*, 11 September 2023.
- Work Health and Safety Act 2011.
- Work Health and Safety Regulation 2017.

6 Limitations

This report has been prepared for EG Funds Management Pty Ltd for the specific purpose to which it refers. No responsibility is accepted to any third party and neither the whole of the report or any part or reference thereto may be published in any document, statement or circular nor in any communication with third parties without our prior written approval of the form and context in which it will appear.

TRACE Environmental has used a degree of skill and care ordinarily exercised by reputable members of our profession practicing in the same or similar locality. The conclusions presented in this report are relevant to the conditions of the site and the state of legislation currently enacted as at the date of this report. We do not make any representation or warranty that the conclusions in this report were applicable in the future as there may be changes in the condition of the site, applicable legislation or other factors that would affect the conclusions contained in this report.

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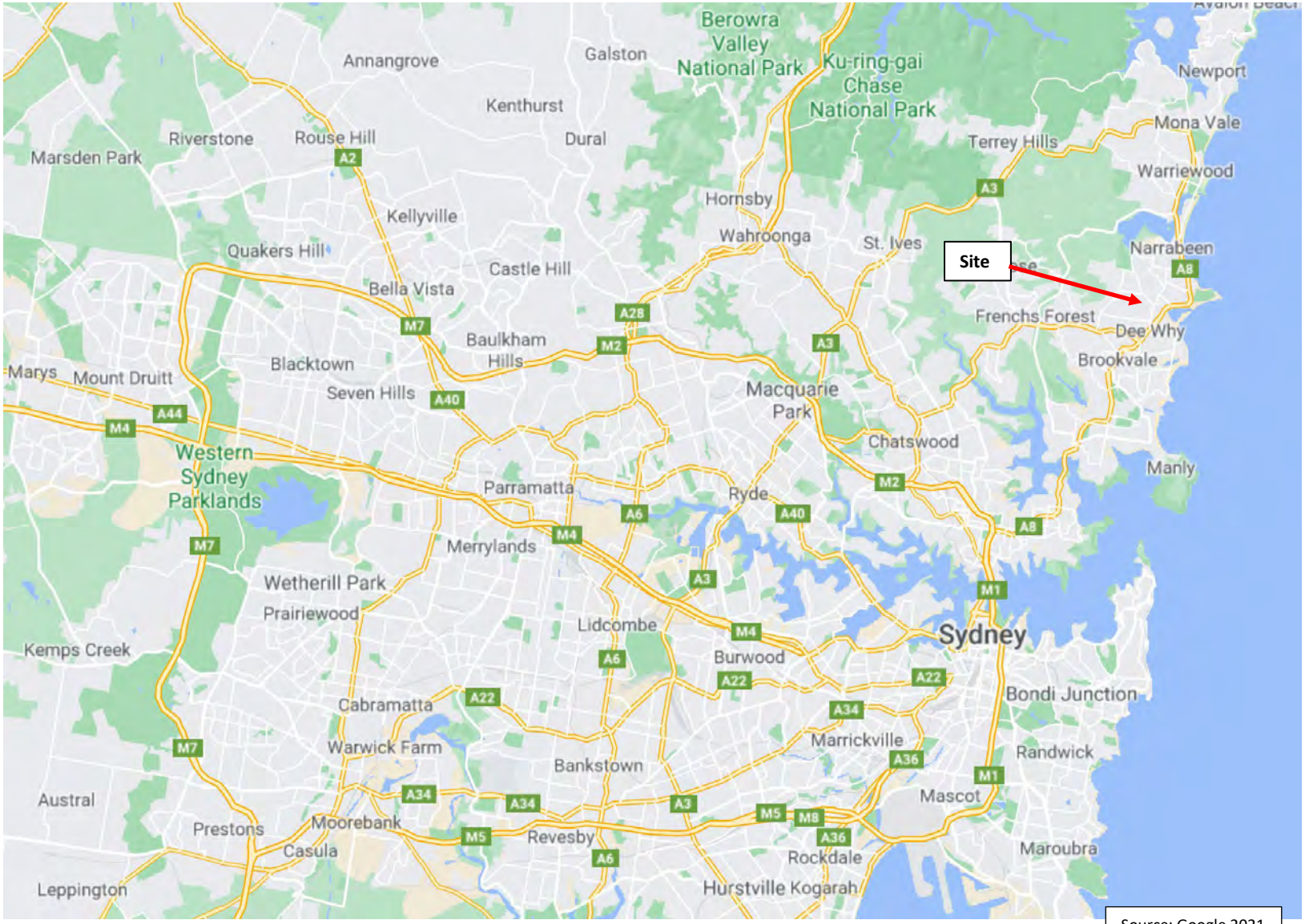
Figures



Source: Google 2021

TRACE ENVIRONMENTAL	Project: **26.01**	Title:	**Locality Plan**
	Figure: **1**	Address:	**4-8 Inman Road, Cromer, NSW**

N

Site Boundary - NBBP
Lot 1 DP1282038

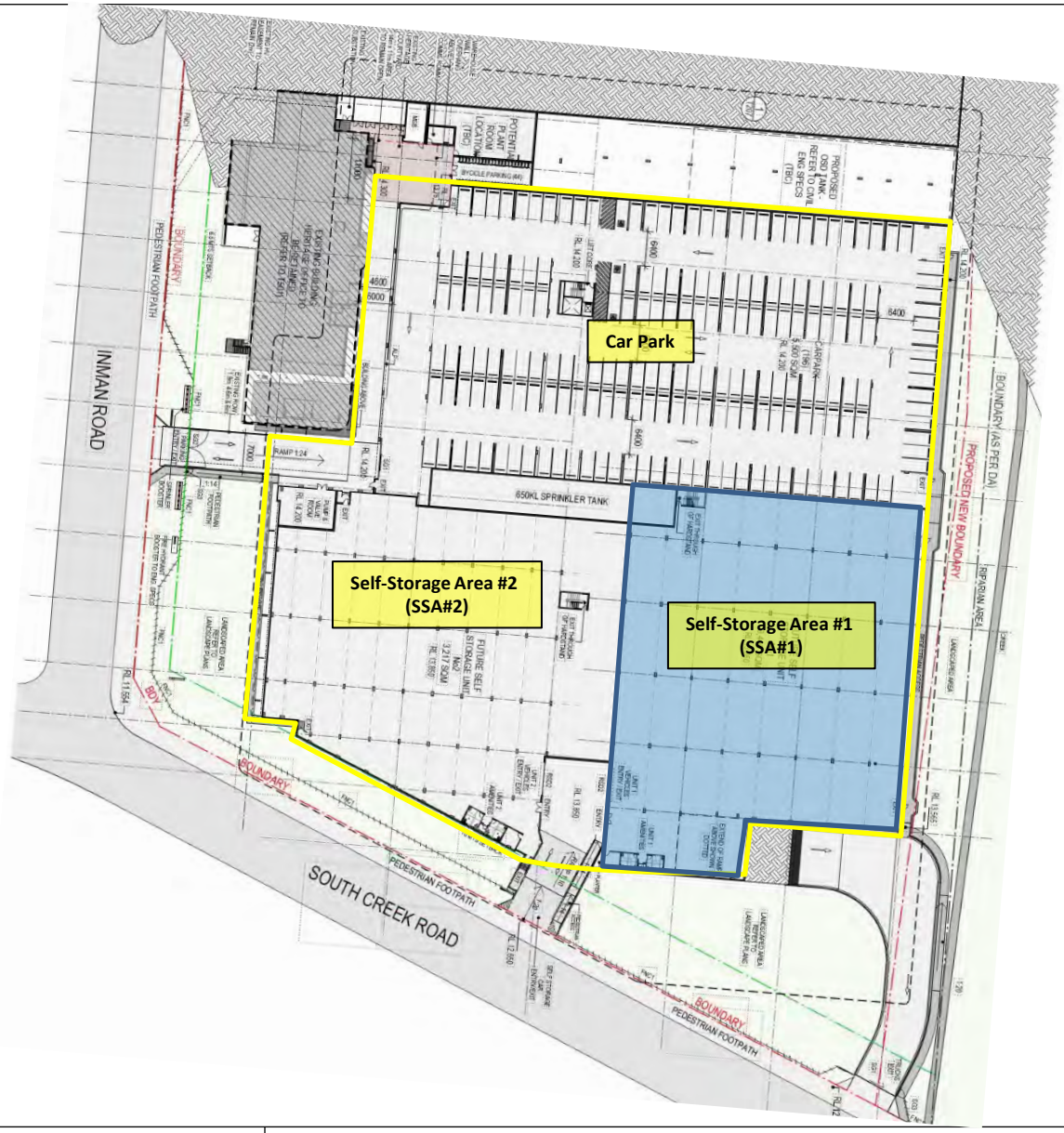
Extent of Basement Area (Area of Site Subject to this EMP):
Self Storage Area #1 (SSA#1,)
Self Storage Area #2 (SSA#2)
and Car Park

20m
(approx.)

Source: Nearmap
Image Date: 26 June 2023

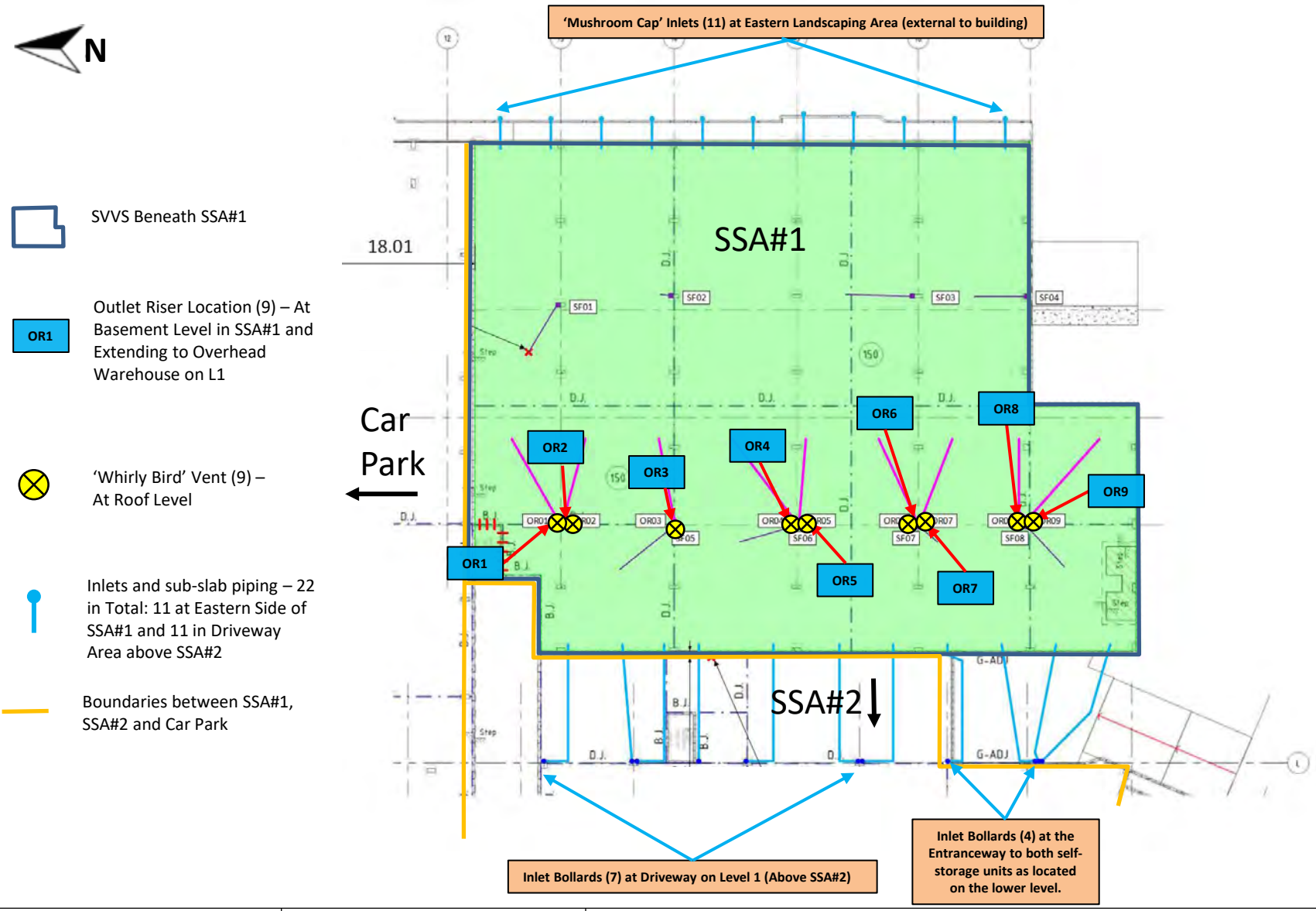
TRACE ENVIRONMENTAL

Project:	**26.01**	Title:	**Site Plan**
Figure:	**2**	Address:	**4-8 Inman Road, Cromer, NSW**



Source: EG

TRACE ENVIRONMENTAL	Project: **26.01**	Title:	**Site Layout – Building Basement Levels (Areas Subject to this EMP)**
	Figure: **3**	Address:	**4-8 Inman Road, Cromer, NSW**



TRACE ENVIRONMENTAL	Project: **26.01**	Title:	**SVVS Components**
	Figure: **4**	Address:	**4-8 Inman Road, Cromer, NSW**

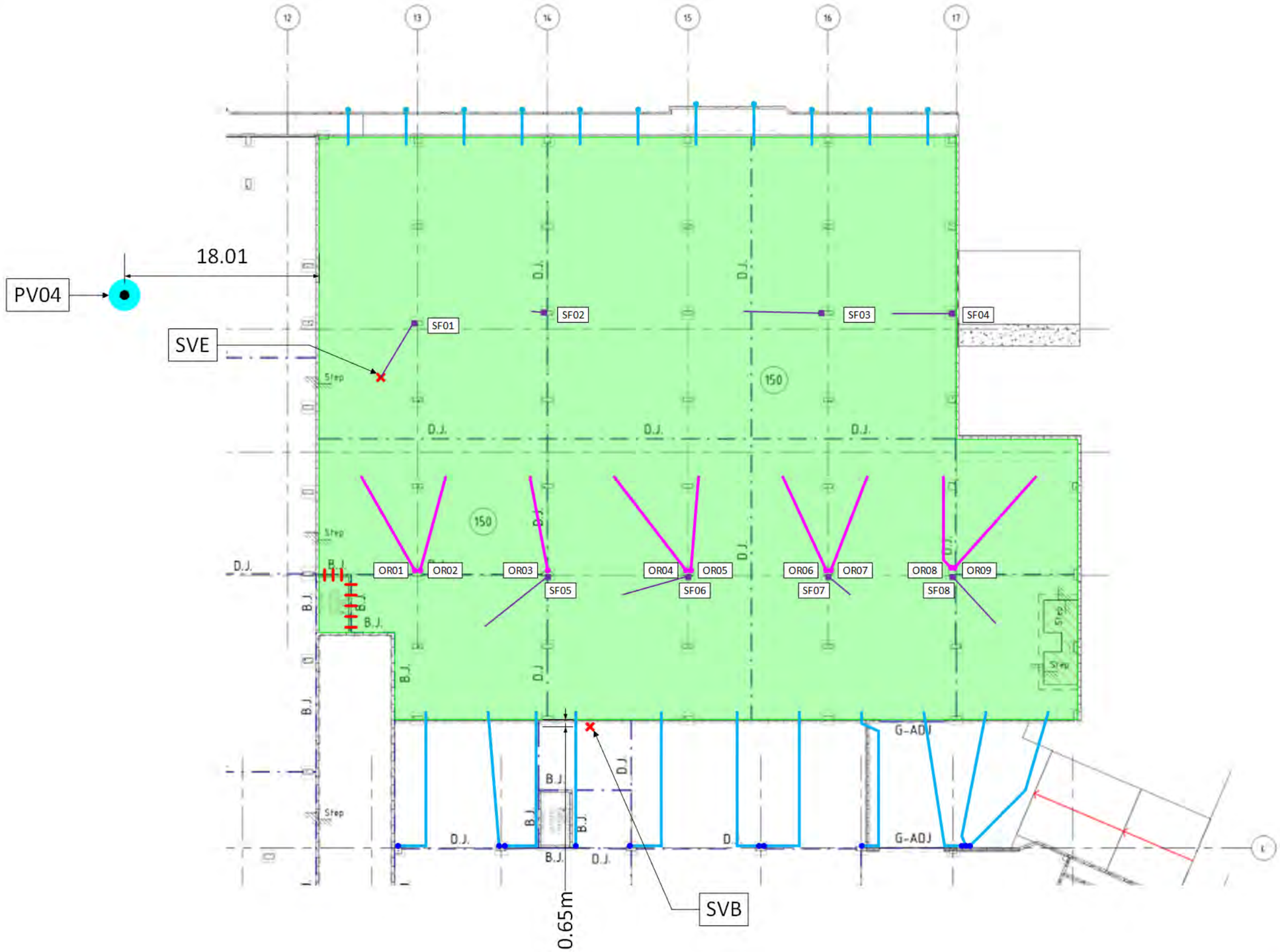
TRACE ENVIRONMENTAL

Appendix A

SVVS

As-Built

Diagrams



AS BUILT DRAWING

REV	DATE	DESCRIPTION	BY	CHECK	DESIGN	VERIFY
1	31.08.23	AS BUILT DRAWING				

SCALES: N.T.S

LEGEND:
- VENTING EXTENT
- 100mm PVC PIPE (SLEEVING THROUGH FOUNDATIONS)
- 150mm INLET BOLLARD (ON OVERLYING DRIVEWAY – EXTERNAL)
- 150mm INLET 'MUSHROOM' (ADJACENT WALKWAY – EXTERNAL)
- 150mm PVC PIPE (PLACED BENEATH THE VENTING LAYER)
- 225mm OUTLET RISER (WITH MONITORING PORT – OR01 TO OR09)
- 225mm PVC PIPE (PLACED BENEATH VENTING LAYER)
- SUBFLOOR MONITORING (¼" LLDPE TUBING – SF01-SF08)
- JUNCTION BOX TERMINATION

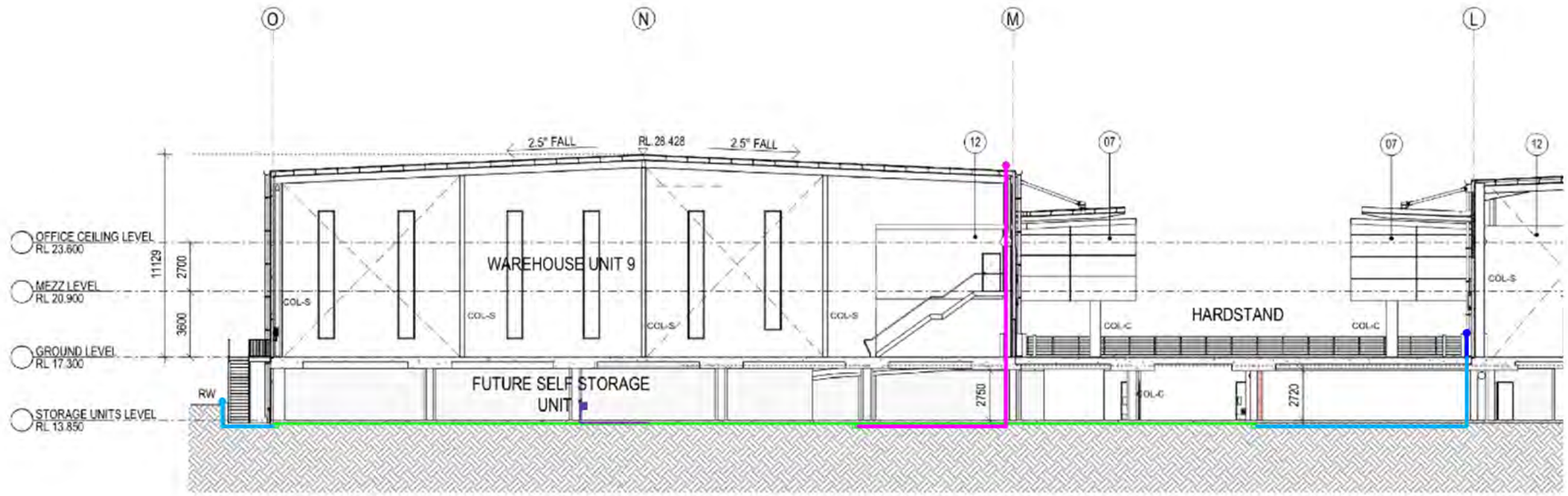
BGL BELOW GROUND LEVEL

PROJECT: 100 SOUTH CREEK ROAD, CROMER

VENTING EXTENT

DRAWING NO.: 0000001

REVISION: 1



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SCALES: N.T.S

LEGEND:
- VENTING EXTENT
- 100mm PVC PIPE (SLEEVING THROUGH FOUNDATIONS)
- 150mm INLET BOLLARD (ON OVERLYING DRIVEWAY – EXTERNAL)
- 150mm INLET 'MUSHROOM' (ADJACENT WALKWAY – EXTERNAL)
- 150mm PVC PIPE (PLACED BENEATH THE VENTING LAYER)
- 225mm OUTLET RISER (WITH MONITORING PORT – OR01 TO OR09)
- 225mm PVC PIPE (PLACED BENEATH VENTING LAYER)
- SUBFLOOR MONITORING (¼" LLDPE TUBING – SF01-SF08)
- JUNCTION BOX TERMINATION

BGL
BELOW GROUND LEVEL

PROJECT: 100 SOUTH CREEK ROAD, CROMER

VENTING EXTENT - SECTION

DRAWING NO.: 0000002

REVISION: 1

N

Boundary of Regulated Area

SVA Soil Vapour Well (TRACE Environmental 2021)

Indicative Extent of Sub-Slab Venting (approx. 4,000-5,000m²)
TRACE RAP FIGURE 5

EXTENT OF SUB SLAB VENTING

AS BUILT DRAWING

REV	DATE	DESCRIPTION	BY	CHECK	DESIGN	VERIFY
1	31.08.23	AS BUILT DRAWING				

SCALES: N.T.S

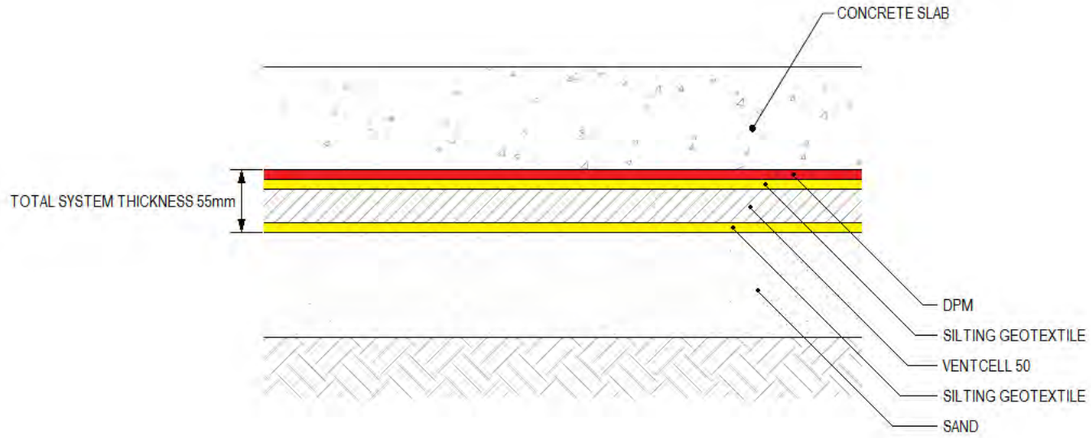
BGL BELOW GROUND LEVEL

PROJECT: 100 SOUTH CREEK ROAD, CROMER

VENTING EXTENT

DRAWING NO.: 0000003

REVISION: 1



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1	31.08.23	AS BUILT DRAWING				

SCALES: N.T.S

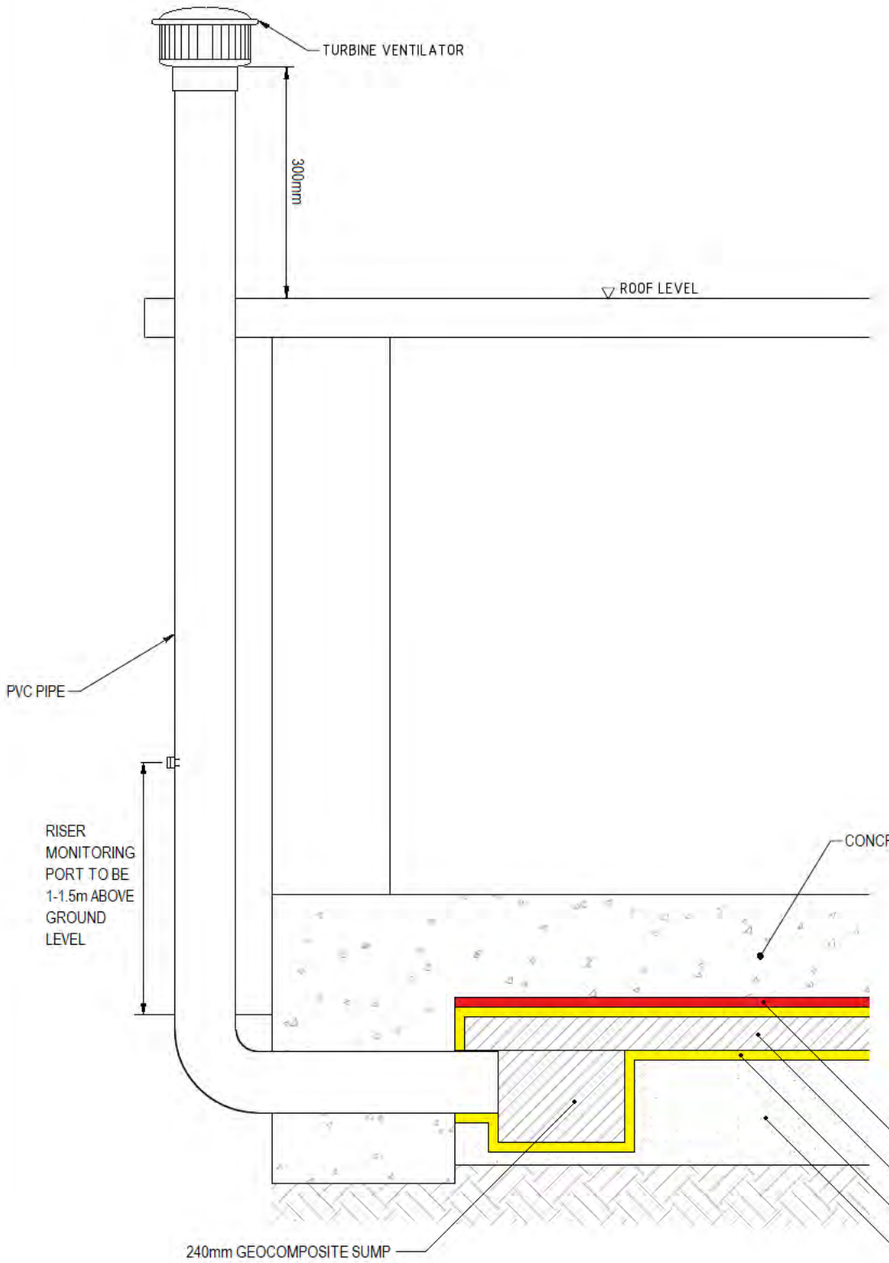
BGL BELOW GROUND LEVEL

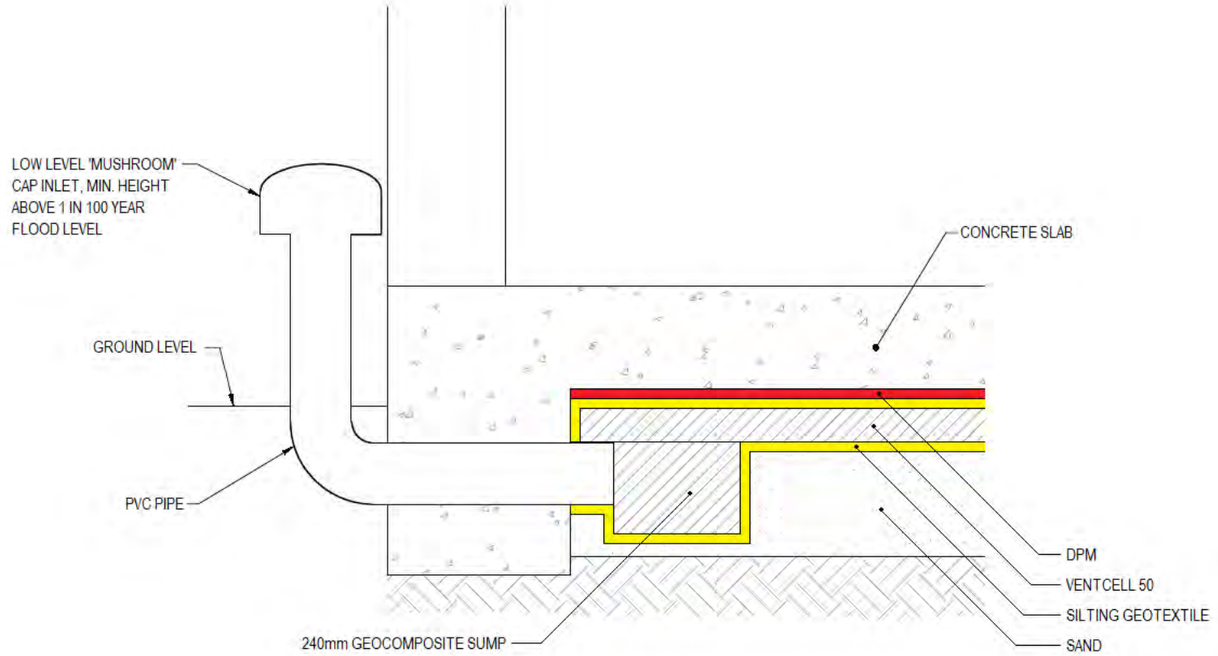
PROJECT: 100 SOUTH CREEK ROAD, CROMER

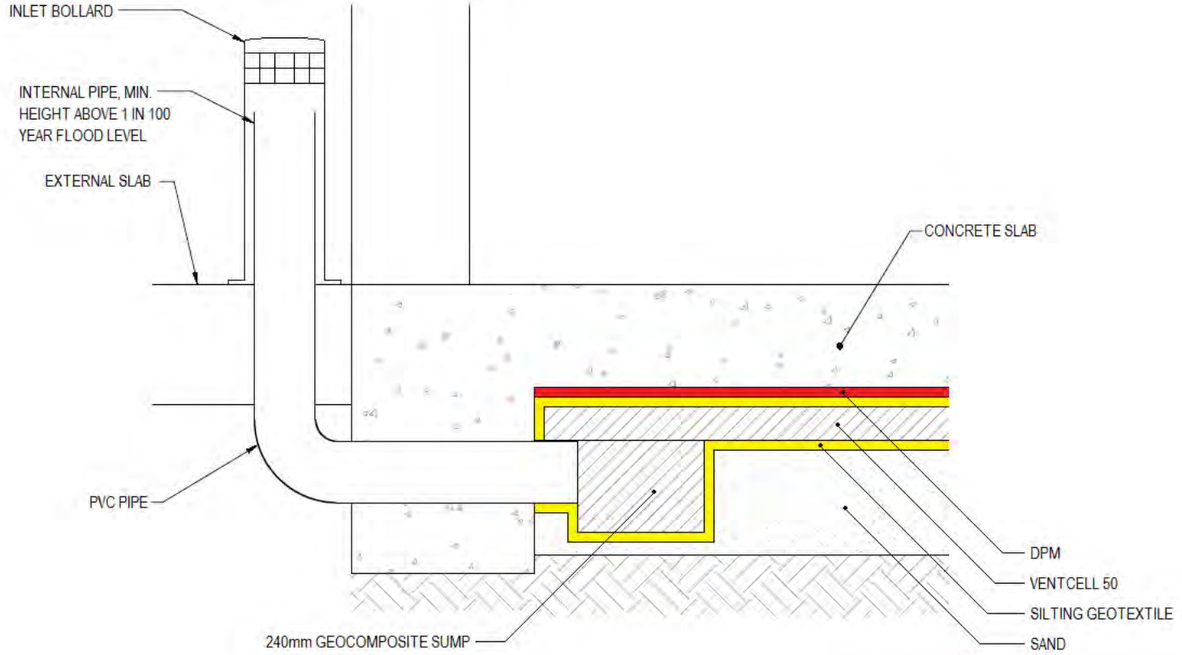
CROSS SECTION

DRAWING NO.: 0003000

REVISION: 1







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SCALES: N.T.S

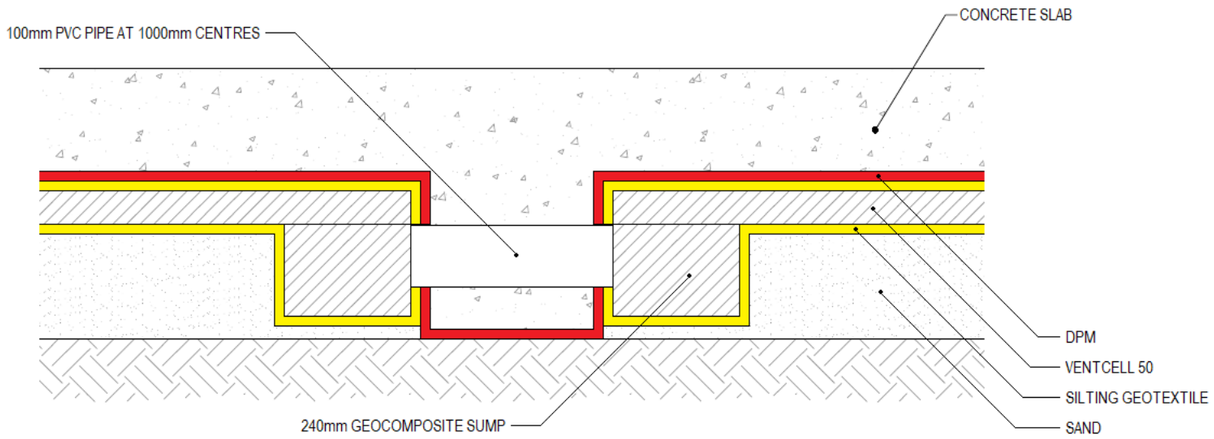
BGL BELOW GROUND LEVEL

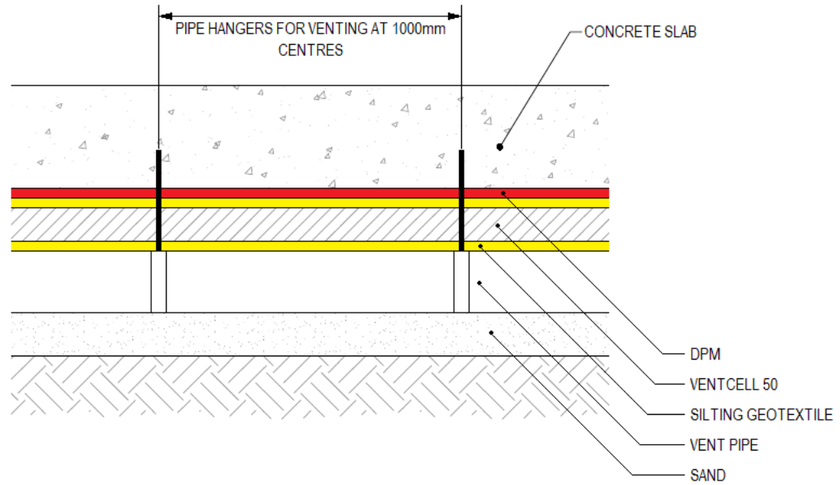
PROJECT: 100 SOUTH CREEK ROAD, CROMER

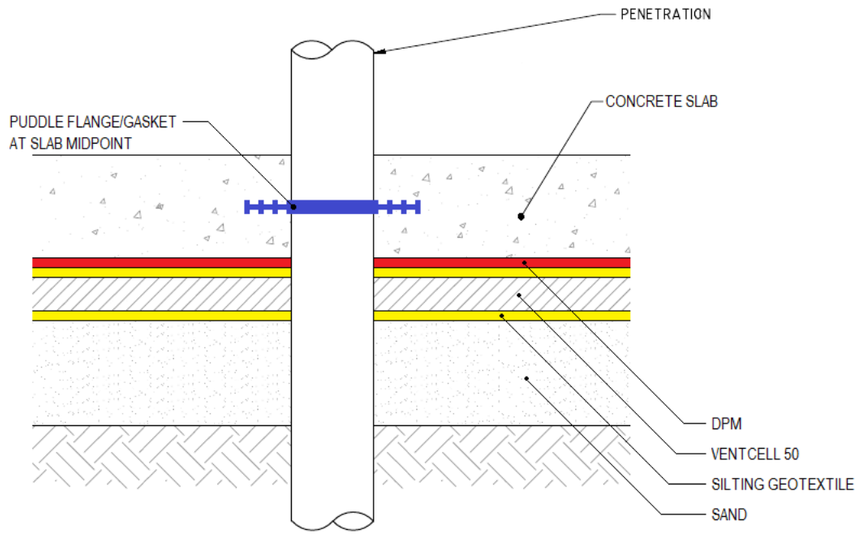
INLETS & OUTLETS

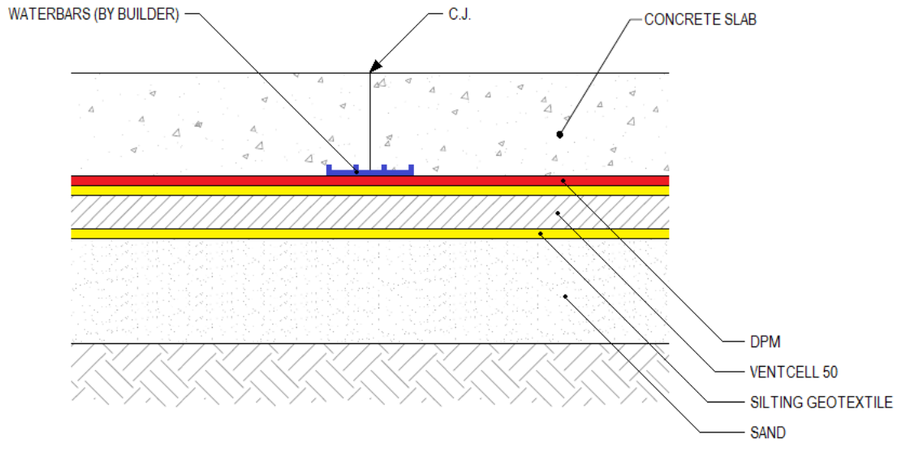
DRAWING NO.: 0003150

REVISION: 1









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SCALES: N.T.S

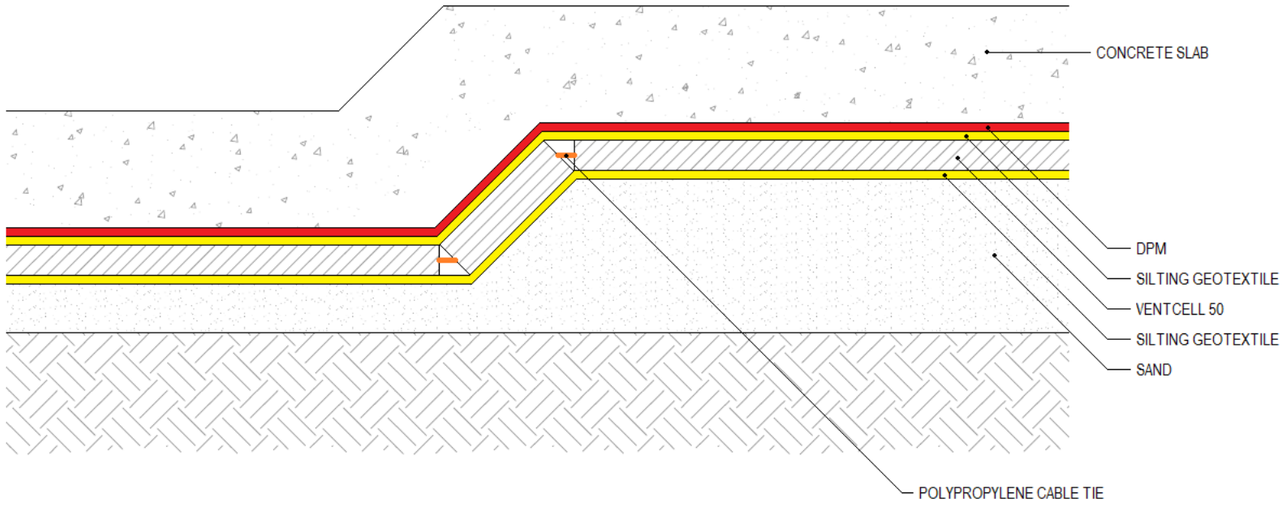
BGL BELOW GROUND LEVEL

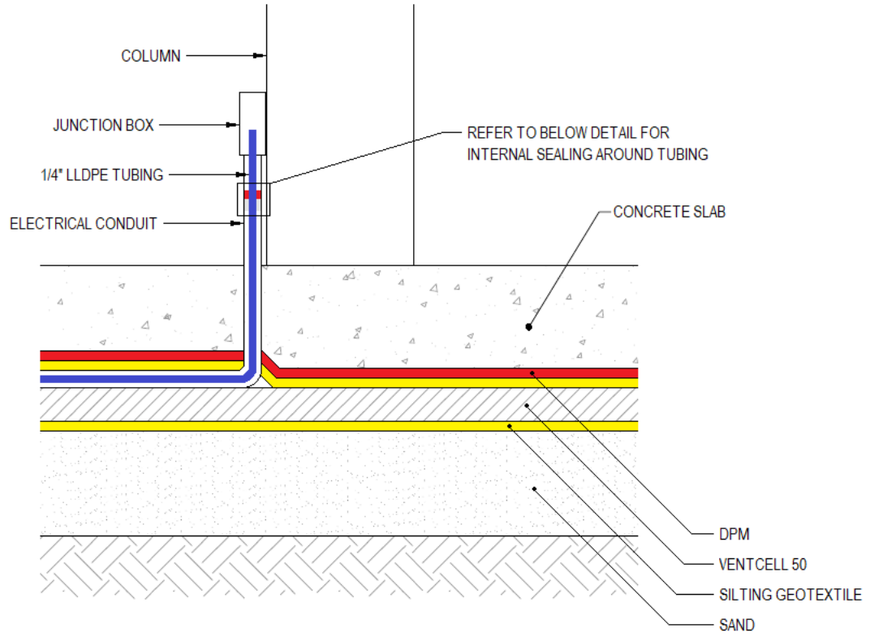
PROJECT: 100 SOUTH CREEK ROAD, CROMER

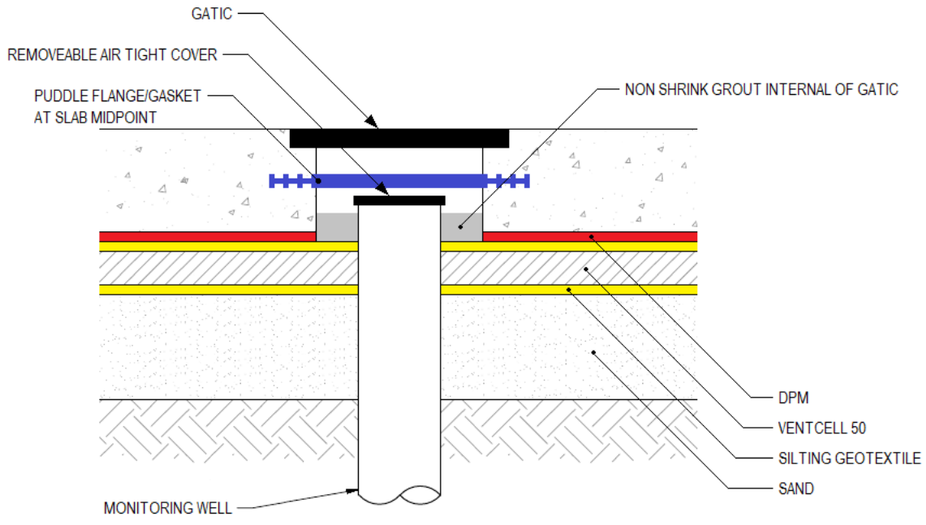
DETAILING SHEET 1

DRAWING NO.: 0003160

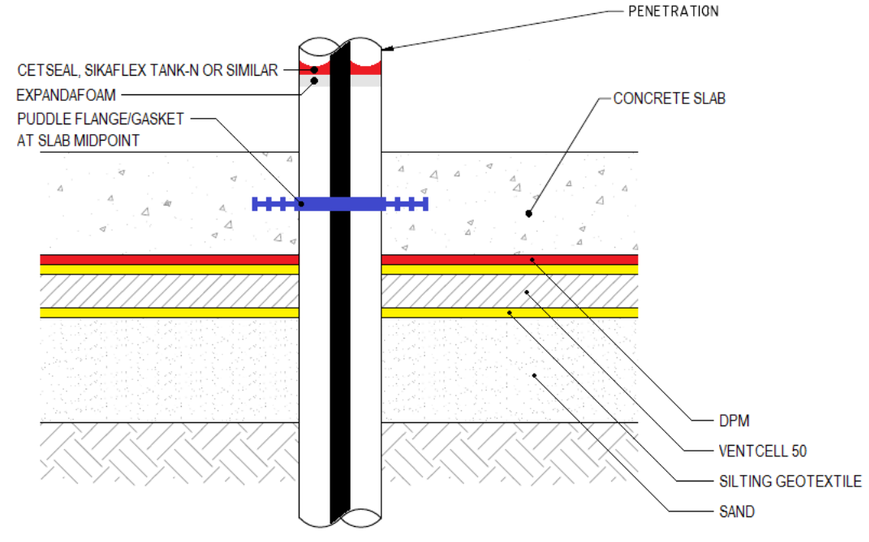
REVISION: 1







NOTE:
INSTALLATION OF PENETRATION, GATIC COVER, AND PUDDLE FLANGE COMPLETED AND WITNESSED BY BGL.
RCC/TRACE TO INSTALL NON SHRINK GROUT AND REMOVEABLE AIR TIGHT COVER.



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REV	DATE	DESCRIPTION	BY	CHECK	DESIGN	VERIFY
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SCALES: N.T.S

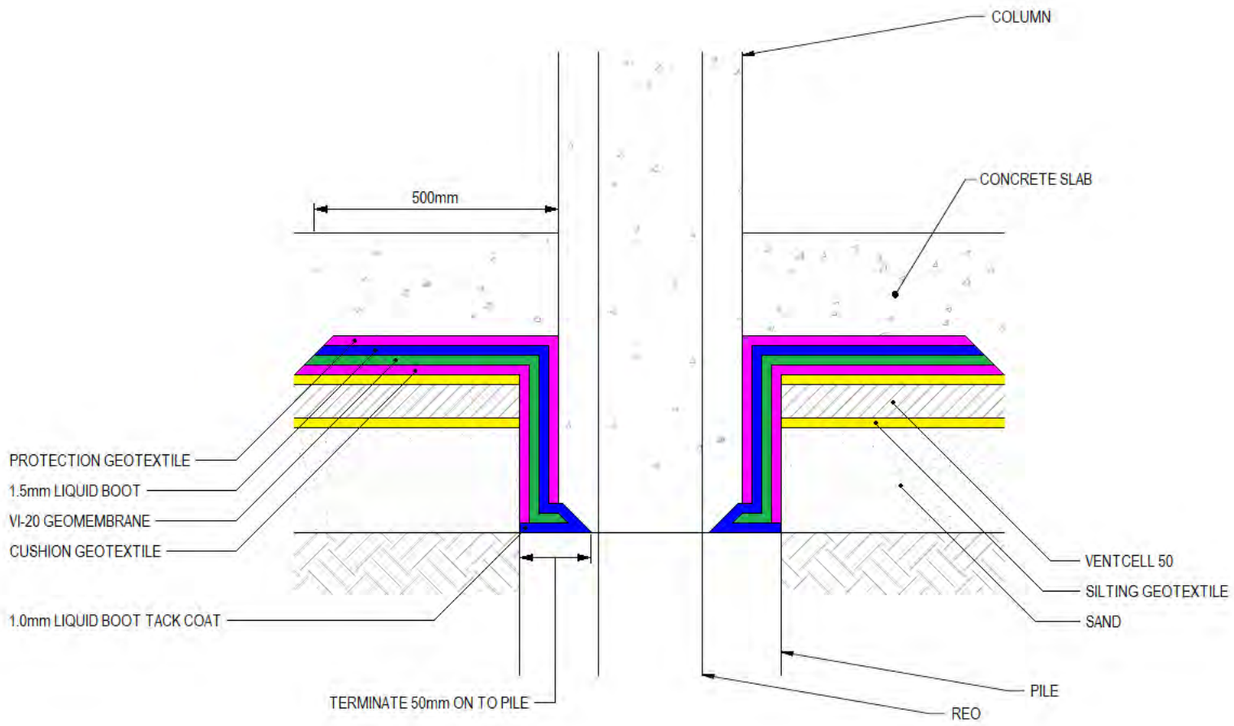
BGL BELOW GROUND LEVEL

PROJECT: 100 SOUTH CREEK ROAD, CROMER

DETAILING SHEET 2

DRAWING NO.: 0003161

REVISION: 1



AS BUILT DRAWING

REV	DATE	DESCRIPTION	BY	CHECK	DESIGN	VERIFY
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SCALES: N.T.S

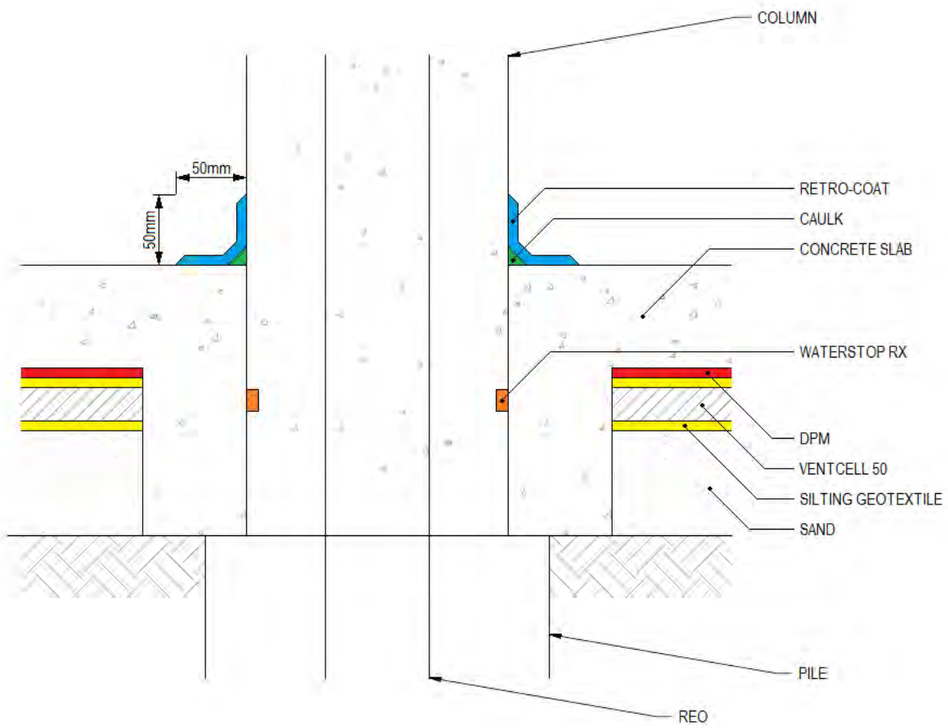
BGL BELOW GROUND LEVEL

PROJECT: 100 SOUTH CREEK ROAD, CROMER

COLUMN DETAILING

DRAWING NO.: 0003164

REVISION: 1



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REV	DATE	DESCRIPTION	BY	CHECK	DESIGN	VERIFY
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SCALES: N.T.S

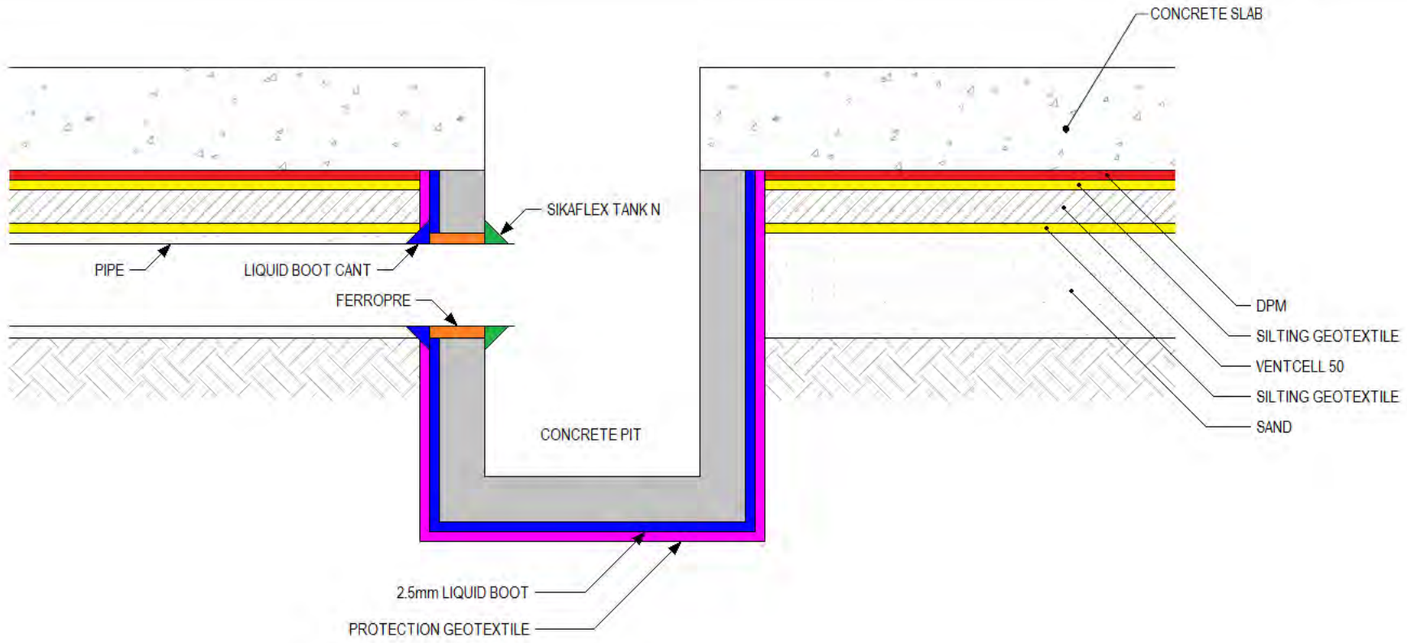
BGL BELOW GROUND LEVEL

PROJECT: 100 SOUTH CREEK ROAD, CROMER

COLUMN DETAILING

DRAWING NO.: 0003166

REVISION: 1



AS BUILT DRAWING

REV	DATE	DESCRIPTION	BY	CHECK	DESIGN	VERIFY
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SCALES: N.T.S

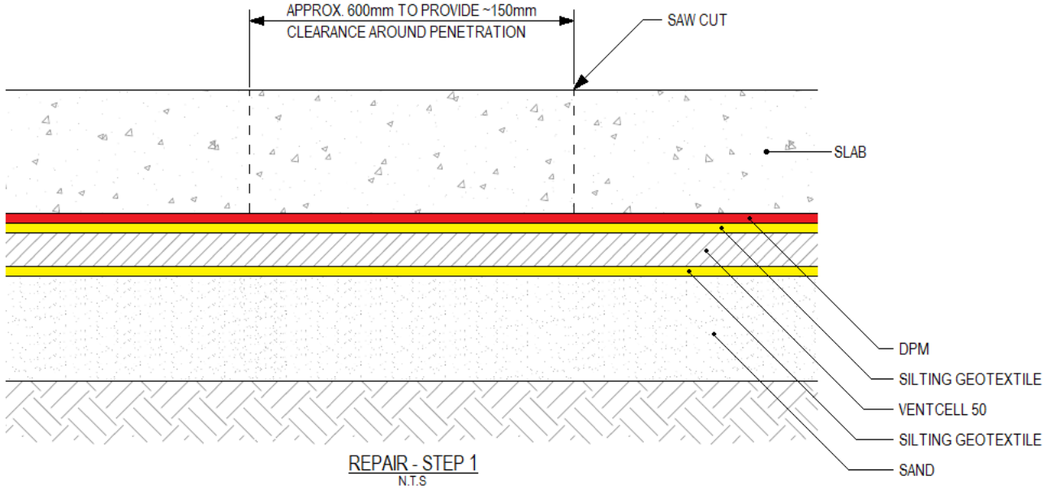
BGL BELOW GROUND LEVEL

PROJECT: 100 SOUTH CREEK ROAD, CROMER

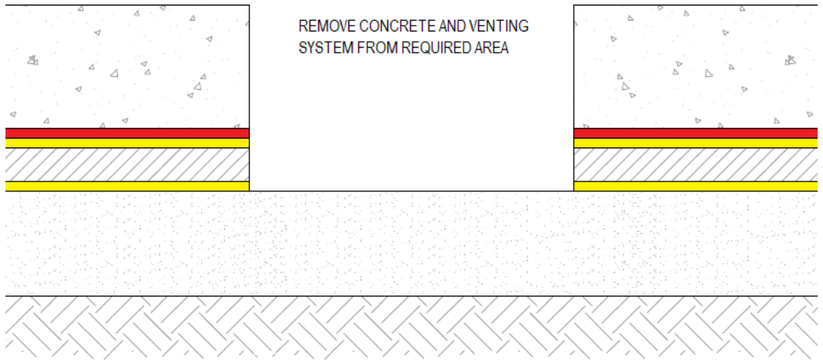
PIT DETAILING

DRAWING NO.: 0003200

REVISION: 1



REPAIR - STEP 1
N.T.S



REPAIR - STEP 2
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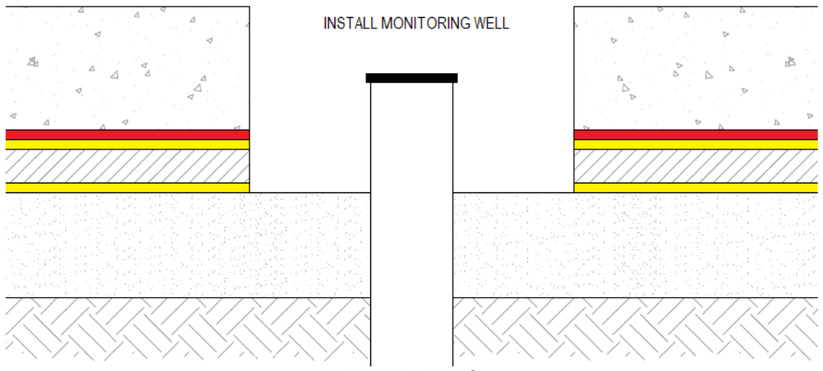
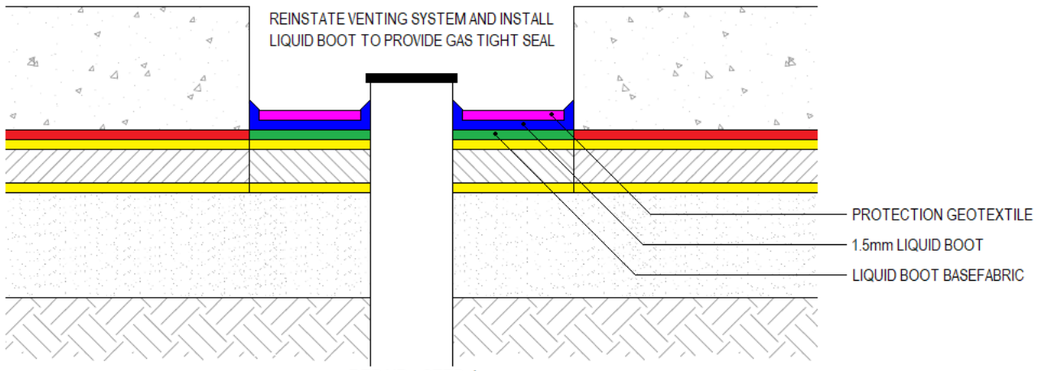
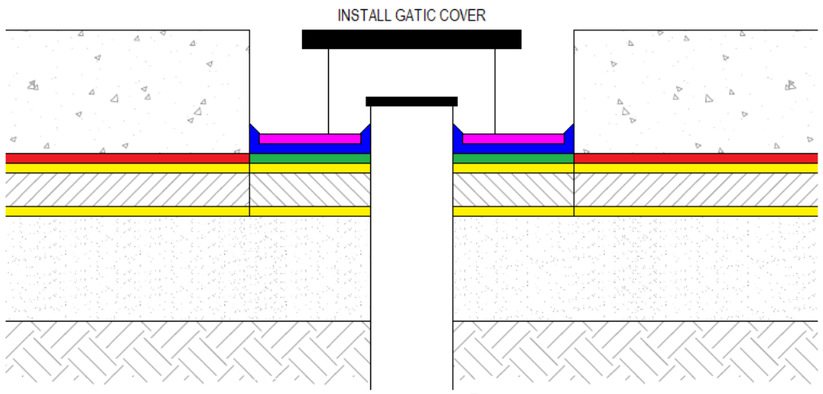


REPAIR - STEP 3
N.T.S



REPAIR - STEP 4
N.T.S



REPAIR - STEP 5
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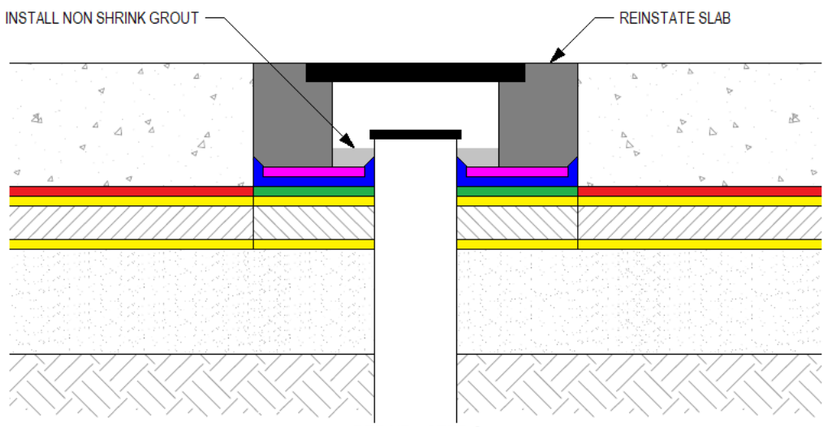


REPAIR - STEP 6
N.T.S

CONSTRUCTION ISSUE

REV	DATE	DESCRIPTION	BY	CHECK	DESIGN	VERIFY
1	31.08.23	CONSTRUCTION ISSUE				

SCALES: N.T.S

BGL BELOW GROUND LEVEL

PROJECT: 100 SOUTH CREEK ROAD, CROMER

FUTURE MONITORING WELL INSTALLATION AND REPAIR DETAIL

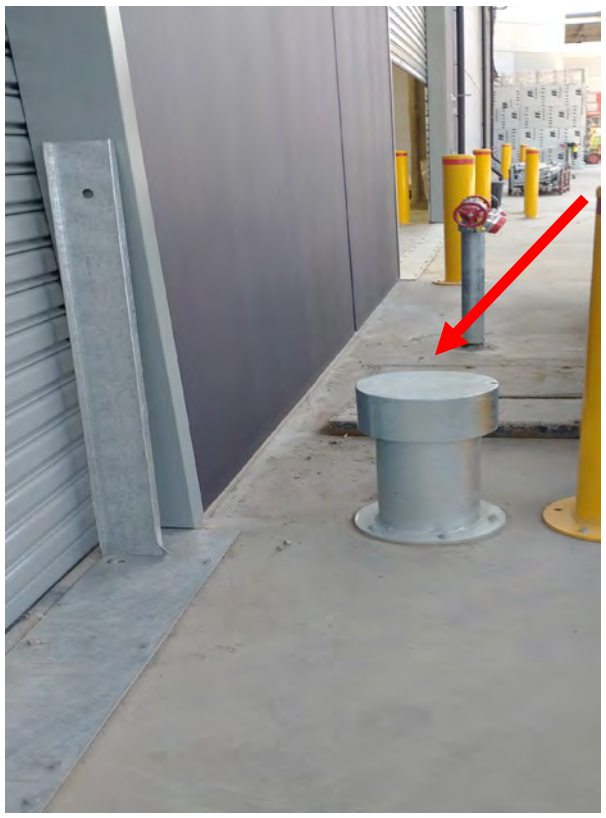
DRAWING NO.: 0003900

REVISION: 1

Appendix B

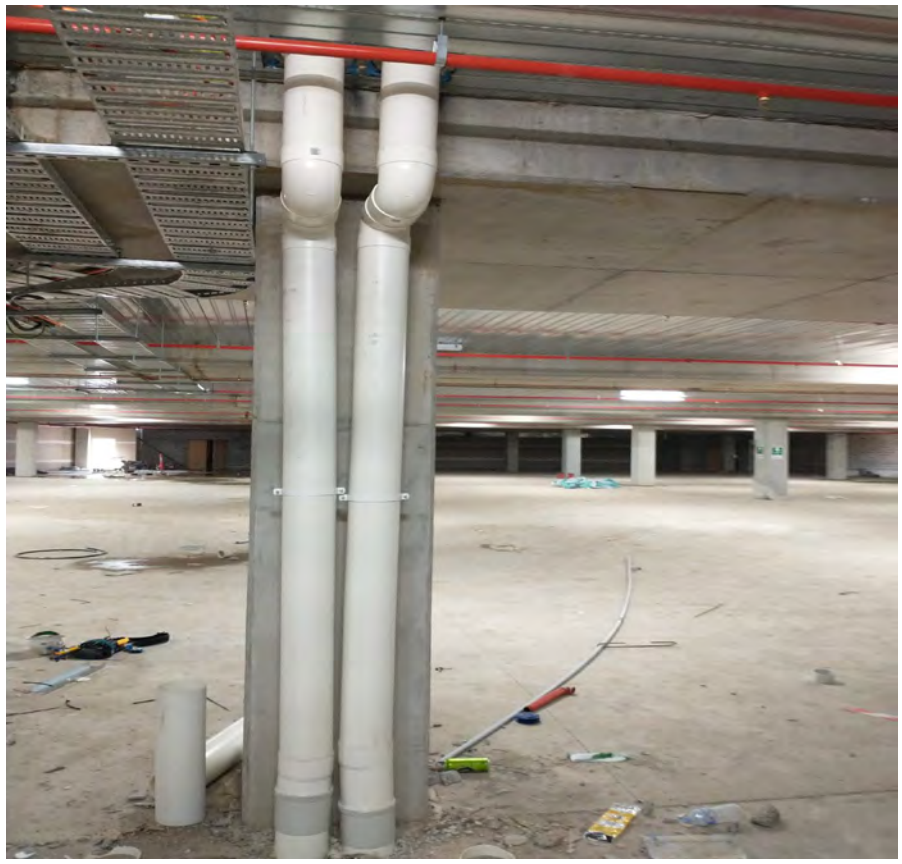
Photographs

Photograph 1 (facing south-east): View of warehouse and driveway areas on Level 1. Note whirlybird ventilators for the SVVS outlet risers visible at the roof level.



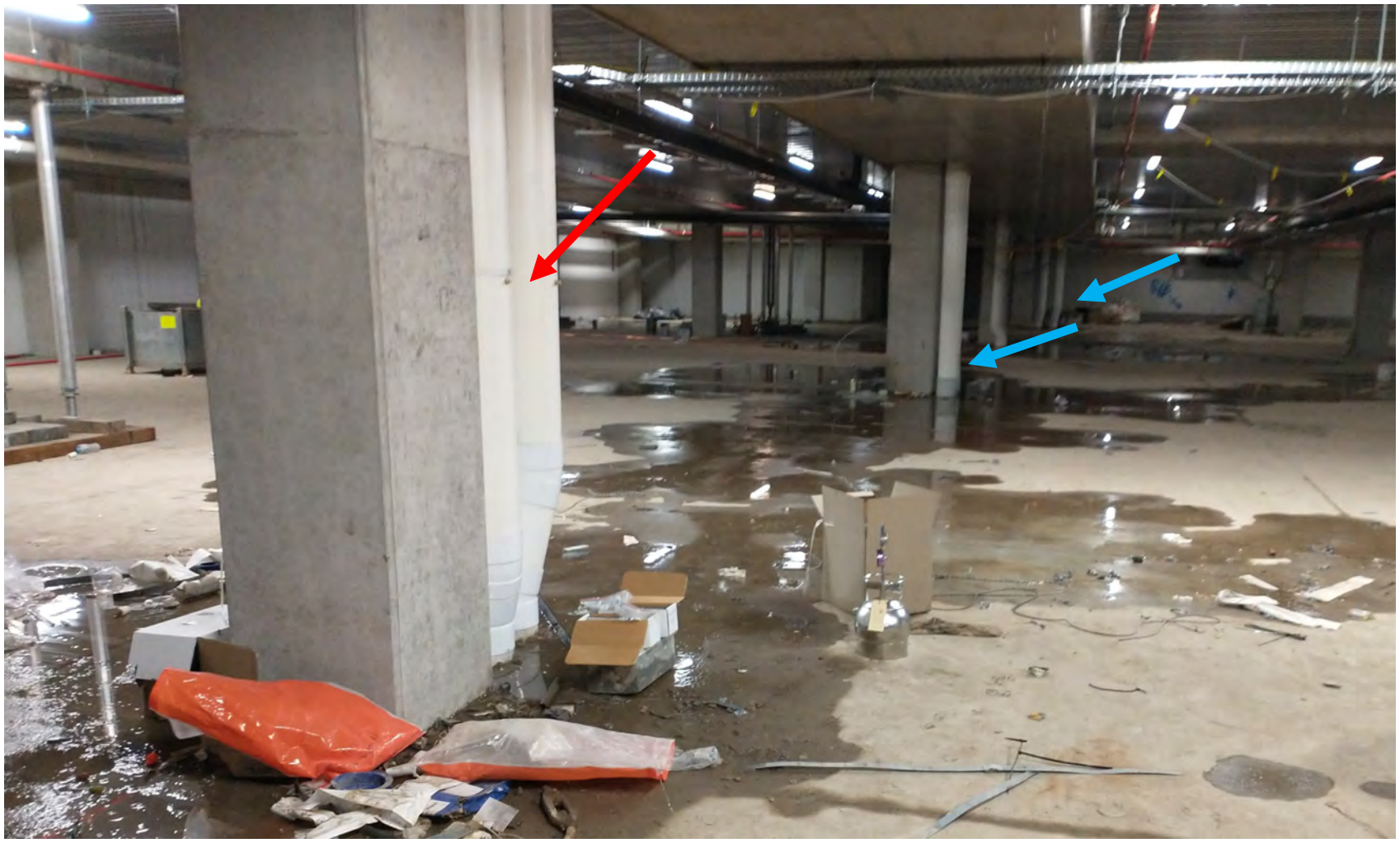
Photograph 2: View of one of seven air inlet bollards (red arrow) at the driveway area above SSA#2 on Level 1.

Photograph 3: View of three of four air inlet bollards (red arrow) at the entrance driveway on the lower level to the self-storage areas.

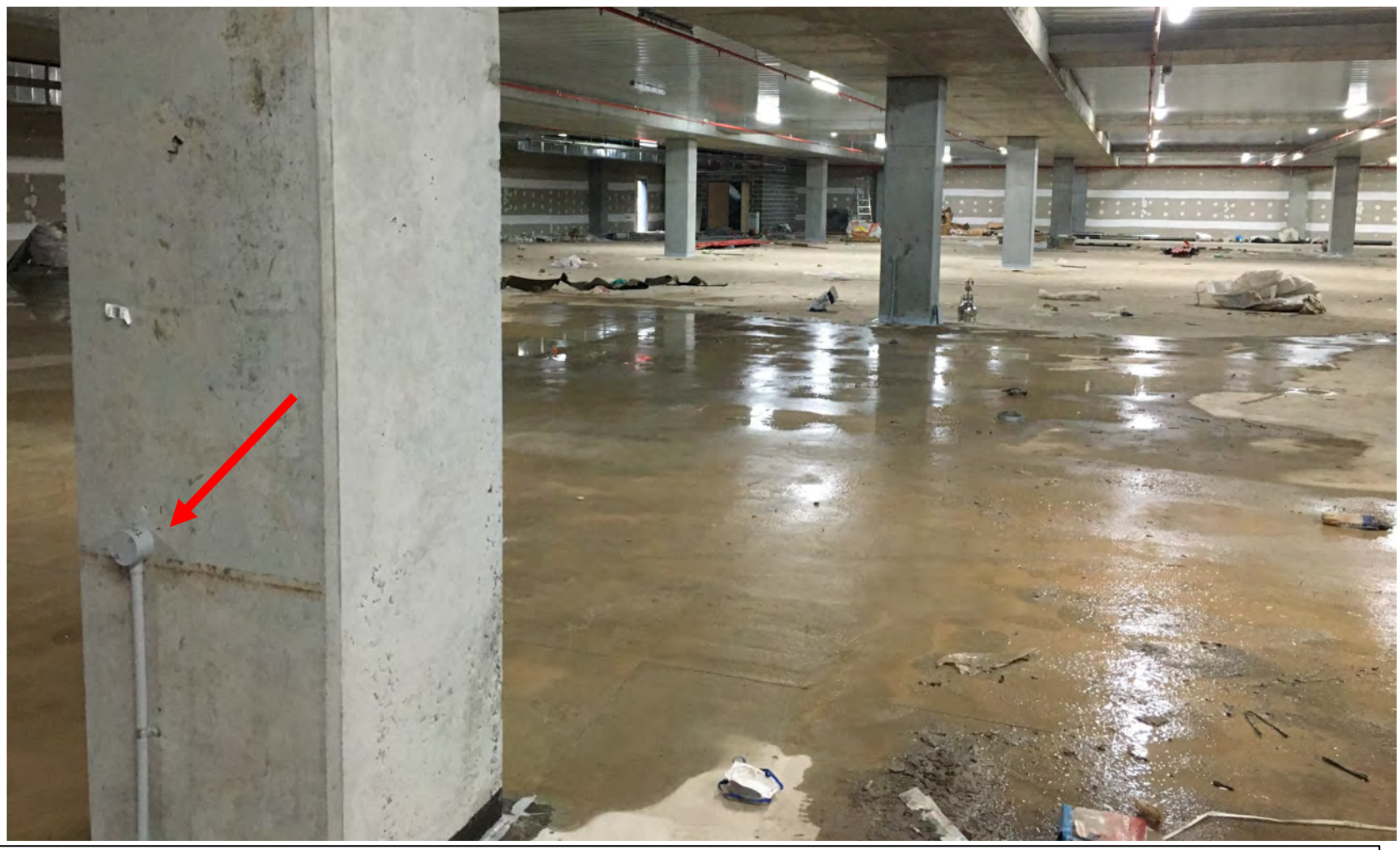


Photograph 4 (facing west): View within SSA#2 of two air inlet pipes from the driveway area above SSA#2. These pipes extend below the floor and continue east to the SVVS beneath SSA#1.

Photograph 5 (facing north): View of a typical 'mushroom cap' inlet pipe (red arrow) east of SSA#1. 11 caps are located along the eastern side of SSA#1.



Photograph 6: View of typical outlet risers at SSA#1. Note brass riser sampling ports (red arrow). Additional outlet risers visible in the background (blue arrows).

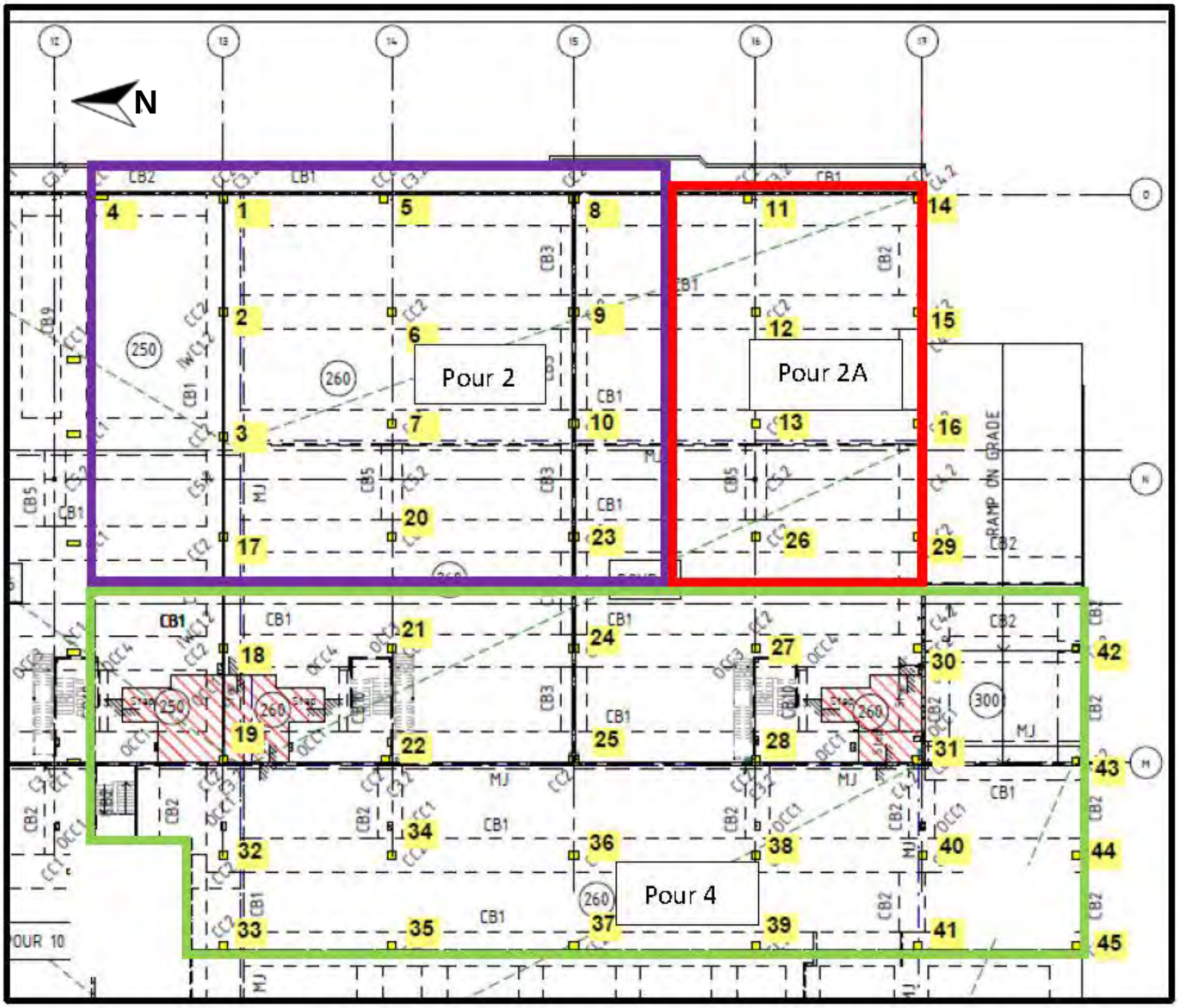


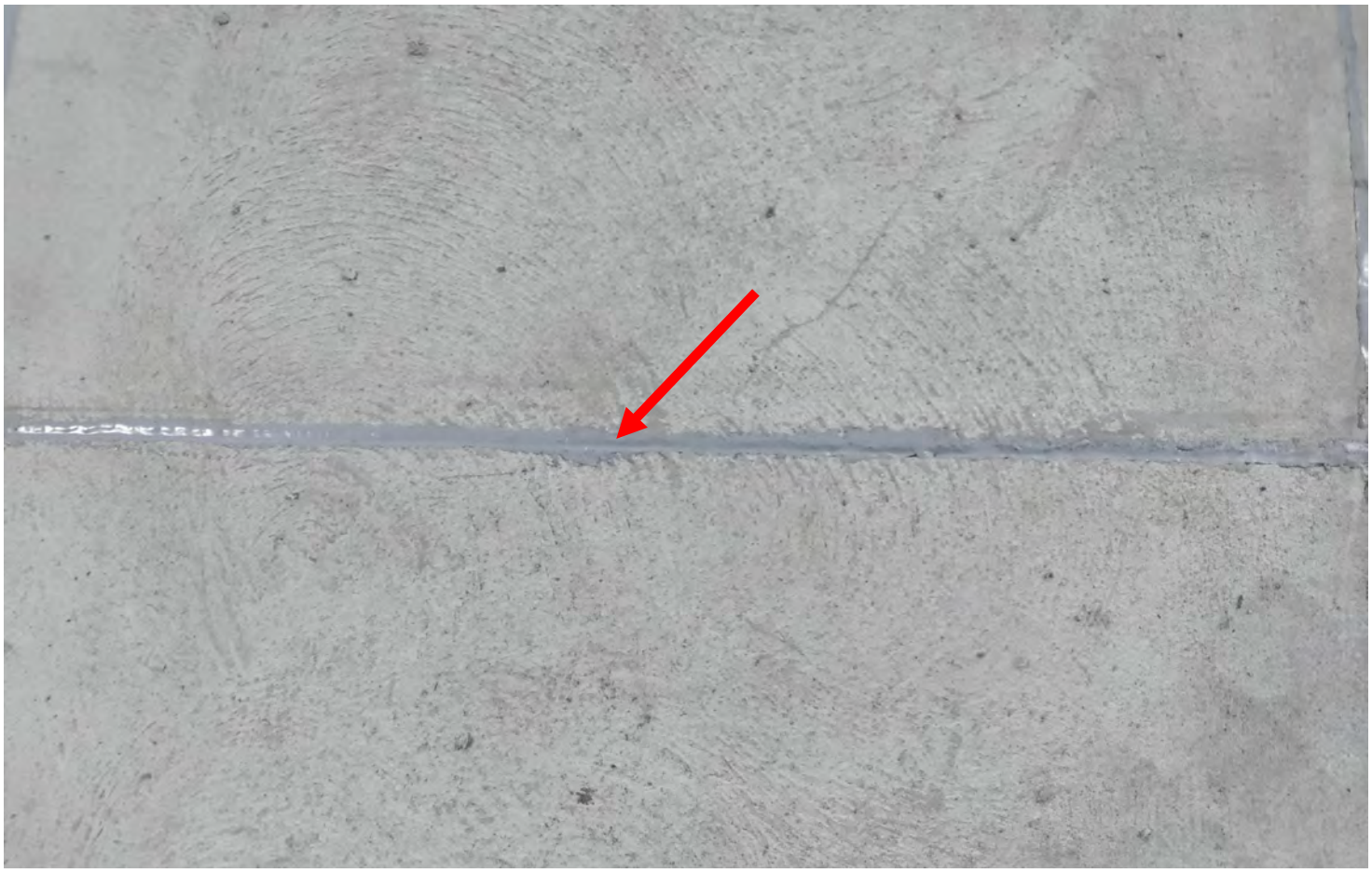
Photograph 7: View of a typical sub-slab vapour sampling point (red arrow) at SSA#1 comprising a junction box with tubing as originating from beneath the concrete slab.

Photograph 8: View of typical brass sampling ports (red arrows) at the outlet risers (locations OR-1 and OR-2 shown).

Photograph 9: View of grey 'Retrocoat' topcoat at the base of columns at the eastern half of SSA#1. Retrocoat should provide a complete seal extending approximately 10cm up the column to approximately 10cm out from the column on the concrete floor. No cracks or evidence of shrinkage should be observed.

The column Retrocoat applies to the columns at the eastern half of SSA#1 ('Pour 2' and 'Pour 2A') as shown on the diagram below (Columns 1-17, 20, 23, 26 and 29)





Photograph 10: View of typical caulking seam (red arrow) between expansion joints of the concrete floor and along the north wall at SSA#1. No cracks or evidence of shrinkage should be observed.

Photograph 11: View of typical monitoring well gatic cover. The cover should make a seal when bolted down.

Photograph 12: View of typical orange expandable monitoring well plug (blue arrow) and grout seal (red arrow). The grout seal is required for all monitoring wells installed at SSA#1.

Appendix C

Building Inspection Form

Building Inspection Form

Long-Term Environmental Management Plan (LTEMP) –
Northern Beaches Business Park - Self-Storage Areas and Car Park
4-8 Inman Road, Cromer, NSW

Inspection Date: _____

Inspector Name: _____ **Position & Company:**_____

Signature: _____

Inspections to be conducted <u>monthly</u>. Includes Self-Storage Area #1 (SSA#1), Self-Storage Area #2 (SSA#2) and the Car Park.

Observation	Yes/No (Circle One)	Required Action
All areas - are cracks visible in the concrete? This includes areas around foundation pillars and walls.	Yes No	If YES - contact the Site Manager to arrange repairs of the concrete. The appointed Environmental Consultant will also need to inspect area and provide recommendations. NO WORKS ARE TO BE CONDUCTED WITHOUT FIRST CONSULTING THE APPOINTED ENVIRONMENTAL CONSULTANT.
Slabs and penetrations within SSA#1 – seal integrity: • Is there evidence of cracking or shrinking of the grey caulking between the concrete slab joints (i.e., are gaps visible)? • Is there evidence of cracking or shrinking of the grey 'Retrocoat' topcoat at the base of columns at the eastern half of SSA#1?	Yes No	If YES to any of the items - contact the Site Manager to arrange repairs. The appointed Environmental Consultant will also need to inspect area and provide recommendations.
Monitoring wells (all areas) – is there evidence of damage: • Well/gatic covers not properly in place and/or not bolted down? • Is the orange airtight well cap missing or broken? • Evidence of cracking or broken seals around the well/gatic cover or immediate area? • (SSA#1 monitoring wells only): Does the non-shrink grout at the base of the monitoring well gatic appear cracked or dried out and not providing a seal?	Yes No	If YES to any of the items - contact the Site Manager who will contact the appointed Environmental Consultant to inspect area and provide recommendations and/or arrange for repairs.
SVVS inspections (per components shown on **Figure 4** of this EMP): • Do the 'whirlybird' vents (**9** at the roof level) appear to be damaged or non-functional (i.e., not rotating)? • Do any air inlets (**11** along east wall of SSA#1, **7** in the central driveway area above SSA#2 and **4** at the entrance to the self-storage units) appear damaged or blocked? • Do the PVC outlet risers (**9** internal at SSA#1 and extending to the warehouse on L1) appear damaged or cracked? Includes inspections at the basement level <u>and</u> at the warehouse level on L1.	Yes No	If YES to any of the items - contact the Site Manager to arrange for investigation and repairs by qualified technicians. The appointed Environmental Consultant will also need to be consulted and provide recommendations.

Building Inspection Form

Long-Term Environmental Management Plan (LTEMP) –
Northern Beaches Business Park - Self-Storage Areas and Car Park
4-8 Inman Road, Cromer, NSW

Observation	Yes/No (Circle One)	Required Action
All areas – is there evidence of chemical odours, spills of chemicals on the ground surface or other unexpected finds?	Yes No	If YES - contact the Site Manager to investigate. The appointed Environmental Consultant may also need to inspect area and provide recommendations.
All areas – is there evidence of groundwater infiltration or water ponding on the ground surface?	Yes No	If YES - contact the Site Manager to inspect and determine potential source of water. The appointed Environmental Consultant may also need to inspect area and provide recommendations.
Is there evidence that the building ventilation system is not operating to manufacturer's specifications (not operating/no air flow etc.)? Building ventilation system checks should include: • Checking for undue noise and/or vibration of equipment; • Check for any faults or alarms; • Check operation/rotation of visible fan motors; • Check for damage to any ductwork or insulation; • Check for signs of oil leaks associated with compressors; • Check for any visible loose wires.	Yes No	If YES - contact the Site Manager to arrange for investigation and repairs by qualified technicians. The appointed Environmental Consultant will also need to be consulted and provide recommendations

If 'Yes' to any of the above, the Site Manager is complete 'Required Actions' on Page 3 of this form. The Site Manager will also be responsible to immediately notify the Landowner/Strata Corporation/Body Corporate of the actions requiring attention.

Additional Observations (attach photographs if necessary): _____

_____

_____

_____

_____

_____

_____

_____

Building Inspection Form

Long-Term Environmental Management Plan (LTEMP) –
Northern Beaches Business Park - Self-Storage Areas and Car Park
4-8 Inman Road, Cromer, NSW

Required Actions (to be undertaken by Site Manager):

_____

_____

_____

_____

_____

_____

_____

Repair Date:_____

Contractor Name & Company (if applicable):_____

Repairs Completed (please detail):

_____

_____

_____

_____

_____

_____

_____

Site Manager Name: _____

Signature: _____

Date: _____

Completed inspection forms to be kept on file with the EMP.

Appendix D

Soil Vapour and Ambient Air SAQP

TRACE ENVIRONMENTAL

Sampling and Analysis Quality Plan

Soil Vapour and Ambient Air Monitoring

Northern Beaches Business Park

4-8 Inman Road, Cromer, NSW

15 September 2023

Sampling and Analysis Quality Plan - Soil Vapour and Ambient Air Monitoring

Northern Beaches Business Park, 4-8 Inman Road, Cromer, NSW

Prepared for:
EG Funds Management Pty Ltd

Revision	Date	Author	Approver	Issued
Draft	6 September 2023	KH	AK	6 September 2023
Draft Rev1	6 September 2023	KH	AK	6 September 2023
Draft Rev2	14 September 2023	KH	AK	14 September 2023
Rev0	15 September 2023	KH	AK	15 September 2023

Author	Approved
Ken Henderson Principal Environmental Scientist B.Sc. (Hons Geology) EIANZ CEnvP (SC) #SC40922	Andrew Kita Principal Engineer B.Eng. (Geol., Hons.)

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Disclaimer:	THIS DOCUMENT IS SUBJECT TO LIMITATIONS NOTED

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Figures

1 Introduction

1.1 Background

This Sampling and Analysis Quality Plan (SAQP) has been prepared to outline methodologies and procedures to be undertaken during ongoing soil vapour and ambient air monitoring for the Northern Beaches Business Park (NBBP) property located at 4-8 Inman Road, Cromer, NSW, Lot 1 in DP1220196 ('the site'). A Locality Plan is presented in **Figure 1** and a Site Plan showing the site layout is presented in **Figure 2**.

Groundwater at the southern portion of the site has been impacted by trichloroethene (TCE). The NBBP building has been constructed over the known impacted groundwater plume, and ongoing management is required to address the potential vapour inhalation (VI) risks from the residual groundwater plume to building users.

The required management strategy was outlined in a Remedial Action Plan (RAP) Addendum prepared by TRACE Environmental in 2022[1], and the management strategy was implemented in 2023 as documented in a separate Validation Report[2]. This included the construction and operation of a sub-slab soil vapour venting system (SVVS) to prevent accumulation of residual vapours beneath the reinforced concrete ground-bearing floor slab. As part of the ongoing management strategy, a Long-Term Environmental Management Plan (EMP)[3] has been prepared that outlines the requirements for the management of soil vapour impacts.

Ongoing monitoring of the ambient air within the basement structure of the building (and at strategic outdoor locations) and within the sub-slab void are required to assess the long-term effectiveness of these management requirements. Ongoing monitoring will also allow additional future decisions to be made, including whether decisions can be made on the requirement to continue with maintaining the SVVS. The appointed Environmental Consultant will be responsible for undertaking the required monitoring.

This SAQP has been prepared in general accordance with the NSW EPA (2020) *Consultants Reporting on Contaminated Land: Contaminated Land Guidelines* and in consideration of the requirements of the TRACE Environmental (2023b) EMP.

1.2 Objective

The objective of the ongoing monitoring is to obtain soil vapour data to assess the effectiveness of the soil vapour management strategy. The SAQP provides sufficient detail to ensure that the ongoing soil vapour assessments and reporting will be completed in general accordance with guidelines endorsed by NSW EPA and the requirements of the EMP.

[1] TRACE Environmental (2022), *Remedial Action Plan Addendum – Soil Vapour Intrusion Management Strategy, 4-8 Inman Road, Cromer, NSW* (Rev0), 24 October 2022.
[2] TRACE Environmental (2023a), *Validation Report – Soil Vapour Intrusion Management Strategy, 4-8 Inman Road, Cromer, NSW*, draft dated 11 September 2023.
[3] TRACE Environmental (2023b) *Long-Term Environmental Management Plan, Soil Vapour Intrusion Management, 4-8 Inman Road, Cromer, NSW,* 15 September 2023.

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2 Site Description and Scope of Work

2.1 Site Description and Setting

Details of the site are included in **Table 2-1**, below.

Table 2-1: Summary of Site Identification Details

ID Element	Description
Site Address	4-8 Inman Road, Cromer, NSW
Lot/DP	Lot 1 in DP1220196
Local Council	Northern Beaches Council
Site Coordinates	33°44'19.9"S 151°17'13.8"E
Zoning	IN1 General Industrial
Approximate Site Elevation	15-30m Australian Height Datum (AHD)
Approximate Site Area	36,630m²

The portions of the site building applicable to this SAQP includes the following areas (refer to **Figure 3**):

- Two self-storage unit areas: Self-Storage Area #1 (SSA#1) at the south-eastern portion of the basement and Self-Storage Area #2 (SSA#2) at the south-western portion of the basement; and
- A car park area at the northern portion of the basement.

Ongoing monitoring associated with the SVVS comprises the following:

- Monitoring ports (eight) associated with a sub-slab void installed beneath the entirety of SSA#1 (**Figure 4**). These locations assess the vapour conditions beneath the building;
- Monitoring ports (brass ports in outlet risers) associated with outlet risers that extend to the roof of the building (**Figure 4**). These locations assess the vapour conditions as air is ventilated from the sub-slab void;
- Assessment of indoor ambient air, which comprises assessment of the ambient air within SSA#1, SSA#2 and the car park as shown on **Figure 5**; and
- Assessment of outdoor ambient air, which comprises assessment of the ambient air east, south and west of the building as shown on **Figure 5**.

2.2 Scope of Work

The ongoing monitoring comprises soil vapour sampling associated with the following:

- Sampling from the areas noted above (sub-slab monitoring ports, outlet riser monitoring ports; indoor ambient air within SSA#1, SSA #2 and the car park and outdoor ambient air);

- Samples will be collected using evacuated canisters. Samples will be submitted to a National Association of Testing Authorities, Australia (NATA) accredited laboratory for analysis of volatile organic compounds (VOCs) by US EPA Method TO-15;
- Completion of a field QA/QC program in accordance with NEPM requirements including analysis of duplicate and triplicate soil vapour samples; and
- Preparation of a *Soil Vapour and Ambient Air Monitoring Report*, presenting the results.

Details of the sampling are outlined below in **Section 5**.

3 Statutory and Regulatory Framework

The following Acts, Codes, Regulations and Australian Standards shall be the minimum applicable to the work if necessary.

- *Contaminated Land Management Act 1997*, NSW;
- CIRIA (2014) *C735 – Good Practice on the Testing and Verification of Protection Systems for Buildings Against Hazardous Ground Gases*;
- CRC CARE (2011), *Technical Report No. 10 Health Screening Levels for Petroleum Hydrocarbons in Soil and Groundwater Part 1: Technical Development Document* and *Part 2: Application Document*, September 2011;
- CRC Care (2013), *Technical Report No. 23 Petroleum Hydrocarbon Vapour Intrusion Assessment: Australian Guidance*, July 2013;
- Davis, GB, Wright, J & Patterson, BM 2009, *Field assessment of vapours*, CRC CARE Technical Report no. 13, CRC for Contamination Assessment and Remediation of the Environment, Adelaide, Australia;
- National Environment Protection Council (NEPC), National Environment Protection (*Assessment of Site Contamination*) Measure (NEPM), 1999, Amendment 2013;
- NSW EPA (2010), *Vapour Intrusion: Technical Practice Note,* September 2010;
- NSW EPA (2015), *Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act*, Updated September 2015;
- NSW EPA (2016), *Approved Methods for Modelling and Assessment of Air Pollutants in NSW*, November 2016 (Published January 2017);
- NSW EPA (2017), *Contaminated Sites Guidelines for the NSW Site Auditor Scheme, Third Edition*, October 2017;
- NSW EPA (2020a), *Consultants Reporting on Contaminated Land: Contaminated Land Guidelines*, April 2020, updated May 2020;
- NSW EPA (2020b), *Guidelines for the Assessment and Management of Hazardous Ground Gases*, NSW EPA, December 2019, amended May 2020; and
- NSW EPA (2022), *Contaminated Land Guidelines, Sampling Design Part 1 – Application and Contaminated Land Guidelines, Sampling Design Part 2 - Interpretation*, August 2022.

4 Conceptual Site Model

The environmental risk assessment is based on a contaminant (source) - exposure pathway - receptor methodology. This relationship allows an assessment of potential environmental risk to be determined, in accordance with the current national guidelines. Central to the requirements for the assessment of risk is the development of an initial CSM, identifying each contaminant source and the associated receptor exposures.

Generally, a CSM provides an assessment of the fate and transport of contaminants of potential concern (COPCs) relative to site-specific subsurface conditions with regard to their potential risk to human health and the environment. The CSM considers site specific factors including:

- Sources of subsurface impacts;
- Identification of COPCs derived from the sources;
- Vertical and lateral distribution of COPCs including presence of light non-aqueous phase liquid (LNAPL) and dense non-aqueous phase liquid (DNAPL) where groundwater is investigated;
- Site specific lithologic information including soil type(s), depth to groundwater, effective porosity, and groundwater flow velocity; and
- Actual or potential receptors focusing on future and current land use both of the site and adjacent properties and sensitive ecological receptors.

Based on the information sourced from the previous assessments (as discussed above in **Section 1**), a CSM has been developed and is outlined in **Table 4-1**, below. Additional details are included in the sections that follow as necessary. This CSM relates only to TCE and associated VI issues, and not to issues associated other potentially contaminated media such as soil or groundwater.

Table 4-1: Conceptual Site Model

CSM Element	Description
Site History/Contaminant Sources	The site was previously an operational pharmaceutical manufacturing and distribution facility, which has been redeveloped as the NBBP. The site has a history of commercial/industrial use which has resulted in groundwater impacted with benzene and TCE at the southern portion of the site.
Current and Future Use	The NBBP comprises self-storage units and car parking at the lowest level ('basement' level), with warehouse facilities, offices and driveways at the overlying levels.
Site Geology	Previous investigations indicate that the site is underlain by sand and clayey sand, which generally grades to sandstone with depth. Portions of the site have also been historically filled with gravelly sand to depths of up to approximately 1.5mbgs.
Site Hydrogeology	Groundwater was previously found to be generally unconfined within the weathered sandstone aquifer beneath the site, with the inferred groundwater to flow in a southerly direction.
COPCs	Groundwater is impacted with benzene and TCE. A previously conducted health risk assessment (as outlined in the TRACE Environmental [2022]) RAP Addendum) concluded that there are potentially unacceptable risks to human health from VI from TCE.
Potential Human Receptors	Current and future human receptors include third parties, visitors and employees/workers. Intrusive maintenance workers may also be expected to undertake works periodically.

CSM Element	Description
Potential Exposure Pathways	Potential exposure pathways for the building include the following: • Accumulation of vapours inside the building from impacted soil, groundwater and/or soil vapour, and subsequent inhalation of vapours; • Outdoor vapour migration from impacted soil, groundwater and/or soil vapour, and subsequent inhalation of vapours; • Vapour inhalation from impacted soil, groundwater and/or soil vapour during intrusive maintenance works; and • Direct contact with impacted soil during intrusive maintenance works.
Potential Environmental Receptors	A tributary to Dee Why Creek is located near/at the eastern boundary of the site, running from north to south, which drains into Dee Why Creek, located approximately 250m to the south of the site.

The implemented remedial/management strategy required to address the vapour intrusion risks included:

- Construction of a reinforced concrete ground-bearing floor slab (i.e., a design that does not permit infiltration of groundwater [if encountered]); and
- Installation of a sub-slab SVVS that is passively vented to draw out any vapours that may accumulate beneath the building slab (refer to **Figures 3** and **4**).

Ongoing monitoring of the SVVS and ambient air conditions is required to assess the effectiveness of the implemented strategy, as outlined in this document.

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5 Sampling, Analysis and Quality Plan

5.1 Data Quality Objectives

The NSW EPA (2017) *Guidelines for the NSW Site Auditor Scheme (3rd Edition)*, which is endorsed by the NSW EPA under s105 of the *CLM Act 1997*, requires that Data Quality Objectives (DQOs) are adopted for assessment programs. In addition, the DQO process as adopted by the NSW EPA is described within the EPA (2020) *Consultants Reporting on Contaminated Land: Contaminated Land Guidelines.*

The DQO process is a seven-step process. The DQOs that will be adopted during the assessment are summarised in **Table 5-1**, below.

Table 5-1: Data Quality Objectives

DQO	Description
Step 1 State the Problem	Previous investigations identified groundwater and soil vapour contamination at the site (primarily TCE), in which an unacceptable vapour risk is present for occupants/users of the future building. As such, vapour mitigation is required to protect the health of building occupants.
Step 2 Identify the Decisions/Goal of the Study	The decisions that must be made are: • What are the soil vapour conditions (ambient air) at locations within the three basement areas and external to the on-site building? • What are the soil vapour conditions within the sub-slab void installed at SSA#1? • What is the potential risk posed to future workers/visitors in the vicinity of the TCE plume (within and in the vicinity of) the on-site building from the known concentrations of COPCs identified in soil vapour? • If a potential risk is identified, what additional measures are required to address the risk?
Step 3 Identify the Information Inputs	The primary inputs to the decisions described above are: • The results and findings of previous environmental investigations undertaken at the site (including the TRACE Environmental [2023a] Validation Report); • Details of the implemented vapour protection measures (i.e., the SVVS as constructed at SSA#1); • Assessment of ambient air within and surrounding the basement level to verify the implemented gas protection measures are effective in ensuring vapours are not accumulating within the completed structure or are at levels that can be unacceptable for human health; • Assessment of the sub-slab vapour conditions including at outlet vents associated with the SVVS; • Laboratory analysis of soil vapour (sub-slab) and ambient air (indoor and outdoor) samples for VOCs (including TCE); • Assessment of analytical results against previously established assessment criteria (refer to **Section 8**), based on the future anticipated land use; • Assessment of the suitability of the analytical data obtained, against Data Quality Indicators (DQIs); and • Review of analytical data to confirm if there is a potential unacceptable risk to human health from inhalation of VOCs, and to provide recommendations to manage any identified risks.
Step 4 Define the Boundaries of the Study	The site is located at 4-8 Inman Road, Cromer, NSW, identified as Lot 1 in DP1282038. The lateral extent of the study includes the basement footprint and immediate surrounding areas (as shown on **Figures 3** to **5**). The vertical extent extends to the sub-slab venting void associated with the SVVS.

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Step 5 Develop the Analytical Approach	The decision rules for any analytical data that is collected during the monitoring works as necessary to monitor the site conditions outlined in this document include: • The number of SVVS soil vapour (SVVS sub-floor void and outlet risers) sampling locations and ambient air (indoor and outdoor) sampling locations will be adequate to monitor the condition of soil vapour/ambient air (refer also to **Section 6**); • Primary, duplicate and triplicate soil vapour and ambient air samples will be analysed at NATA accredited laboratories for VOC compounds (which includes TCE); • Field and laboratory QA/QC results will indicate reliability and representativeness of the data set; • Laboratory LORs will be consistent with previous investigations; • Assessment criteria will be sourced from NEPM (2013) guidelines and as previously established for the site (as referenced in the TRACE Environmental (2022) RAP Addendum and outlined below in **Section 8**); and • If the concentration of a soil vapour/ambient air COPC in a sample exceeds the assessment criteria, additional works (e.g., additional remediation/management or quantitative risk assessment, including implementation of contingency measures as detailed in the TRACE Environmental [2023b] EMP) may be required to minimise the risk.
Step 6 Specify Performance or Acceptance Criteria	To ensure the analytical results obtained are reproducible and accurate, a QA/QC plan is necessary. DQIs are used to assess the reliability of field procedures and analytical results. DQIs are described as follows: • Completeness – A measure of the amount of useable data (expressed as %) from a data collection activity; • Comparability – The confidence (expressed qualitatively) that data may be considered to be equivalent for each sampling and analytical event; • Representativeness – The confidence (expressed qualitatively) that data are representative of each media present on the site; • Precision – A quantitative measure of the variability (or reproducibility) of data; and • Accuracy (bias) – A quantitative measure of the closeness of reported data to the true value.
Step 7 Develop the Plan for Obtaining Data	To achieve the DQOs and DQIs, the following sampling procedures will be implemented to optimise the design for obtaining data: • Soil vapour samples of relating to the monitoring of the constructed vapour intrusion protection components (the SVVS sub floor void and outlet risers) will be collected from 1L evacuated canisters over an approximate 1-hour period (with sampling to take no longer than two hours); • Ambient air samples from within and surrounding the building will be collected from 6L evacuated canisters over a 8-hour period; • COPCs will be selected based on a review of historical activities at the site, and the results of the previous environmental assessments conduct at the site; • Samples will be collected by suitably qualified and experienced environmental consultants/scientists/engineers, and samples will be handled in accordance with relevant standards/guidelines; • Soil vapour samples will be collected with evacuated canisters provided by the NATA accredited analytical laboratory; • NATA accredited laboratories will be engaged for analysis of all samples; • Soil observations including odours, staining and PID readings will assist with selection of soil samples for laboratory analysis; and • Field and laboratory QA/QC procedures will be adopted and reviewed to indicate the reliability of the results obtained.

5.2 Data Quality Indicators

The following DQIs, referenced in Step 6 in **Table 5-1**, have been outlined in **Table 5-2** to assist with decisions regarding the contamination status of the site, including the quality of the laboratory data obtained.

Table 5-2: Data Quality Indicators

Data Quality Indicator	Frequency	Data Acceptance Criteria
Completeness		
Field documentation correct	All samples	All samples
Suitably qualified and experience sampler	All samples	All samples
Appropriate lab methods and LORs	All samples	All samples
Chain of custodies (COCs) completed appropriately	All samples	All samples
Sample holding times complied with	All samples	All samples
Correct sampling devices and equipment used	All samples	All samples
Proposed/critical locations sampled	-	Proposed/critical locations sampled
Comparability		
Consistent standard operating procedures for collection of each sample. Samples should be collected, preserved and handled in a consistent manner	All samples	All samples
Details of sampling team to indicate experienced sampler	All samples	All samples
Climatic conditions (temp, rain etc) recorded and influence on samples quantified (if required)	All samples	All samples
Consistent analytical methods, laboratories and units	All samples	All samples
Representativeness		
Sampling appropriate for media and analytes (appropriate collection, handling and storage)	All samples	All samples
Sample logs used to document date, time, location of sample, sampler details, duplicate details and observations such as weather	All samples	All samples
Samples homogenous	All samples	All Samples
Detection of laboratory artefacts, e.g. contamination blanks	-	Laboratory artefacts detected and assessed
Samples extracted and analysed within holding times	All samples	-
Precision		
Details relating to measurement uncertainty are recorded, such as results of leak testing	All samples	All samples
Field equipment is appropriately calibrated prior to use	All samples	All samples

Blind duplicates (intra-laboratory duplicates)	1 per 20 samples	<30% RPD (Inorganics) <50% RPD (Organics) No Limit RPD Result <10 × LOR
Split duplicates (inter-laboratory duplicates)	1 per 20 samples	<30% RPD (Inorganics) <50% RPD (Organics) No Limit RPD Result <10 × LOR
Laboratory duplicates	1 per 20 samples	<20% RPD Result > 20 × LOR <50% RPD Result 10-20 × LOR No Limit RPD Result <10 × LOR
Accuracy (Bias)		
Surrogate spikes	All organic samples	50-150%
Matrix spikes	1 per 20 samples	70-130%
Laboratory control samples	1 per 20 samples	70-130%
Method blanks	1 per 20 samples	<LOR

6 Sampling Plan

6.1 Methodology

The sampling methodologies will be conducted in accordance with NSW EPA (2020) and NEPM (2013) requirements as relevant to soil vapour. Refer also to **Section 6.2** below for sampling frequencies.

6.1.1 Sub-floor Void and Outlet Risers

Samples collected from subfloor void and vent outlet monitoring points are required to verify the TCE concentrations in the system. Subfloor void and vent outlet riser samples will be collected from dedicated sampling ports (**Figure 4**) per the following methodology:

- The soil vapour monitoring port (i.e., sample port tubing) will be purged prior to sampling to remove at least one dead volume. Purging will be conducted with a calibrated PID meter, and during purging O_2, CO_2 and PID (ppm) will be collected. Purging will cease when stable readings are obtained. It is noted that a hand-held PID meter has a flow rate of approximately 300ml/min;
- The soil vapour samples will be collected using laboratory supplied 1L evacuated canisters equipped with flow controllers to collect a time weighted sample over an approximate one-hour period (with sampling to not exceed two hours). The starting pressure of the evacuated canisters will be approximately -30”Hg, and the finishing pressures will be between approximately -7.5”Hg and -10”Hg. Once the desired finishing pressures are reached, the canisters will be closed; and
- The soil vapour samples will be submitted to the analytical laboratory for analysis of VOCs by US EPA Method TO-15, with TCE assessed to criteria presented below in **Section 8**.

Sample ports are shown on **Figure 4.** This comprises eight subfloor void sampling ports (locations SF1 to SF8) and nine vent outlet riser ports (locations OR1 to OR9).

6.1.2 Ambient Air

Monitoring of the ambient air conditions within the completed building basement is required to monitor the ambient air and assess that the vapour recovery system is adequate at locations shown on **Figure 5**. Additional outdoor sampling at the site boundaries will also be required (**Figure 5**).

Ambient air sampling will be conducted to the following methodology:

- Collection of ambient air samples using laboratory supplied 6L evacuated canisters to collect a sample over a 8-hour period. The starting pressure of the summa canisters will be approximately -30”Hg, and the finishing pressures will be between approximately -8”Hg and -10”Hg. Once the desired finishing pressures are reached, the canisters will be closed; and
- Sampling will include strategic locations within SSA#1 (including potential enclosed spaces such as small offices/amenities), and areas within SS#2, the car park, and outdoor air as shown on **Figure 5**. Air samples will be submitted to the analytical laboratory for analysis of VOCs by US EPA Method TO-15 with TCE assessed to criteria presented below in **Section 8**.

6.1.3 Additional Notes

- Monitoring can also include use of field instrumentation such as a PID calibrated to measure chlorinated solvents (TCE) to supplement the obtained soil vapour data, with the potential to use field instrumentation in lieu of laboratory analyses. The implementation of any field monitoring will need to be considered after a robust comparison can be made between field results and laboratory results and need to be provided in an updated SAQP (or similar). The use of field instrumentation will need to be approved by the Site Auditor;
- Field instrument calibration certificates, including daily 'bump testing' records, will be required for inclusion in the SVR and any follow-up monitoring reports;
- Monitoring should not be completed immediately after significant rainfall (>25mm) in preceding days, as required by Section 9, Schedule B2 NEPM (2013);
- Monitoring should consider sampling at times of low wind conditions and low or falling atmospheric pressure to obtain a potential 'worst case' scenario to verify that the SVVS is venting per specifications (and not influenced by high wind conditions or high atmospheric pressure). This will also apply to assessing external ambient air conditions;
- Ambient air sampling will also need to include at least two indoor 'background' sample locations to assist in determining if background ambient air may contain chemicals etc in the building construction that could affect the readings, such as liquids or glues that are used and/or spilled within the building areas. Refer to **Figure 5** for locations; and
- Indoor ambient air monitoring should consider placement at locations near potential preferential pathways for the migration of sub-slab soil vapour into the storage unit, such as at support columns and/or near monitoring well penetrations.

6.1.4 Sample Location Summary

The sample monitoring locations are summarised below in **Table 6-1**.

Table 6-1: Summary of Sampling Locations

Sample Purpose	Location	Number of Samples	Sample Nomenclature
SVVS Sub-Floor	SSA#1	8	SF1 to SF8
SVVS Outlet Risers		9	OR1 to OR9
Ambient Air - Indoor	SSA#1	5	SSA1-1, SSA1-2, SSA1-3, SSA1-4, SSA1-Office
	SSA#2	2	SSA2-1, Background-1
	Car Park	2	Car Park-1, Background-2
Ambient Air - Outdoor	Site Boundaries (East, South and West)	3	Boundary-1, Boundary-2, Boundary-3

Any modifications to the sampling frequencies and locations will need to be determined by the appointed environmental consultant (and as recommended in the SVR or any subsequent monitoring reports) in agreement with the appointed NSW EPA accredited Site Auditor.

6.2 Sampling Frequency

Ongoing monitoring (after occupation of the building) will be conducted on a monthly basis over an initial six-month period, then quarterly for an additional 12-month period. These sampling frequencies may need to be modified or extended should the concentrations of vapours show an increasing trend, such as increasing levels of TCE over at least three consecutive monitoring events during the initial six-month period.

The sample locations may be reduced depending on the results of the initial rounds. Any modifications to the sampling frequencies and locations will need to be determined by the appointed environmental consultant (and as recommended in the final SVR or any subsequent monitoring reports) in agreement with the appointed NSW EPA accredited Site Auditor.

Results of the monitoring sampling will be included in standalone monitoring reports (**Section 9**).

6.3 Duplicate/Triplicate Sampling

The following methodology will be utilised for the collection of the duplicate/triplicate soil vapour samples (as collected from the designated sampling ports):

- Equal proportions of a sample will be split (with a triplicate piece provided by the laboratory) into the respective primary, duplicate and triplicate evacuated canisters; and
- The duplicate/triplicate samples will be collected from an area of the highest known TCE concentrations based on historical sampling results. This would include locations OR1, OR2 or SF5 shown on **Figure 4**.

Duplicate and triplicate ambient air samples will also be collected during sampling, which will include separate duplicate and triplicate evacuated canisters placed at the same sampling location as a selected primary sample. Duplicate/triplicate samples will be collected from an area of the highest known TCE concentrations based on historical sampling results. This would include at location SSA1-1 as shown on **Figure 5**.

Sampling frequencies for duplicate/triplicate sampling will be conducted per the QA/QC program outlined below in **Section 7.4**.

6.4 Laboratory Methods

Soil vapour samples will be analysed at NATA accredited laboratories in accordance with the analytical methods presented in **Table 6-2** below.

Table 6-2: Summary of Soil Vapour Analytical Methods

Analysis	Analytical Method	LORs
VOCs	US EPA Methods TO-15	0.9 to 6.5µg/m^3

Future monitoring must ensure the laboratory LORs are below the adopted assessment criteria (as per criteria noted below in **Section 8**).

7 Quality Assurance/Quality Control Program

The QA/QC program will be assessed by the following data quality indicators as set out in the NSW EPA (2017) and NSW EPA (2020):

- Completeness – all critical locations will be sampled as per this SAQP, samples will be collected from within the building footprint, sample documentation will be complete, sample holding times will be complied with, appropriate methods will be used, field equipment will be calibrated prior to use, and all documentation will be included in the report to demonstrate this;
- Comparability – experienced samplers will be used and the same approach to sampling will be taken, the same standard technical operating procedures will be used in the field on each occasion, climatic conditions will be recorded, same laboratories will be used for all primary samples. All deviation from the standard technical operating procedures will be discussed in the report;
- Representativeness – samples will be collected which represent the characteristics of the media sampled, samples will be homogeneous, appropriate collection, handling, storage and preservation will take place, and laboratory artefacts will be detected by the use of contaminant blanks. Appropriate duplicate/triplicate samples frequencies will be adopted;
- Precision – standard operating procedures will be complied within the field, laboratory and inter-laboratory duplicates will be used and the coefficient of variance of field duplicates by relative percent difference (RPD) will be assessed; and
- Accuracy – standard operating procedures will be complied with in the field and analysis of laboratory blanks (the DQIs for laboratory blanks will be non-detected) and controls (recoveries of 70 – 130% of original concentration) will be conducted to eliminate the bias associated with cross contamination.

7.1 QA/QC Program

The quality assurance program includes the following:

- Preservation and storage of samples upon collection and during transport to the laboratory;
- Sample holding times;
- Use of appropriate analytical and field sampling procedures;
- Required limits of reporting; and
- Frequency of conducting quality control measures.

The quality control program will include the following:

- Field duplicates - blind duplicates and inter-laboratory duplicates (split samples); and
- Data validation to assess for and clarify the occurrence of apparent unusual or anomalous results, e.g. laboratory results that appear to be inconsistent with field observations or measurements.

7.2 Field QA/QC

The field QA/QC sampling program will include the following:

- Field staff undertaking the fieldwork will be appropriately qualified and experienced e.g. environmental engineers/scientists;
- Field documentation will include the completion of standard field forms including Daily Field Reports documenting the field activities undertaken throughout each day in the field, sample logs and the use of Chain of Custody (COC) documentation for all field samples;
- Field instruments will be maintained in good order and appropriately calibrated and/or challenged in accordance with the manufacturer's instructions prior to conducting fieldworks;
- Soil vapour/ambient air samples will be collected in appropriately prepared evacuated canisters, provided by the laboratory. Labels will be affixed to the evacuated canisters, including the job number, unique sample identification, and data of sample collection;
- Duplicate and triplicate samples split in the field and submitted to two separate laboratories in accordance with NEPM requirements. One duplicate per 20 primary samples and one triplicate per 20 primary samples submitted to the laboratory for analysis. It is recommended that at least one duplicate and one triplicate sample be collected for each discrete sampling event (refer above to **Section 6.3** for additional detail);
- Details of:
    - the sampling team;
    - sampling method(s), including the actual methods employed for obtaining samples, type(s) of sample containers, order and degree of filling, preservation, labelling, logging, custody;
    - evidence of appropriate decontamination procedures carried out between sampling events (as required, noting no decontamination procedures are required for vapour sampling);
    - logs for each sample collected showing time, location, initials of sampler, duplicate locations, duplicate type, chemical analyses to be performed, site observations and weather conditions;
    - COC documentation fully identifying for each sample the name of the sampler, the nature of the sample, collection date, analyses to be performed, sample preservation method, departure time from the site and dispatch courier(s) and condition of samples at dispatch;
    - sample splitting techniques; and
    - a statement of duplicate frequency for intra-laboratory and inter-laboratory duplicate samples and duplicate sample results.

7.3 Laboratory QA/QC

All reports will include details of:

- Analytical methods used for each potential contaminant in the matrix used by laboratories accredited for those analyses by NATA or an equivalent;

- Laboratory method detection limits for the chemicals of concern for use in the assessment of risk; and
- The following information:
    - A copy of signed chain-of-custody forms acknowledging receipt date and time, conditions of samples on receipt and identity of samples including in shipments;
    - Record of holding times and a comparison with method specifications;
    - Analytical methods used;
    - Laboratory accreditation for analytical methods used; and
    - The results for blind duplicate samples collected from the field.

The project laboratory will also provide evidence of the following QA/QC procedures (as applicable):

- Sample receipt and registration documentation;
- Instrument blank analyses; and
- Laboratory duplicates.

Decontamination Procedures

Not applicable for soil vapour/ambient air sampling.

Sample Storage, Preservation and Transport

Samples will be stored in containers supplied by the laboratory. Samples will be transported to the chosen laboratory within NATA recommended relevant holding times specified and with the relevant COC documentation.

Duplicate Samples (Intra-Laboratory Duplicates)

These samples identify the variation in analyte concentration between samples collected from the same sampling point and/or also the repeatability of the laboratory's analysis (AS4482.1, 2005). Blind duplicates will be collected at a ratio of 1 sample per 20 primary samples. Blind duplicates will be collected at the same time and in the same fashion as the primary sample.

Triplicate Samples (Inter-Laboratory Duplicates)

These samples provide a check on the analytical proficiency of the laboratories (AS4482.1, 2005). Triplicates will be collected at a ratio of 1 sample per 20 primary samples. Split samples will be collected at the same time and in the same fashion as the primary sample.

7.4 Laboratory Quality Assurance/Quality Control

Laboratory QA/QC will consist of the following procedures:

- Analysis and reporting of laboratory duplicates;

- Analysis and reporting of laboratory method blank samples;
- Analysis and reporting of internal laboratory standards and calibration blanks; and
- Analysis and reporting of laboratory control samples.

7.5 Sample Holding Times

All samples will be delivered to the laboratory to ensure analysis of COPCs within holding times.

7.6 QA/QC Documentation

Documentation of the undertaken QA/QC program will include:

- The QA/QC checklist items in the NSW EPA (2000) *Guidelines for Consultants Reporting on Contaminated Sites* related to field quality assurance and quality control, laboratory QA/QC and data evaluation QA/QC;
- The names of the accredited laboratories used and relevant details of their accreditation for each analytical method;
- The laboratory LORs;
- The acceptance limit(s) for each QC test, such as duplicate RPDs and recoveries for laboratory quality control analyses;
- The QC results relevant to the sample analysis;
- For each sample, the highest measurement result wherever replicate measurements are taken (or all measurement results for each sample);
- Results for all data tabulated separately; and

Analytical laboratory reports specifying compliance with the requirements of the NEPM and equivalence with the reference method or non-standard methods.

8 Assessment Criteria

Criteria associated with ongoing monitoring of the SVVS void (and risers) and ambient air (indoors and outdoors) was derived in Section 7 of the TRACE Environmental (2022) RAP Addendum. This relates to TCE as the primary COPC, and the site used for ongoing commercial/industrial purposes. The following criteria for TCE have been considered for ongoing monitoring purposes:

- For the SVVS void (air within the sub-slab void and vent outlet risers, as measured at the sub-floor monitoring points and outlet risers as discussed below): 5mg/m^3;
- For indoor ambient air:
    - 0.297mg/m^3 for 'typical' users (i.e., up to two visits per month) of the self-storage unit areas (SSA#1 and SSA#2);
    - 0.148mg/m^3 for more frequent users (i.e., weekly) of the self-storage unit areas (SSA#1 and SSA#2);
    - 0.021mg/m^3 for more frequent users (i.e., daily) of the self-storage unit areas (SSA#1 and SSA#2) and for users of the car park; and
    - 0.008mg/m^3 for site workers.
- For outdoor ambient air (as measured at the site boundaries): 0.5mg/m^3.

9 Reporting

At the conclusion of each assessment, a monitoring report detailing the findings will be prepared in accordance with NSW EPA made or approved state and federal guidelines and Australian Standards. Each report will include the following:

- An executive summary;
- Scope of work;
- Site identification details;
- A brief summary of the previous report findings;
- Details of the site conditions and surrounding environment;
- A summary of the sampling and analysis plan and investigation sampling methodologies;
- Identification of the field and laboratory QA/QC performed and an evaluation of QA/QC data;
- Identification of regulatory criteria, assumptions and limitations associated with adopting these criteria;
- Findings of the monitoring well inspections;
- Soil vapour/ambient air analytical results;
- Evaluation of potential risks to human health and/or the environment, including valuation of potential impacts on buildings and structures from residual contaminants (if any);
- Updated CSM and associated discussion;
- Site characterisation based on post-remediation monitoring;
- Requirements/recommendations for any ongoing monitoring; and
- Conclusions and recommendations, including a clear statement on the suitability of the building for the ongoing land uses, and whether additional remedial measures may be required (refer to the EMP for additional detail).

Each Monitoring Report will be submitted to the relevant stakeholders (i.e., the site owner/operator) who will be ultimately responsible for ensuring the site remains in compliance with the long-term monitoring requirements. Each report must also be submitted to the appointed NSW EPA accredited Site Auditor for review.

Results of the ongoing monitoring must also be reviewed in relation to the required ongoing management requirements (as outlined in the EMP), and if necessary, the EMP will require updating accordingly.

10 References

- *Contaminated Land Management Act 1997*, NSW.
- CIRIA (2014) *C735 – Good Practice on the Testing and Verification of Protection Systems for Buildings Against Hazardous Ground Gases*.
- CRC CARE (2011), *Technical Report No. 10 Health Screening Levels for Petroleum Hydrocarbons in Soil and Groundwater Part 1: Technical Development Document* and *Part 2: Application Document*, September 2011.
- CRC Care (2013), *Technical Report No. 23 Petroleum Hydrocarbon Vapour Intrusion Assessment: Australian Guidance*, July 2013.
- Davis, GB, Wright, J & Patterson, BM 2009, *Field assessment of vapours*, CRC CARE Technical Report no. 13, CRC for Contamination Assessment and Remediation of the Environment, Adelaide, Australia.
- National Environment Protection Council (NEPC), National Environment Protection (*Assessment of Site Contamination*) Measure (NEPM), 1999, Amendment 2013.
- NSW EPA (2010), *Vapour Intrusion: Technical Practice Note,* September 2010.
- NSW EPA (2015) *Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act*, Updated September 2015.
- NSW EPA (2016), *Approved Methods for Modelling and Assessment of Air Pollutants in NSW*, November 2016 (Published January 2017).
- NSW EPA (2017), *Contaminated Sites Guidelines for the NSW Site Auditor Scheme, Third Edition*, October 2017.
- NSW EPA (2020a), *Consultants Reporting on Contaminated Land: Contaminated Land Guidelines*, April 2020, updated May 2020.
- NSW EPA (2020b), *Guidelines for the Assessment and Management of Hazardous Ground Gases*, NSW EPA, December 2019, amended May 2020.
- NSW EPA (2022a), *Contaminated Land Guidelines, Sampling Design Part 1 – Application and Contaminated Land Guidelines, Sampling Design Part 2 - Interpretation*, August 2022.
- TRACE Environmental (2022), *Remedial Action Plan Addendum – Soil Vapour Intrusion Management Strategy, 4-8 Inman Road, Cromer, NSW* (Rev0), 24 October 2022.
- TRACE Environmental (2023a), *Validation Report – Soil Vapour Intrusion Management Strategy, 4-8 Inman Road, Cromer, NSW*, 11 September 2023.
- TRACE Environmental (2023b) *Long-Term Environmental Management Plan, Soil Vapour Intrusion Management, 4-8 Inman Road, Cromer, NSW*, 15 September 2023.

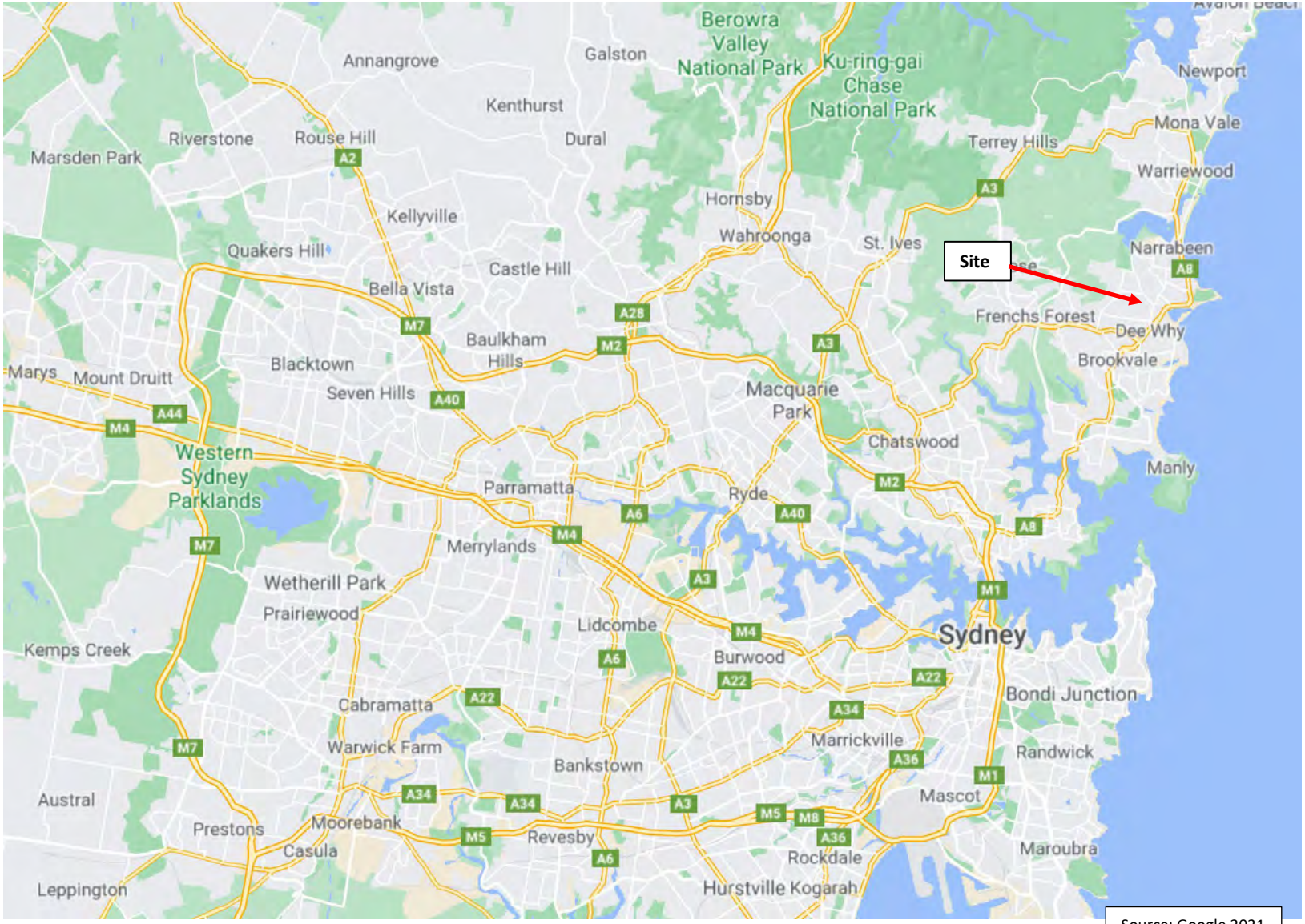
11 Limitations

This report has been prepared for EG Funds Management Pty Ltd (EG) and for the specific purpose to which it refers. No responsibility is accepted to any third party and neither the whole of the report or any part or reference thereto may be published in any document, statement or circular nor in any communication with third parties without our prior written approval of the form and context in which it will appear.

TRACE Environmental has used a degree of skill and care ordinarily exercised by reputable members of our profession practicing in the same or similar locality. The conclusions presented in this report are relevant to the conditions of the site and the state of legislation currently enacted as at the date of this report. We do not make any representation or warranty that the conclusions in this report were applicable in the future as there may be changes in the condition of the site, applicable legislation or other factors that would affect the conclusions contained in this report.

This report and the information contained in it is the intellectual property of TRACE Environmental. EG Funds Management Pty Ltd (EG) are granted an exclusive licence for the use of the report for the purpose described in the report.

Figures



Source: Google 2021

TRACE ENVIRONMENTAL	Project: **26.01**	Title:	**Locality Plan**
	Figure: **1**	Address:	**4-8 Inman Road, Cromer, NSW**

N

Site Boundary - NBBP
Lot 1 DP1282038

Extent of Basement Area –
Self Storage Area #1 (SSA#1)
Self Storage Area #2 (SSA#2)
Car Park

20m
(approx.)

Source: Nearmap
Image Date: 1 May 2023

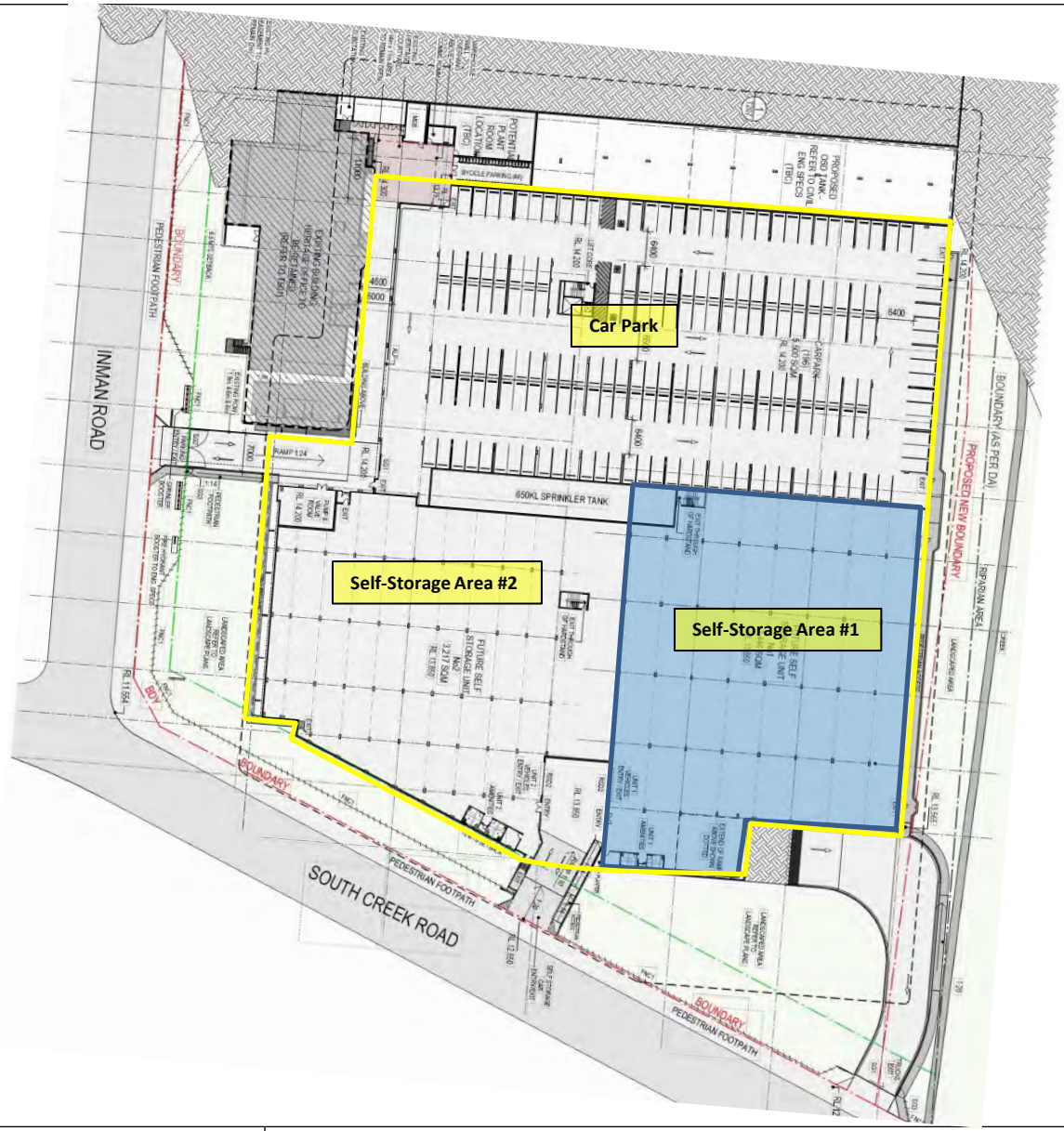
TRACE ENVIRONMENTAL

Project:	**26.01**	Title:	**Site Plan**
Figure:	**2**	Address:	**4-8 Inman Road, Cromer, NSW**

N

Extent of Basement Areas Subject to this EMP

Extent of Sub-Slab Venting (Refer to **Figure 4**)



20m (approx.)

Source: EG

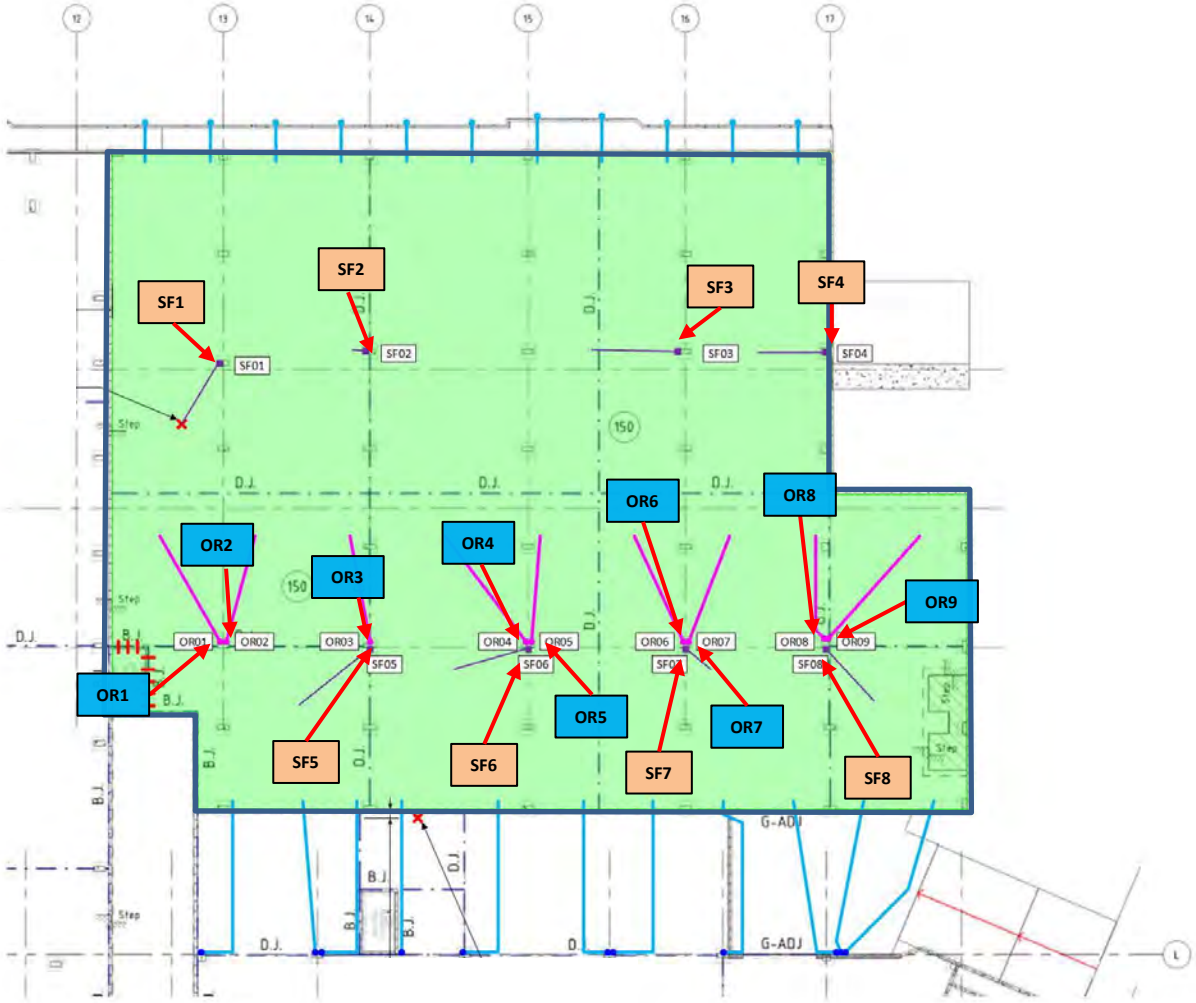
TRACE ENVIRONMENTAL	Project: **26.01**	Title:	**Basement Layout (Including Location of Sub-Slab Venting)**
	Figure: **3**	Address:	**4-8 Inman Road, Cromer, NSW**

N

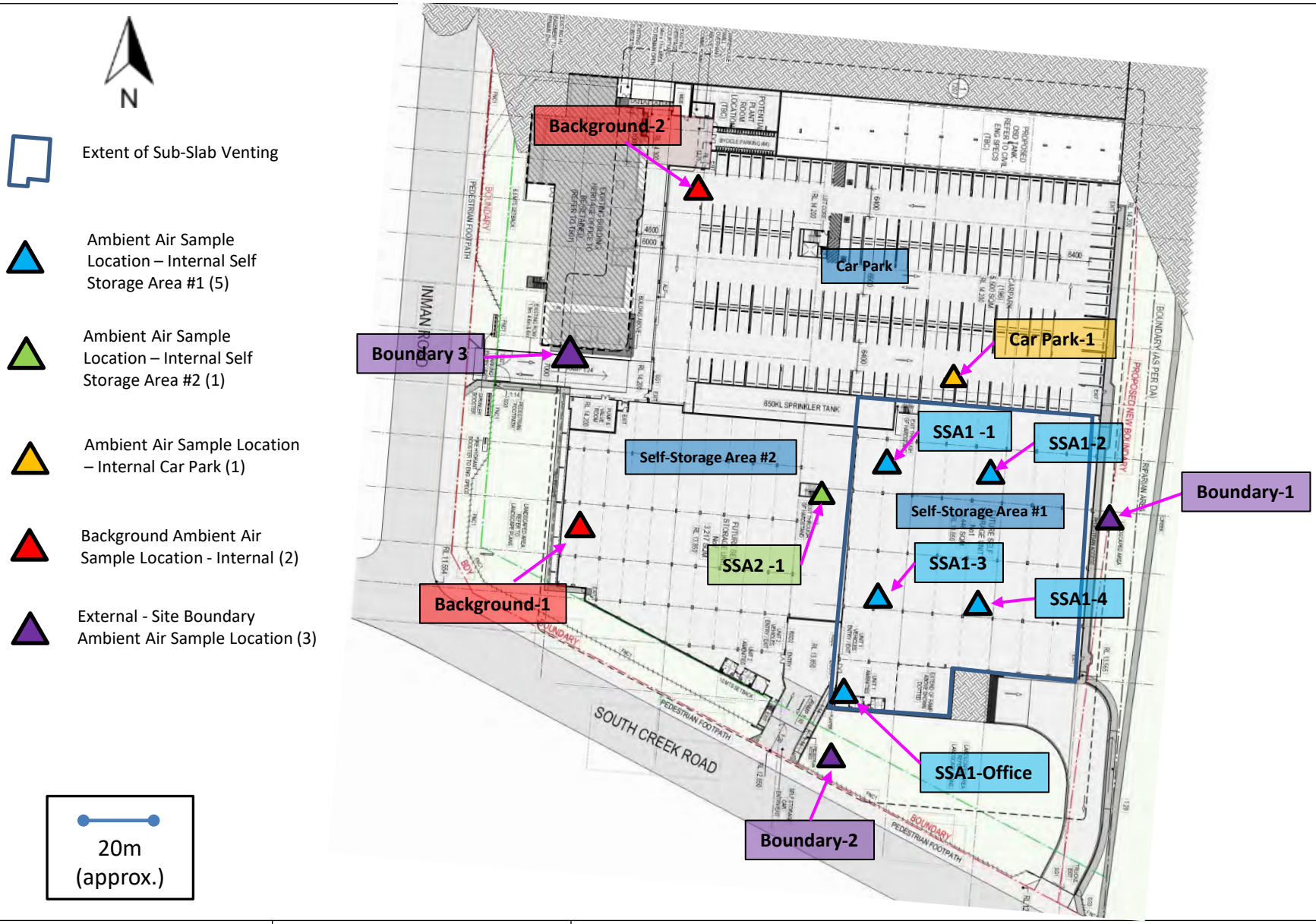
Extent of Sub-Slab Venting (approx. 4,200m²)

OR1 — Outlet Riser Sample Location (9)

SF1 — Sub-Floor Sample Location (8)



TRACE ENVIRONMENTAL	Project: 26.01	Title:	Monitoring Locations – SVVS Outlet Risers and Sub-Floor
	Figure: 4	Address:	4-8 Inman Road, Cromer, NSW



TRACE ENVIRONMENTAL	Project: **26.01**	Title:	**Monitoring Locations – Ambient Air**
	Figure: **5**	Address:	**4-8 Inman Road, Cromer, NSW**

TRACE ENVIRONMENTAL

Long-Term Environmental Management Plan

Southern Landscaping Area

Northern Beaches Business Park

4-8 Inman Road, Cromer, NSW

15 September 2023

Long-Term Environmental Management Plan – Southern Landscaping Area

Northern Beaches Business Park, 4-8 Inman Road, Cromer, NSW

Prepared for:
EG Funds Management Pty Ltd

Revision	Date	Author	Approver	Issued
Draft	4 September 2023	KH	AK	4 September 2023
Draft Rev1	14 September 2023	KH	AK	14 September 2023
Rev0	15 September 2023	KH	AK	15 September 2023

Author	Approved
Ken Henderson Principal Environmental Scientist B.Sc. (Hons Geology) EIANZ CEnvP (SC) #SC40922	Andrew Kita Principal Engineer B.Eng. (Geol., Hons.)

Ref. No.:	26.01
Disclaimer:	THIS DOCUMENT IS SUBJECT TO LIMITATIONS NOTED

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1 Introduction

TRACE Environmental was engaged by EG Funds Management Pty Ltd (EG) to prepare a Long-Term Environmental Management Plan (EMP) for a portion of the Northern Beaches Business Park (NBBP) located at 4-8 Inman Road, Cromer, NSW, Lot 1 in DP1282038 ('the site'). A Site Location Plan is presented in **Figure 1**, and a figure showing the boundaries of the site is shown in **Figure 2**.

This EMP applies to a landscaping area located south of the on-site building along South Creek Road, herein referred to as 'the Southern Landscaping Area'. Historical environmental investigations conducted at this area of the site (refer to **Section 1.1** below) noted asbestos fragments within shallow fill soil, and this EMP outlines the ongoing management requirements relating to these materials. The area subject to this EMP is shown in **Figure 3** and in survey diagrams provided in **Appendix A**.

This is considered a 'passive' EMP as the management of the asbestos impacted materials does not incorporate a mechanical component.

The presence of the asbestos impacted soils at this area of the site have also been documented on the site's Asbestos Register which is kept on-file with this EMP (refer to **Sections 1.4, 1.5** and **3.5** below for additional detail).

1.1 Background

The site details are summarised as follows:

ID Element	Description
Site Address	4-8 Inman Road, Cromer, NSW 2099
Lot/DP	Lot 1 in DP1282038
Local Council	Northern Beaches Council
Site Coordinates	33°44'19.9"S 151°17'13.8"E
Zoning	IN1 General Industrial
Approximate Site Elevation	15-30m Australian Height Datum (AHD)
Approximate Site Area (entire NBBP property)	36,630m²

A Data Gap Investigation (DGI)[1] was previously conducted at the site which indicated asbestos containing materials (ACM) in shallow fill soil at the Southern Landscaping Area (**Figures 2** and **3**) which poses an exposure risk to site users and workers if not properly capped and managed. A Remedial Action Plan (RAP) was prepared by TRACE Environmental[2] that outlined the management strategy, which included capping and containing of asbestos as outlined below in **Section 2**.

The capping works were conducted at the site in 2023, and the results of these works (and associated site validation) were outlined in a Validation Report[3]. As part of the remedial strategy, the site area subject to this EMP requires ongoing management and/or maintenance as documented below in **Section 3**.

[1] TRACE Environmental (2022a), *Data Gap Investigation, 4-8 Inman Road, Cromer, NSW*, 4 October 2022.
[2] TRACE Environmental (2022b), *Remedial Action Plan Addendum – Southern Landscaping Area, 4-8 Inman Road, Cromer, NSW*, 19 December 2022.
[3] TRACE Environmental (2023), *Validation Report – Southern Landscaping Area Northern Beaches Business Park, 4-8 Inman Road, Cromer, NSW*, 11 September 2023.

The location of the site subject to this EMP is shown on **Figures 2** and **3** and in the survey provided in **Appendix A**, with diagrams showing the capping layers included in **Appendix B** and photographs of key items provided in **Appendix C**.

1.2 Objective

This EMP is required to detail the ongoing requirements for the maintenance of the capping layers as constructed overlying asbestos impacted fill materials at the Southern Landscaping Area.

1.3 Legislative Requirements

The following Acts, Codes, Regulations and Australian Standards are applicable for this EMP. Where a Code of Practice applies to the work, its recommendations shall be mandatory unless stated otherwise in this specification.

- Contaminated Land Management (CLM) Act 1997;
- Environmental Planning and Assessment Act 1979;
- NSW EPA (2014), *Waste Classification Guidelines. Part 1: Classifying Waste*. NSW EPA, November 2014;
- NSW EPA (2017), *Guidelines for the NSW Site Auditor Scheme (3rd Edition)*, NSW EPA, October 2017;
- NSW EPA (2020), *Consultants Reporting on Contaminated Land: Contaminated Land Guidelines*, April 2020, updated May 2020;
- NSW EPA (2022), *Practice Note – Preparing Environmental Management Plans for Contaminated Land*, January 2022;
- NSW Government (December 2022) *Code of Practice: How to Manage and Control Asbestos in the Workplace*;
- NSW Government (August 2019) *Code of Practice: How to Manage Work Health and Safety Risks*;
- NSW Government (December 2022) *Code of Practice: How to Safely Remove Asbestos*;
- NSW State Environmental Planning Policy (Resilience and Hazards) 2021;
- Protection of the Environment Operations (POEO) Act 1997;
- Work Health and Safety Act 2011 and Work Health and Safety Regulation 2017.

The requirement for this EMP) was also outlined in the Northern Beaches Council of Determination for DA approval DA2019/1346 for the NBBP development.

1.4 Enforceability

Section 3.4.6 of EPA (2017) outlines the conditions that must be met for a NSW Environment Protection Authority (EPA) accredited Site Auditor to include the implementation of an EMP as a condition on a Site Audit

Statement (SAS). One of the conditions states that the EMP can reasonably be made to be legally enforceable, for example because compliance with it is a requirement of development consent conditions issued by the relevant planning authority. Another condition states that, *'…there will be appropriate public notification of any restrictions applying to the land to ensure that potential purchasers or other interested individuals are aware of the restrictions, for example appropriate notations on a planning certificate issued under s.149(2) of the Environmental Planning and Assessment Act or a covenant registered on the title to land under s.88B of the Conveyancing Act 1919.*'

Enforcement of this EMP is to be undertaken by the 'person with management or control of a workplace'[4] (i.e., the Landowner/Strata Corporation/Body Corporate), who must also ensure an asbestos register is prepared and kept at the workplace (per Clause 425 of the Work Health & Safety Regulation 2017). An Asbestos Register (as referenced above in **Section 1**) has been prepared for the site which references that management of the asbestos as contained on-site will be managed in accordance with this EMP.

This EMP has been registered on title by way of a Positive Covenant under Section 88E(3) of the NSW Conveyancing Act 1919, with Northern Beaches Council the prescribed authority. Notification of this EMP will also be via the Positive Covenant. In addition, future planning certificates for the site to be prepared by Northern Beaches Council under Section 10.7 of the Environmental Planning and Assessment Act 1979 will document the presence of the SAS (and therefore this EMP) as required by Section 59(2)(e) of the CLM Act 1997.The requirements of this EMP will apply indefinitely or until such time as a SAS can be prepared by Site Auditor stating that an EMP is not required.

1.5 Review and Revision of the EMP

Review of this EMP is required ensure that the EMP remains up to date, relevant and effective for managing the contamination remaining at the site. The process will include checking that the EMP remains consistent with changes in legislative and regulatory requirements or changes in industry best practice.

The EMP (and associated Asbestos Register as referenced above) shall be reviewed annually (at a minimum), with the first review to be conducted approximately one year from the date of this report (unless additional reviews are required as outlined below). The reviews (and any required revisions) must be undertaken by a qualified Environmental Consultant to ensure that the management requirements outlined in this document are being maintained and are effective.

In addition, as noted below in **Section 3.4**, the capping is also subject to periodic inspections. Should significant repairs be required, this may also need to be documented in a revised EMP. The EMP must also be reviewed and revised following a change of landowner/strata corporation/body corporate/managing agent, if there is a change in the site's land use, and/or for works requiring development consent.

EMP revisions are to be reviewed by an NSW EPA accredited Site Auditor and by Northern Beaches Council. Copies of any revised EMP are to be distributed, by the landowner/strata corporation/body corporate/managing agents, to the key stakeholders, including Northern Beaches Council and any future landowners, for notification and ongoing implementation. The landowner/strata corporation/body corporate/managing agents are to also provide copies of any revised versions of the EMP to leaseholders/tenants.

[4] As defined in the NSW Work Health and Safety Act 2011.

2 Site Conditions

Based on the information sourced from the previous assessments (as discussed above in **Section 1.1**), asbestos impacted fill soil was identified at the Southern Landscaping Area (i.e., the area of the site subject to this EMP) requiring management. This comprised bonded ACM fragments in fill soil (gravelly sand) extending to depths between approximately 1.5 to 2.0m below ground surface (mBGS) and located at the area subject to this EMP as shown on **Figures 2** and **3**. It is noted that friable asbestos (FA)/asbestos fines (AF) has not been identified at the site, however, there is a potential for damaging bonded asbestos fragments during any future excavation works (as/if required) and it is considered that FA/AF may be present during any future works (refer to **Section 3.5** below for additional detail).

Exposure to the noted asbestos impacted soil has been mitigated via construction of the capping layers (described below) and associated ongoing management requirements of this EMP.

The capping layers at the Southern Landscaping Area (**Figures 2** and **3**) comprise the following:

- 200mm of sandy soil with vegetative ground cover overlying an orange geotextile marker layer. This system overlies the asbestos impacted sandy fill material; and
- Concrete capping at two driveway areas (shown on **Figure 3**). This includes construction of a concrete surface over 100mm thickness of roadbase overlying an orange geotextile maker layer. This system overlies the asbestos impacted sandy fill material.

The capping layers are to be maintained as originally constructed at all times to prevent access to the contained fill material as outlined below in **Section 3.3** and per diagrams provided in **Appendix B**.

Inspections of the capping layers must be undertaken to ensure the capping integrity is maintained. Refer to **Section 3.4** below for additional detail.

If the capping structures have to be breached (for whatever reason) the management requirements of this EMP will apply, including management of the underlying fill materials. These management requirements and procedures are outlined below in **Section 3.5**.

Photographs of a typical ACM fragment as encountered at the site and the installed orange marker layer are provided in **Appendix C**.

3 Site Management Plan

The capping/marker layers require ongoing management. This includes any ongoing maintenance necessary to ensure the underlying fill materials are not accessible, including during any intrusive works which may require excavation of fill materials underlying the capping layers.

3.1 Overview

The following sections outline general site management practices that will need to be undertaken to minimise the potential to mobilise asbestos impacted material should it be disturbed.

The objectives of these management practices include:

- Responsible environmental management of the site;
- Provide open communication and consultation with all stakeholders;
- Carry out regular audits and inspections of the site during disturbance of impacted fill material (if undertaken); and
- Minimise outstanding corrective actions.

The outcomes of implementing the control measures include:

- All personnel are aware of their environmental responsibility;
- Record any unexpected findings and inform personnel working on the site;
- Record all non-conformances and evidence of corrective actions taken;
- No adverse environmental impacts result from any incidents or emergencies on site; and
- Minimise potential disruption to works due to environmental incidents or breaches.

3.2 Key Stakeholders and Responsibilities

This EMP must be maintained on file by the landowner and any strata corporation/body corporate and be reviewed and implemented if intrusive works into the contaminated soils be required.

Copies of the EMP are to be distributed, by the landowner/strata corporation/body corporate/managing agents, to the key stakeholders (such as leaseholders/tenants), including Northern Beaches Council and any future landowners, for notification and ongoing implementation.

The responsibilities for specific key stakeholders to whom this EMP applies are outlined below in **Table 3-1**.

Table 3-1: Key Stakeholders Responsibilities

Stakeholder	Responsibility
Landowner/Strata Corporation/Body Corporate	• Appoint a designated representative to ensure the capping layers are maintained (per **Section 3.3**) and conduct regular inspections of the capping layers (per **Section 3.4**); • Ensure contractors (including any sub-contractors) that must conduct intrusive works are provided a copy of this EMP and are aware of their responsibilities relating to health and safety and protection of the environment, including understanding the required intrusive work protocols (per **Section 3.5**), waste disposal requirements (per **Section 3.6**) and worker hygiene (**Section 3.7**); • Ensure the requirements of the EMP are successfully implemented; • Notify key stakeholders (including tenants/ leaseholders) and any future landowners of the residual contamination and provide these stakeholders with copies of the EMP (and any revisions); • Engage an appropriately qualified and experienced Environmental Scientist to revise the EMP where required (per **Section 1.5** above); • Liaise with Council and a NSW EPA accredited Site Auditor relating to any EMP revisions or other requirements; and • Submit any EMP revisions to Council.
Site Workers	Ensure operations and intrusive works are conducted in accordance with the requirements of this EMP. Works must also be undertaken in accordance with other relevant statutory requirements, including current Workplace, Health & Safety (WH&S) legislation. **Relevant sections of this EMP that apply to Site Workers include Section 3.3 (where capping management is required), Section 3.5 (intrusive work protocols), Section 3.6 (waste disposal) and Section 3.7 (worker hygiene).**
Leaseholders/Tenants	Compliance with EMP and notify the landowner of any capping layer maintenance issues.
Northern Beaches Council	Advising/confirming if EMP revision is required following site works. Review and approval of EMP revisions.
NSW EPA Accredited Site Auditor	Review and approval of any EMP revisions.

3.3 Capping Management

At the driveway areas, the concrete capping and the marker layers are to be maintained at all times to prevent access to the contained fill material, except where required for maintenance purposes as outlined below in **Section 3.5**. Refer to **Figure B-1** in **Appendix B** for diagrams of the capping system at these areas of the site.

At the landscaping areas, care must be taken to minimise damage to the root structures of existing trees. The capping layer comprises a minimum of 200mm of soil/growing medium overlying a geotextile marker layer. The capping and marker layers are to be maintained at all times to prevent access to the contained fill material, except where required for maintenance purposes as outlined below in **Section 3.5**. Refer to **Figures B-2** and **B-3** in **Appendix B** for diagrams of the capping system at these areas.

The management of capping structures at existing and/or future trees with deep root systems will need to be maintained per the following considerations:

- No soil is to be removed from the Southern Landscaping Area, and soil should not be placed up against the base of existing tree trunks. To minimise erosion, vegetation/mulch will need to be maintained;

- If a tree requires removal and a replacement tree is not required, the restoration of the area will need to consider the requirements of this EMP, such as installation of a marker layer and at least 200mm layer of clean soil/growing medium and surface vegetation/mulch;

- It is recommended that future plantings do not contain root systems that extend beyond 200mm in depth. However, if in future deeper planting zones for new vegetation is required (i.e., for trees with an expected larger root system that may extend deeper than 200mm), the underlying marker layer will need to extend to depths as appropriate for that type of vegetation. Refer to **Figure B-4** of **Appendix B** showing these requirements. An arborist or other suitably qualified Environmental Consultant may need to provide advice on the depths/drainage/soil requirements needed for any proposed vegetation, and an Environmental Consultant will need to provide advice on materials handling (per below); and

- Should vegetation with a deep root system require removal, care must be taken not to disturb the underlying soil without first assessing the possibility of asbestos to be present. A qualified Environmental Consultant should inspect the area and provide recommendations to undertake the works.

If new utilities are required to be installed within the capped area, the utilities will need to be placed above the marker layer. Refer to **Figures B-1** and **B-2** of **Appendix B** showing these requirements.

3.4 Capping Inspections

Inspections of the capping layers will be undertaken by a designated representative for the site, either the Site Manager or an appointed designee. For consistency, inspections should be undertaken by the same individual where possible.

Inspections of the capping layers must be undertaken every three months (quarterly) or after significant rain event that may cause erosion (i.e., >5mm). Non-conformances are to be immediately reported to the Site Manager and addressed as soon as possible, noting additional consultation with the appointed Environmental Consultant may be required depending on the nature of the non-conformance.

The *Capping Inspection Form* included in **Appendix D** will need to be completed for each inspection, and each completed form kept on file with this EMP for future reference. The inspection form provides details of the observations that need to be considered and associated Required Actions. If required, photographic documentation should also be included with the inspection findings (depending on the nature of the finding).

Informal inspections may also be conducted as necessary, such as following complaints by tenants or customers if the concrete capping is compromised. As referenced above in **Table 3-1**, tenants are to be made aware of this EMP and should notify the landowner of any capping maintenance issues.

A copy of each completed inspection form will be kept on file with this EMP and be made available for review by the relevant stakeholders and/or consent authorities (as necessary).

3.5 Intrusive Works Beneath the Capping/Marker Layers

The following management measures will apply if intrusive works are required beneath the capping/marker layers (i.e., where fill materials beneath the marker layer, including at any utility trenches, are required to be accessed or disturbed). This includes both planned and unplanned (i.e., unintentional) breaches.

3.5.1 Prior to Excavation

- Site worker/s must obtain BYDA utility plans (https://www.byda.com.au/);

- Review the site's Asbestos Register (to be kept on-file with this plan);
- A qualified occupational hygienist should be engaged prior to commencing works which will impact the capped fill. The occupational hygienist will oversee the works to ensure the procedures outlined in this EMP are implemented and to ensure works are carried out in accordance with the relevant SafeWork NSW codes of practice (**Section 1.3**). The Class-A asbestos removal supervisor must be present at the site;
- A Class-A asbestos removal contractor must be engaged to prepare a site-specific Asbestos Removal Control Plan (ARCP) for the proposed works. The ARCP must be reviewed by the occupational hygienist. The landowner should be consulted with regarding the details of the plan;
- All works requiring excavation below the capping layers must be overseen by Friable (Class A) asbestos removal contractor licensed with SafeWork NSW;
- Site management and SafeWork NSW must be notified of proposed work in asbestos impacted soil; and
- All site worker/s must read and understand the requirements of this EMP and be notified of the presence of the fill materials below the capping layers.

3.5.2 During Excavation

- All works requiring excavation below the capping layers must be overseen by Friable (Class A) asbestos removal contractor licensed with SafeWork NSW;
- Excavation works must be undertaken in accordance with the site-specific ARCP. The plan must include (but not limited to) exclusion zones, personal protective equipment (PPE), dust control, signage and decontamination facilities;
- Details on the exclusion zone should be determined by the risk assessment undertaken by the occupational hygienist. Site management personnel must also be consulted regarding exclusion zones and working hours. The exclusion zone will be fenced, and appropriate signage will be displayed, to prevent unauthorised access to the work area;
- Daily asbestos fibre air monitoring is to be undertaken and must be supervised by the occupational hygienist;
- Workers only holding a licence to remove friable asbestos are able to work within the intrusive zone;
- Sufficient room must be provided to allow stockpiling of soil, and any fill materials to be reinstated after the works are complete shall be excavated and stockpiled separately and maintained to control dust (refer below for additional detail). It is recommended that excavated soils be temporarily stored in skip bins (if practical) or in drums;
- Where excavation is required within the stormwater trenches, care must be taken to keep the backfill materials (as located above the marker layer) separate from the surrounding general site fill material;

- Care must be taken to prevent material from being tracked off-site. This includes covering loads of soil that may be stored in skip bins or placed into trucks (with all material removed from wheels to prevent tracking off-site);

- Once the works are complete, the disturbed excavation shall be reinstated with the excavated materials in the order in which they were removed (as referenced in diagrams in **Appendix B**) or reinstated with clean materials. This includes reinstatement of the marker layer prior to reinstatement of the overlying clean capping materials. Materials imported to site will comprise only virgin excavated natural material (VENM) as defined in the POEO Act 1997 or excavated natural materials (ENM) as outlined in the Excavated Natural Material Order 2014. The excavations should be reinstated to the original elevations/levels; and

- Excess fill materials that cannot be reinstated into the excavation must be properly classified for off-site disposal at a facility licensed to receive these wastes as outlined below in **Section 3.6**.

3.5.3 Following Excavation

Following reinstatement of the excavations to the original levels, an asbestos clearance certificate should be issued by the occupational hygienist/Environmental Consultant following completion of the works.

Depending on the nature of the asbestos encountered at the site and/or the nature of the works, the EMP and/or the Asbestos Register may also require updating (this should be determined by the occupational hygienist/Environmental Consultant, refer also to **Section 1.5** above).

3.5.4 Stockpile Handling

In the event that soil excavation beneath the capping or containment barrier layers is required, any materials excavated during these works must be securely stockpiled. Appropriate erosion and sedimentation controls must be employed, and stockpiles must be placed on sealed surfaces, in skip bins or on plastic sheeting to prevent cross contamination of unsealed surfaces (if present). Stockpiles must be covered with plastic sheeting and kept wet to minimise the generation of dust. All stockpiled soil must be treated as ACM and be appropriately barricaded, isolated and marked with warning labels.

3.5.5 Control of Dust

If excavation of soil is conducted, the soil excavation and any temporarily stockpiled excavated material shall be kept damp by water spraying if any dust is generated. Any stockpiled excavated material shall be covered and should not be accessible by other site users. Care should be taken to prevent overwatering the stockpiles or excavations (i.e., to prevent generating excess water runoff that may to erode the soil).

3.5.6 Noise and Odour Control

Should extensive excavation works be required, noise and vibrations from works on the site shall not exceed the limits set out in the contractor's specification for the works or council requirements (where applicable). No work will occur outside the permitted working hours set out in the contractor's documents or Development Approval (DA) (if required).

It is not anticipated that excessive odours will be generated during excavation work beneath capping/marker layers. If necessary, appropriate odour control measures should be implemented. All plant and machinery involved in the works should be regularly serviced and checked for exhaust emissions.

3.6 Waste Disposal

Any material that cannot be reinstated within the excavated areas beneath the capping/marker layers must be classified in accordance with the NSW EPA *Waste Classification Guidelines. Part 1: Classifying Waste* (or other applicable guidelines that may be in force). These surplus materials must be disposed at a waste disposal facility appropriately licensed to receive the materials, with disposal receipts/dockets obtained from the corresponding disposal facility. Under 79 of the *Protection of the Environment Operations (Waste) Regulation 2014*, waste transporters must use the NSW EPA online tracking system WasteLocate/Integrated Waste Tracking Solution (IWTS) when transporting more than 100 kilograms of asbestos waste (including soil).

3.7 Worker Hygiene and Personal Protective Equipment

Eating, drinking and smoking are not allowed in the work area during works that extend into the impacted fill materials located beneath the capping layer/marker layer. Hands must be washed prior to eating.

The recommended minimum PPE for personnel working within the area that impacts asbestos impacted fill shall include, but not be limited to, safety glasses, gloves, long sleeved shirts, pants, steel toe capped boots, disposable coveralls and an Australian Standard (AS) approved respirator/dust mask recommended for use with ACM. Asbestos related PPE must be used in accordance with the site-specific ARCP prepared by the contractor.

4 Corrective Actions and Incident Reporting

4.1 Corrective Actions

As noted above, ongoing maintenance, inspections of the capping layers are required to ensure the underlying fill materials are not accessible. The required inspection program (**Section 3.4**) has been designed to identify non-conformances that require corrective action to achieve the objectives.

As referenced above in **Table 3-1** (**Section 3.2**), the Landowner/Strata Corporation/Body Corporate is responsible to ensure the requirements of the EMP are successfully implemented.

In the event of any non-conformances that are identified, the following must be implemented:

- The Site Manager (or the appointed designee) must be notified in the first instance (noting the Site Manager/designee may also first identify any non-conformances during the required inspections);
- The Site Manager/designee will immediately notify the Landowner/Strata Corporation/Body Corporate of the actions requiring attention and take steps to immediately undertake any corrective actions/repairs. This will include immediately notifying the appointed Environmental Consultant to assess the non-conformance and provide advice on any special requirements associated with any corrective actions/repairs that may be required;
- The Landowner/Strata Corporation/Body Corporate will liaise with Council and a NSW EPA accredited Site Auditor in the event of a non-conformance that results in a potential risk to human health or the environment (to be advised by the appointed Environmental Consultant);
- The Landowner/Strata Corporation/Body Corporate will appoint the qualified Environmental Consultant to ensure that the EMP is reviewed and updated accordingly (per **Section 1.5**); and
- The Landowner/Strata Corporation/Body Corporate will submit any EMP revisions to the appointed Site Auditor, Council and leaseholders/tenants (per **Section 1.5**).

As the designated site personnel (such as the Site Manager/designee) may change, it is recommended that a separate contact sheet be kept with this EMP that outlines the following key contacts:

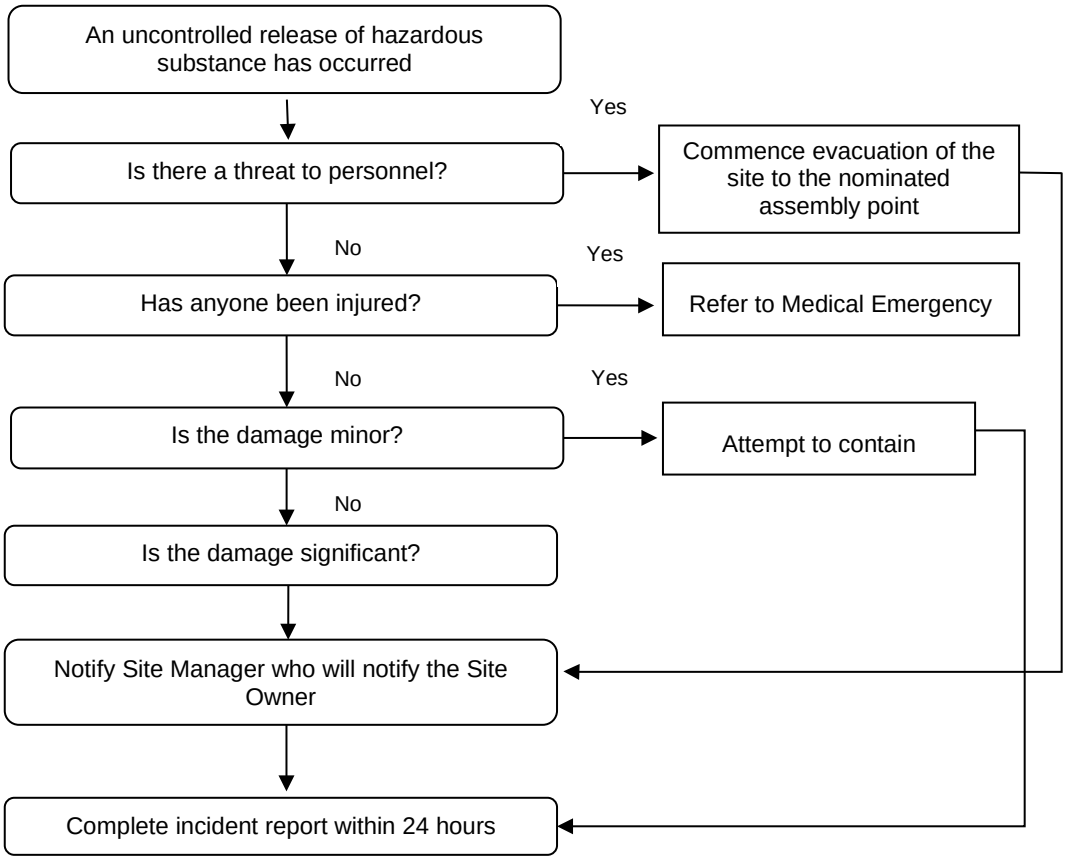
- The Site Manager and his/her designee;
- The Landowner/Strata Corporation/Body Corporate;
- The appointed Environmental Consultant;
- The appointed landscaping contractor or any other contractor that may be required to conduct subsurface work in the area subject to this EMP (if known);
- The appointed EPA accredited Site Auditor; and
- Council contact.

The contact sheet must be updated when any of the above key contacts change.

4.2 Environmental Incident

In the event of an environmental incident, the actions outlined in **Figure A** below shall be taken. In the event of a serious environmental incident, local Council and the EPA will be informed.

Figure A: Environmental Incident Flowchart



4.3 Incident Reporting

Site personnel are required to verbally report incidents, accidents and near-misses to their immediate project manager (if applicable) and/or the building Site Manager immediately after an event has occurred. It is the responsibility of the building Site Manager to notify the site owner (Landowner/Strata Corporation/Body Corporate) representative immediately after the occurrence of an environmental incident and to prepare and forward a completed incident report within 24 hours. The following emergency contacts are provided in the event of an emergency:

The following emergency contacts are provided in the event of an emergency:

Contact	Service	Address	Phone Number
Northern Beaches Hospital	Emergency Department	105 Frenchs Forest Road West, Frenchs Forest 2086	(02) 9105 5000
Hospital Poisons Information Centre	Poisons Information Service	N/A	13 11 26
NSW EPA	Report Pollution	N/A	131 555
Dee Why Police Station	Police	1 Saint David Avenue, Dee Why 2099	(02) 9971 3399
Fire, Ambulance or Police	Dial - 000		

5 References

- Contaminated Land Management Act 1997.
- Environmental Planning and Assessment Act 1979.
- NSW EPA (2014), *Waste Classification Guidelines. Part 1: Classifying Waste*. NSW EPA, November 2014.
- NSW EPA (2017), *Guidelines for the NSW Site Auditor Scheme (3rd Edition)*, NSW EPA, October 2017.
- NSW EPA (2020), *Consultants Reporting on Contaminated Land: Contaminated Land Guidelines*, April 2020, updated May 2020.
- NSW EPA (2022), *Practice Note – Preparing Environmental Management Plans for Contaminated Land*, January 2022.
- NSW Government (December 2022) *Code of Practice: How to Manage and Control Asbestos in the Workplace*.
- NSW Government (August 2019) *Code of Practice: How to Manage Work Health and Safety Risks*.
- NSW Government (December 2022) *Code of Practice: How to Safely Remove Asbestos*.
- NSW State Environmental Planning Policy (Resilience and Hazards) 2021.
- Protection of the Environment Operations (POEO) Act 1997.
- TRACE Environmental (2022a), *Data Gap Investigation, 4-8 Inman Road, Cromer, NSW*, 4 October 2022.
- TRACE Environmental (2022b), *Remedial Action Plan Addendum – Southern Landscaping Area, 4-8 Inman Road, Cromer, NSW*, 19 December 2022.
- TRACE Environmental (2023), *Site Validation Report, 4-8 Inman Road, Cromer, NSW,* 11 September 2023.
- Work Health and Safety Act 2011.
- Work Health and Safety Regulation 2017.

6 Limitations

This report has been prepared for EG Funds Management Pty Ltd for the specific purpose to which it refers. No responsibility is accepted to any third party and neither the whole of the report or any part or reference thereto may be published in any document, statement or circular nor in any communication with third parties without our prior written approval of the form and context in which it will appear.

TRACE Environmental has used a degree of skill and care ordinarily exercised by reputable members of our profession practicing in the same or similar locality. The conclusions presented in this report are relevant to the conditions of the site and the state of legislation currently enacted as at the date of this report. We do not make any representation or warranty that the conclusions in this report were applicable in the future as there may be changes in the condition of the site, applicable legislation or other factors that would affect the conclusions contained in this report.

This report and the information contained in it is the intellectual property of TRACE Environmental. EG Funds Management Pty Ltd is granted an exclusive licence for the use of the report for the purpose described in the report.

Figures

N

Source: Google Earth

TRACE ENVIRONMENTAL

Project:	**26.01**	Title:	**Locality Plan**
Figure:	**1**	Address:	**4-8 Inman Road, Cromer, NSW**

N

Site Boundary - NBBP
Lot 1 DP1282038

Boundary of Southern Landscaping Area subject to this LTEMP (refer to **Figure 3**)

20m (approx.)

Source: Nearmap

TRACE ENVIRONMENTAL	Project: **26.01**	Title: **Site Plan**	
	Figure: **2**	Address: **4-8 Inman Road, Cromer, NSW**	

TRACE ENVIRONMENTAL	Project: 26.01 Cromer	Title:	Site Layout - Southern Landscaping Area (Area Subject to this EMP)
	Figure: 3	Address:	4-8 Inman Road, Cromer, NSW

Appendix A

Survey

SURVEY PLAN IS BASED ON USING SURVEY DATA
PICKED UP AND SUPPLIED IN TP3 BY CLMU.
TSS CAN NOT VERIFY SURVEY ACCURACY.

MGA

TN

APPROX. 1°

INMAN ROAD

SOUTH CREEK ROAD

WAREHOUSE
UNIT 10

WAREHOUSE
UNIT 9

SITE - BOUNDARY

SHEET 2 SCALE 1:100

SHEET 3 SCALE 1:100

NOTE:

1. THIS WAE LANDSCAPE SURVEY INFORMATION SHOWN HERE IN RED WAS SURVEYED BY ISA SURVEY PTY LTD ON THE DATE OF 30/08/2023.

2. INFORMATION SHOWN IN GREEN CROSSES WAS SURVEYED BY TOTAL SURVEYING SOLUTIONS PTY LTD ON THE DATE OF 24/08/2023.

3. POLYLINE COLOURED ORANGE IS BOUNDARY OF CAPPED MATERIAL.

4. ORIGIN OF LEVELS ON A.H.D. (IN RED) IS TAKEN FROM PM 3961 WITH RL 12.604 (AHD).

THIS WAE LANDSCAPE SURVEY INFORMATION HERE SHOWN IN RED WAS SURVEYED BY ISA SVRVEY PTY LTD.

MINGYANG JIANG
REGISTERED SURVEYOR No.8948

REF: 210027
01/09/2023

SCALE
1:500

SHEET 1	OVERALL PLAN
SHEET 2	SELF STORAGE DRIVEWAY
SHEET 3	RAMP DRIVEWAY
SHEET 4	CAPPING BOUNDARY COORDINATES

SHEET 1 OF 4

TSS TOTAL SURVEYING SOLUTIONS
ARTARMON | CAMDEN | MANLY VALE

DRAWING TITLE
PLAN SHOWING
WAE LANDSCAPED AREAS, CAPPED
SUBGRADE & MARKER LAYER

CLIENT: CLMU
PROJECT: INMAN ROAD, CROMER

LEGEND
WAE CAPPED SUBGRADE
WAE MARKER LAYER
WAE LANDSCAPED AREAS

PLAN No. 220081.2001
DATE: 24.08.2023 SCALE: 1:500
DRAWN: PM
CHK: PM
CONTROL: SUPPLIED

DATUM: SUPPLIED
ORIGIN: SUPPLIED
MGA/LGA: SUPPLIED

DATE	REV	COMMENTS

NOTE:

1. THIS WAE LANDSCAPE SURVEY INFORMATION SHOWN HERE IN RED WAS SURVEYED BY ISA SURVEY PTY LTD ON THE DATE OF 30/08/2023.

2. INFORMATION SHOWN IN GREEN CROSSES WAS SURVEYED BY TOTAL SURVEYING SOLUTIONS PTY LTD ON THE DATE OF 24/08/2023.

3. POLYLINE COLOURED ORANGE IS BOUNDARY OF CAPPED MATERIAL.

4. ORIGIN OF LEVELS ON A.H.D. (IN RED) IS TAKEN FROM PM 3961 WITH RL 12.604 (AHD).

MGA

TN

APPROX

THIS WAE LANDSCAPE SURVEY INFORMATION HERE SHOWN IN RED WAS SURVEYED BY ISA SVRVEY PTY LTD.

MINGYANG JIANG
REGISTERED SURVEYOR No.8948

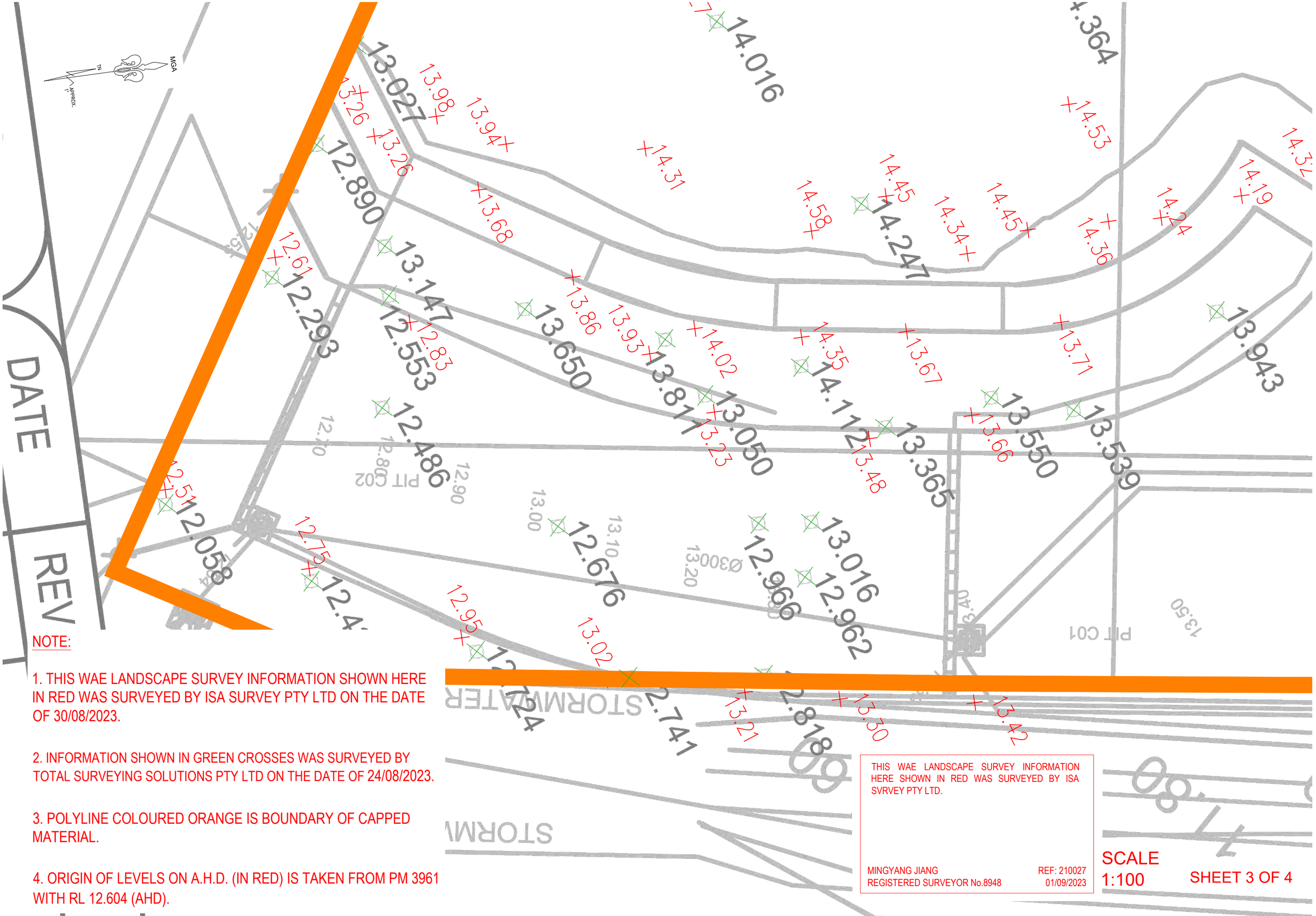
REF: 210027
01/09/2023

SCALE
1:100

NDARY

ROAD

SHEET 2 OF 4



NOTE:

1. THIS WAE LANDSCAPE SURVEY INFORMATION SHOWN HERE IN RED WAS SURVEYED BY ISA SURVEY PTY LTD ON THE DATE OF 30/08/2023.

2. INFORMATION SHOWN IN GREEN CROSSES WAS SURVEYED BY TOTAL SURVEYING SOLUTIONS PTY LTD ON THE DATE OF 24/08/2023.

3. POLYLINE COLOURED ORANGE IS BOUNDARY OF CAPPED MATERIAL.

4. ORIGIN OF LEVELS ON A.H.D. (IN RED) IS TAKEN FROM PM 3961 WITH RL 12.604 (AHD).

THIS WAE LANDSCAPE SURVEY INFORMATION HERE SHOWN IN RED WAS SURVEYED BY ISA SVRVEY PTY LTD.

MINGYANG JIANG
REGISTERED SURVEYOR No.8948

REF: 210027
01/09/2023

SCALE
1:100

SHEET 3 OF 4

SURVEY PLAN IS BASED ON USING SURVEY DATA PICKED UP AND SUPPLIED IN TP3 BY CLMU. TSS CAN NOT VERIFY SURVEY ACCURACY.

MGA

TN

APPROX. 1°

INMAN ROAD

SOUTH CREEK ROAD

SITE - BOUNDARY

PROPOSED BUILDING PAD

STORMWATER DRAINAGE EASEMENT

CLEAR ACCESS WAY (9.5m WIDE)

CAPPING BOUNDARY COORDINATES		
POINT	EASTING	NORTHING
1	341 239.183	6 265 517.943
2	341 258.060	6 265 515.051
3	341 255.505	6 265 469.684
4	341 255.505	6 265 469.000
5	341 301.920	6 265 440.511
6	341 373.792	6 265 429.911
7	341 368.904	6 265 396.828
8	341 364.574	6 265 389.531
9	341 234.347	6 265 470.578
10	341 231.606	6 265 476.520
11	341 232.803	6 265 484.315
12	341 234.711	6 265 488.823

NOTE:

1. THIS WAE LANDSCAPE SURVEY INFORMATION SHOWN HERE IN RED WAS SURVEYED BY ISA SURVEY PTY LTD ON THE DATE OF 30/08/2023.

2. INFORMATION SHOWN IN GREEN CROSSES WAS SURVEYED BY TOTAL SURVEYING SOLUTIONS PTY LTD ON THE DATE OF 24/08/2023.

3. POLYLINE COLOURED ORANGE IS BOUNDARY OF CAPPED MATERIAL.

4. ORIGIN OF LEVELS ON A.H.D. (IN RED) IS TAKEN FROM PM 3961 WITH RL 12.604 (AHD).

THIS WAE LANDSCAPE SURVEY INFORMATION HERE SHOWN IN RED WAS SURVEYED BY ISA SVRVEY PTY LTD.

MINGYANG JIANG
REGISTERED SURVEYOR No.8948

REF: 210027
01/09/2023

SCALE
1:500

SHEET 4 OF 4

TSS TOTAL SURVEYING SOLUTIONS
ARTARMON | CAMDEN | MANLY VALE

DRAWING TITLE
PLAN SHOWING
WAE LANDSCAPED AREAS, CAPPED SUBGRADE & MARKER LAYER

CLIENT: CLMU
PROJECT: INMAN ROAD, CROMER

LEGEND
- WAE CAPPED SUBGRADE
- WAE MARKER LAYER
- WAE LANDSCAPED AREAS

PLAN No. 220081.2001
DATE: 24.08.2023 SCALE: 1:500
DRAWN: PM
CHK: PM
CONTROL: SUPPLIED

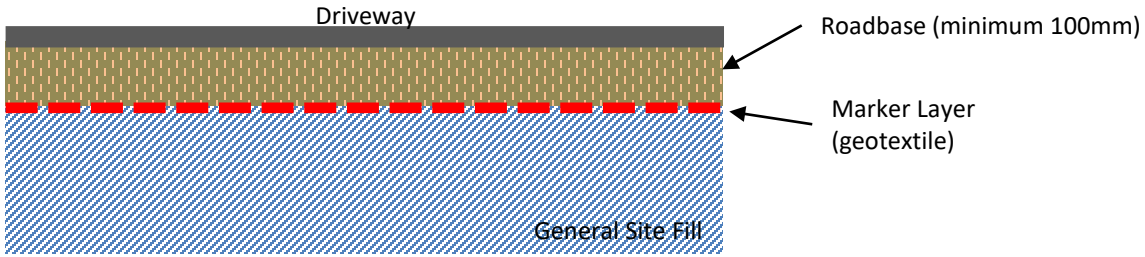
DATUM: SUPPLIED
ORIGIN: SUPPLIED
MGA/LGA: SUPPLIED

DATE	REV	COMMENTS

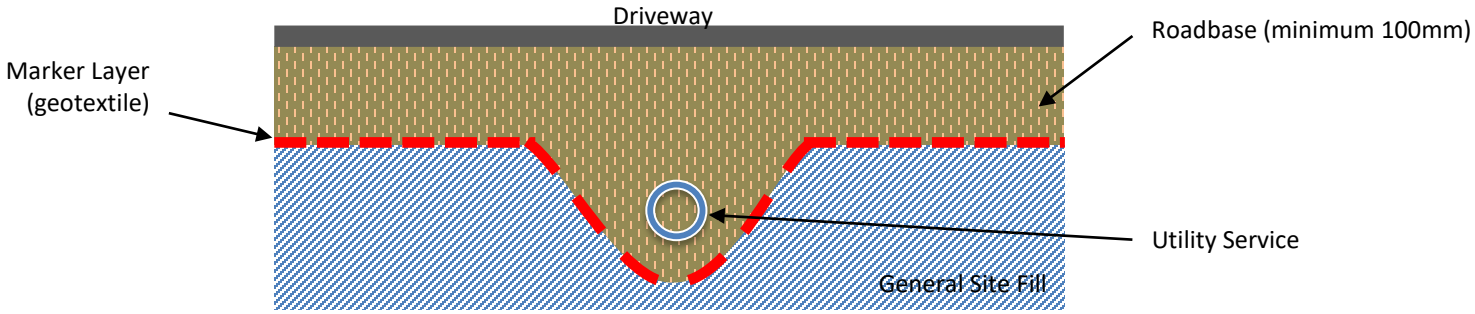
Appendix B

Capping Diagrams

Hardstand/Driveway Areas

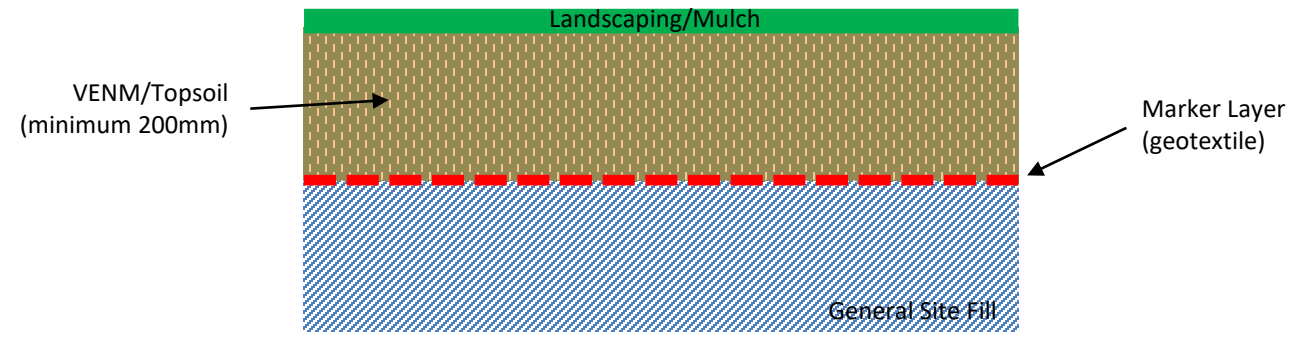


Deep Utility Trenches Beneath Driveway Areas (if required)

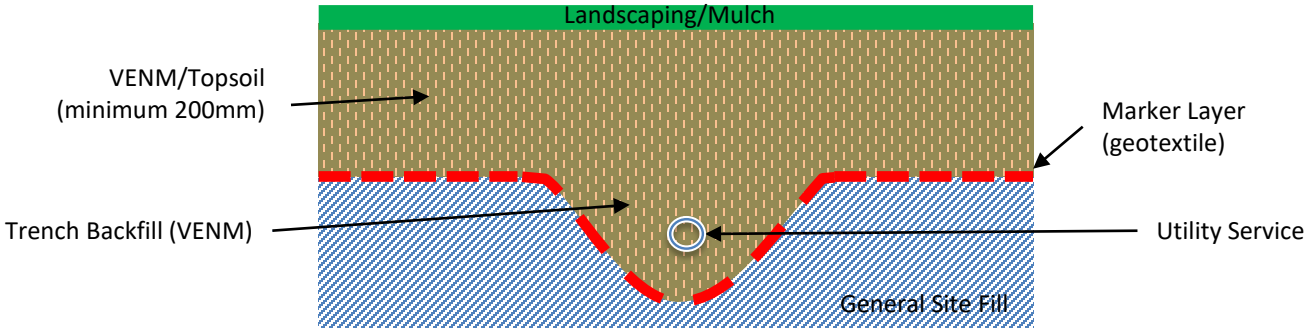


TRACE ENVIRONMENTAL	Project: **26.01 Cromer**	Title:	**Capping System – Driveway Areas**
	Figure: **B-1**	Address:	**4-8 Inman Road, Cromer, NSW**

General Landscaping

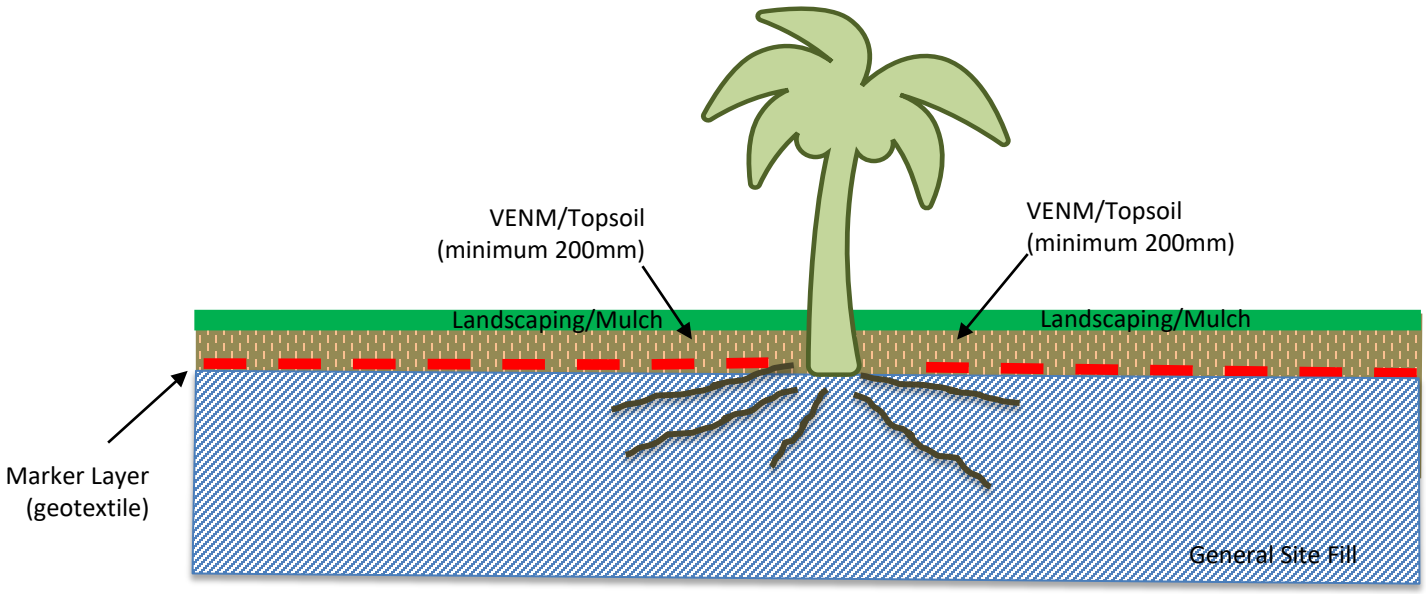


Deep Utility Trench Beneath Landscaping (if required)



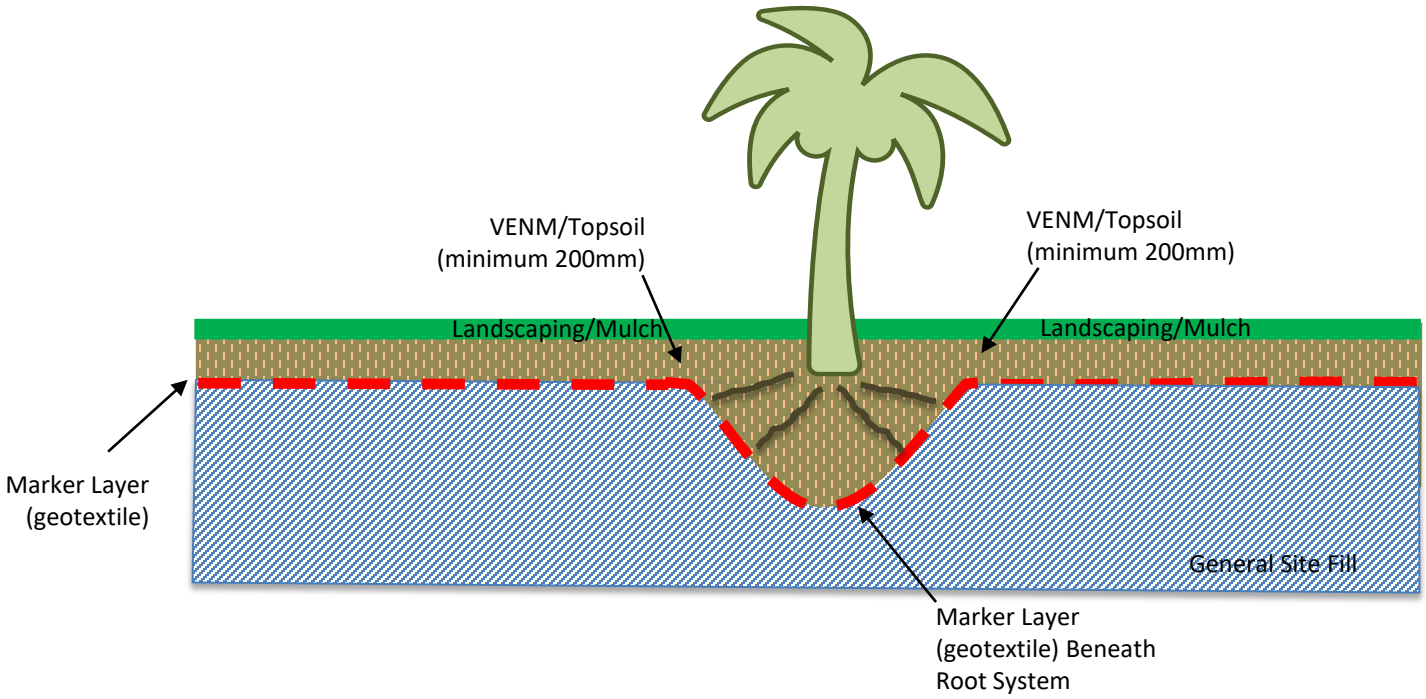
TRACE ENVIRONMENTAL	Project: **26.01 Cromer**	Title:	**Capping System – General Landscaping Areas**
	Figure: **B-2**	Address:	**4-8 Inman Road, Cromer, NSW**

Existing Trees Requiring Protection



TRACE ENVIRONMENTAL	Project: **26.01 Cromer**	Title:	**Capping System – Beneath Existing Trees**
	Figure: **B-3**	Address:	**4-8 Inman Road, Cromer, NSW**

Installation of Replacement Trees – Deep Root System (if required)



TRACE ENVIRONMENTAL	Project: **26.01 Cromer**	Title:	**Capping System – Replacement Trees**
	Figure: **B-4**	Address:	**4-8 Inman Road, Cromer, NSW**

Appendix C

Photographs

Photograph 1: Typical ACM fragment

Photograph 2: View of orange marker layer during construction of capping.

Appendix D

Capping Inspection Form

Capping Inspection Form

Long-Term environmental Management Plan (LTEMP) –
Northern Beaches Business Park
Southern Landscaping Area and Driveways
4-8 Inman Road, Cromer, NSW

Inspection Date: _____

Inspector Name: _____

Position & Company: _____

Signature: _____

Inspections to be conducted every three months or after a significant rain event that may cause erosion.

Observation	Yes/No (Please Circle)	Required Action
At the landscaping areas - is there any erosion of the capping layer? Is the marker layer visible? Please also inspect areas at tree trunks to ensure capping extends to the base of the tree.	Yes No	If yes - contact the Site Manager to arrange repairs of the capping structures and/or arrange for vegetation to be replanted (per diagrams provided in **Attachment B** of this LTEMP).
Is there evidence of vegetation/ groundcover die-off or erosion?	Yes No	If yes - contact the Site Manager to arrange repairs of the capping structures and/or arrange for vegetation to be replanted.
At the driveway areas - are there cracks in the concrete?	Yes No	If yes - contact the Site Manager to arrange repairs of the capping structures (per diagrams provided in **Attachment B** of this LTEMP).
Is there evidence of soil erosion beneath the concrete and/or is the underlying marker layer visible?	Yes No	If yes - contact the Site Manager to arrange repairs of the capping structures (per diagrams provided in **Attachment B** of this LTEMP).
At all areas - is soil beneath the marker layer visible or are asbestos fragments visible?	Yes No	If yes – immediately barricade area (bollards, warning tape) and contact Site Manager who will contact the appointed environmental consultant to inspect area and provide recommendations.
Is there evidence of sediment leaving site?	Yes No	If yes - contact the Site Manager to inspect and determine source of erosion area.

If 'Yes' to any of the above, the Site Manager is complete 'Required Actions' on Page 2 of this form. The Site Manager will also be responsible to immediately notify the Landowner/Strata Corporation/Body Corporate of the actions requiring attention.

Additional Observations (attach photographs documenting the inspection if necessary): _____

_____

_____

_____

_____

_____

_____

Capping Inspection Form

Long-Term environmental Management Plan (LTEMP) –
Northern Beaches Business Park
Southern Landscaping Area and Driveways
4-8 Inman Road, Cromer, NSW

Required Actions (to be undertaken by Site Manager):

_____

_____

_____

_____

_____

_____

_____

_____

Repair Date:_____

Contractor Name and Company (if required):_____

Contractor Position and Company:_____

Repairs Completed (please detail):

_____

_____

_____

_____

_____

_____

_____

_____

_____

Site Manager Name: _____

Signature: _____

Date: _____

Completed inspection forms to be kept on file with the LTEMP.

Asbestos Register
Northern Beaches Business Park
4-8 Inman Road, Cromer, NSW

Occurrence Details	Type of Material (Identified/Assumed)	Is Asbestos Friable or Non-Friable?	Feature/Location of identified or assumed asbestos	Sample ID	Sample Status	Condition of Asbestos	Recommendations & Comments	Location Diagram
Inspection date: 30/8/23	Asbestos fragments (ACM) in soil	May contain Friable Asbestos (FA) or Asbestos Fines (AF) associated with degraded ACM fragments	Soil - Beneath capping at Southern Landscaping Area (per figure at right)	N/A	N/A	Presumed to be poor	Maintain vegetative ground cover in vegetated areas per EMP Maintain concrete capping in driveways per EMP	

Management of the asbestos as contained at the 'Southern Landscaping Area' (per the figure) is managed in accordance with the *Long-Term Environmental Management Plan - Southern Landscaping Area, Northern Beaches Business Park, 4-8 Inman Road, Cromer, NSW*, prepared by TRACE Environmental, dated 15 September 2023.