Site Audit Report

AEC 31b: 146E Samuel Marsden Road, Orchard Hills

Audit Number: MP181_7

7 July 2023

Document Information

Site Audit Report
AEC 31b: 146E Samuel Marsden Road, Orchard Hills
Audit Number: MP181_7

Prepared by:
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Prepared for:
CPBUI JV
Level 5, 60 Miller Street
North Sydney NSW

Disclaimer and Limitations:

Senversa acknowledges the traditional custodians of the land on which this work was created and pay our respect to elders past and present.

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. MP181_7

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: [redacted]

Company: Senversa Pty Ltd

Address: Level 24, 1 Market Street

Sydney NSW Postcode: 2000

Phone: 02 8252 0000

Email: [redacted]

Site details

Address: 146E Samuel Marsden Road, Orchard Hills NSW

Postcode: 2748

Property description

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

Part Lot 131 Deposited Plan 1276954 (Attachment 1)

Local government area: Penrith City Council

Area of site (include units, e.g. hectares): 0.2 hectares

Current zoning: RU2: Rural Landscape

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.~~

~~☐ Order no.~~

~~☐ Proposal no.~~

~~☐ 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: [redacted]

Company: CPB Contractors Pty Ltd and United Infrastructure Pty Ltd (CPBUI JV)

Address: Level 5, 60 Miller Street, North Sydney NSW

Postcode: 2060

Phone: 02 9035 5007

Email: [redacted]@cpbuijv.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)

☐ 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: Railway track, embankments/ noise barriers, a stabling yard and maintenance facility, station and passive open space adjacent to the rail corridor

~~OR~~

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

~~Intended uses of the land:~~

~~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:

Douglas Partners Pty Ltd (Douglas Partners)

Titles of reports reviewed:

'Sampling and Analysis Quality Plan (SAQP), Surface & Civil Alignment Works (SCAW) Package for Sydney Metro – Western Sydney Airport (SMWSA), Area of Environmental Concern (AEC) 31b, 146E Samuel Marsden Road, Orchard Hills' dated 19 August 2022 by Douglas Partners.

'Report on Detailed Site Investigation (Contamination), Surface & Civil Alignment Works (SCAW) Package for Sydney Metro – Western Sydney Airport (SMWSA), Area of

Environmental Concern (AEC) 31b, 146E Samuel Marsden Road, Orchard Hills' dated 4 April 2023 by Douglas Partners

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

Environmental Impact Statement dated October 2020 by Sydney Metro

Site audit report details

Title Site Audit Report, AEC 31b: 146E Samuel Marsden Road, Orchard Hills

Report no. MP181_7 Date 7 July 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):

Railway track, embankments/ noise barriers, a stabling yard and maintenance facility, station and passive open space adjacent to the rail corridor.

~~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:

The site has been used for rural pasture land since from review of aerial photos. An investigation of soil and groundwater reported analytical results and field observations consistent with no widespread contamination at the site.

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):

_____

EMP details

Title _____

Author _____

Date _____ No. of pages _____

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].

[2] Refer to Part IV for an explanation of an environmental management plan.
[3] Refer to Part IV for definitions of active and passive control systems.

~~Purpose of the EMP:~~

~~Description of the nature of the residual contamination:~~

~~Summary of the actions required by the EMP:~~

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

~~How there will be appropriate public notification:~~

~~Overall comments:~~

Section B

Purpose of the plan[4] 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

[4] 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. MP_0803

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: [redacted]

Date: 7 July 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

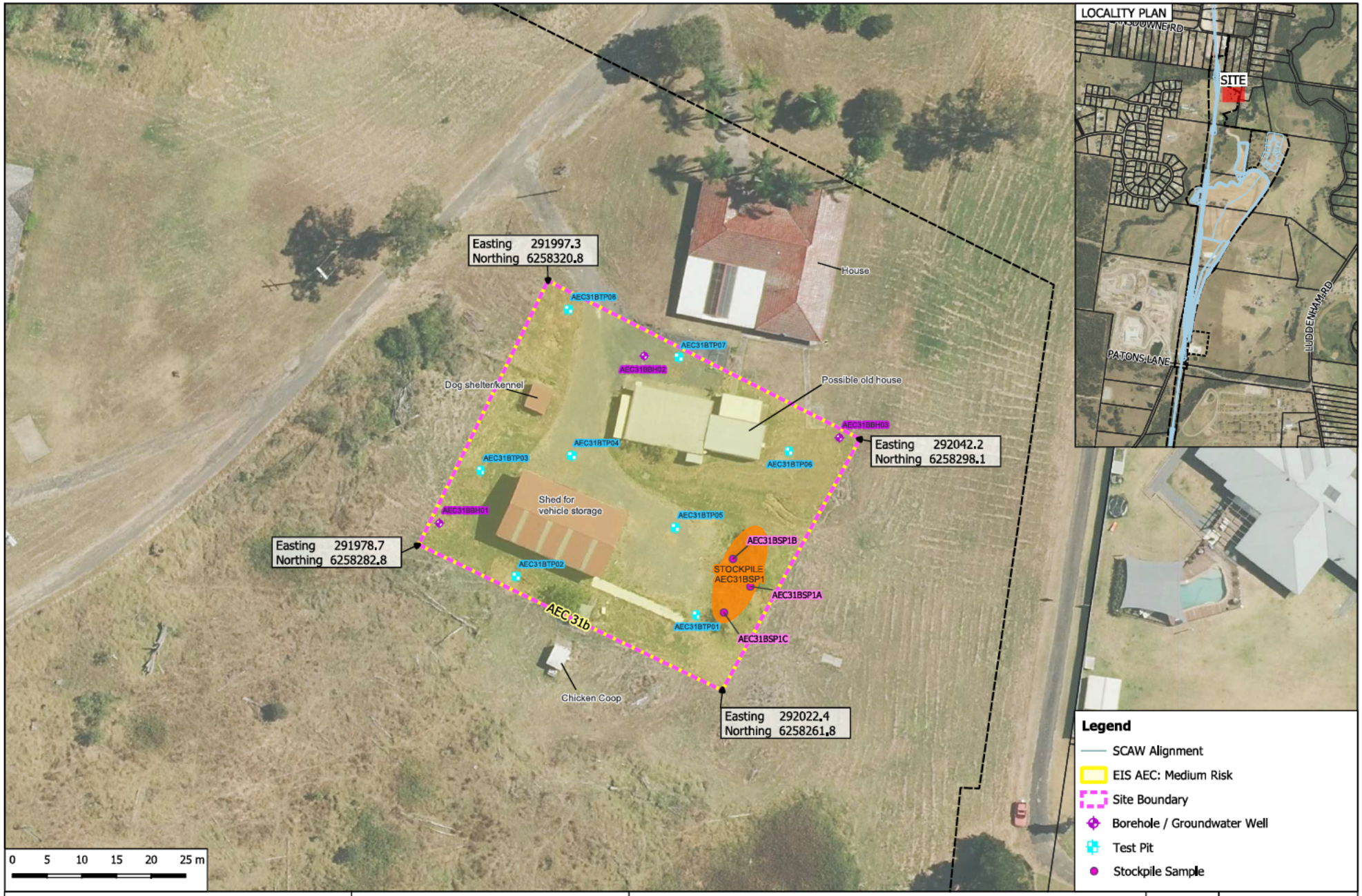
In **Part III** the auditor certifies their standing as an accredited auditor under the CLM Act and makes other relevant declarations.

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.



Douglas Partners
Geotechnics / Environment / Groundwater

CLIENT: CPBUJ JV		TITLE:	**AEC31b Test Location Plan**
OFFICE: Sydney	DRAWN BY: MG		**Sydney Metro Western Sydney Airport - SCAW**
SCALE: 1:500 @A3	DATE: 28/03/2023		**146E Samuel Marsden Road, Orchard Hills**

N

PROJECT No:	204814.01
DRAWING No:	AEC31b-01
REVISION:	1

Contents

Tables in Text

Appendices

List of Acronyms

Acronym	Definition
Measures	
%	per cent
µg/L	Micrograms per Litre
ha	Hectare
km	Kilometres
m	Metre
mbgl	Metres below ground level
mg/kg	Milligrams per Kilogram
ppm	Parts Per Million
General	
ACL	Added Contaminant Limit
ADWG	Australian Drinking Water Guidelines
AECs	Areas of Environmental Concern
AF	Asbestos Fines
ANZECC	Australian and New Zealand Environment and Conservation Council
ANZG	Australian and New Zealand Guidelines
ASS	Acid Sulfate Soil
BaP	Benzo(a)pyrene
BTEX	Benzene, Toluene, Ethylbenzene, Xylenes & Naphthalene
CLM Act	NSW Contaminated Land Management Act 1997
COC	Chain of Custody
Council	Penrith City Council

Acronym	Definition
CPBUI JV	CPB Contractors Pty Ltd and United Infrastructure Pty Ltd
CSM	Conceptual Site Model
DGV	Default Guideline Value
DP	Deposited Plan
DQI	Data Quality Indicator
DQO	Data Quality Objective
DSI	Detailed Site Investigation
EIL	Ecological Investigation Level
EIS	Environmental Impact Statement
Envirolab	Envirolab Services Pty Ltd
EPA	Environment Protection Authority (NSW)
ESL	Ecological Screening Level
FA	Fibrous Asbestos
GIL	Groundwater Investigation Level
HIL	Health Investigation Level
HSL	Health Screening Level
IAA	Interim Audit Advice
LOR	Limit of Reporting
Mercury	Inorganic mercury unless noted otherwise
Metals	As: Arsenic, Cd: Cadmium, Cr: Chromium, Cu: Copper, Ni: Nickel, Pb: Lead, Zn: Zinc, Hg: Mercury
ML	Management Limits
NATA	National Association of Testing Authorities

Acronym	Definition
NEPM	National Environment Protection Measure
NHMRC	National Health and Medical Research Council
NL	Non-Limiting
n	Number of Samples
OCPs	Organochlorine Pesticides
OPPs	Organophosphorus Pesticides
PAHs	Polycyclic Aromatic Hydrocarbons
PCBs	Polychlorinated Biphenyls
PFAS	Perfluoroalkyl and Polyfluoroalkyl Substances
pH	A measure of acidity, hydrogen ion activity
PID	Photoionisation Detector

Acronym	Definition
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
RPD	Relative Percent Difference
SAQP	Sampling Analysis and Quality Plan
SAR	Site Audit Report
SAS	Site Audit Statement
SCAW	Surface & Civil Alignment Works
SWL	Standing Water Level
TRHs	Total Recoverable Hydrocarbons
VOCs	Volatile Organic Compounds
-	On tables is "not calculated", "no criteria" or "not applicable"

1.0 Introduction

A site contamination audit has been conducted in relation to the site at 146E Samuel Marsden Road, Orchard Hills NSW (known as 'AEC 31b').

The site is part of the Sydney Metro – Western Sydney Airport rail line that will extent approximately 23 km from St Marys to the Western Sydney Aerotropolis. The Surface & Civil Alignment Works (SCAW) package is between Orchard Hills and Western Sydney Airport.

Areas of environmental concern (AECs) have been identified along the SCAW corridor requiring investigation. The current site is known as AEC 31b. The remaining AECs will be subject to separate audits.

The audit was conducted to provide an independent review by an EPA Accredited Auditor of whether the land is suitable for any specified use or range of uses i.e., a "Site Audit" as defined in Section 4 (1) (b) (iii) of the NSW Contaminated Land Management Act 1997 (the CLM Act).

Details of the audit are:

Requested by:	[redacted] on behalf of CPB Contractors Pty Ltd and United Infrastructure Pty Ltd (CPBUI JV)
Request/Commencement Date:	7 June 2022
Auditor:	Melissa Porter
Accreditation No.:	0803

The scope of the audit included:

- Review of the following reports:
  - 'Environmental Impact Statement' dated October 2020 by Sydney Metro (EIS).
  - 'Sampling and Analysis Quality Plan (SAQP), Surface & Civil Alignment Works (SCAW) Package for Sydney Metro – Western Sydney Airport (SMWSA), Area of Environmental Concern (AEC) 31b, 146E Samuel Marsden Road, Orchard Hills' dated 19 August 2022 by Douglas Partners (SAQP).
  - Report on Detailed Site Investigation (Contamination), Surface & Civil Alignment Works (SCAW) Package for Sydney Metro – Western Sydney Airport (SMWSA), Area of Environmental Concern (AEC) 31b, 146E Samuel Marsden Road, Orchard Hills' dated 4 April 2023 by Douglas Partners (DSI).
- A site visit by the auditor on 21 June 2023.
- Discussions with CPBUI JV and with Douglas Partners who undertook the investigation.

Several Interim Audit Advice (IAA) have been issued for the site (Appendix C) providing comments on the various reports. IAA No. 3 issued on 26 April 2023 confirmed that the DSI could be finalised.

2.0 Site Details

2.1 Location

The site locality is shown on Attachment 1, Appendix A.

The site details are as follows:

Street address:	146E Samuel Marsden Road, Orchard Hills NSW 2748
Identifier:	Part Lot 131 Deposited Plan (DP) 1276954
Local Government:	Penrith City Council
Site Owner:	Sydney Metro
Site Area:	Approximately 0.2 ha

The boundaries of the site are not well defined by streets/adjoining properties. A survey plan of the site has been provided (Attachment 2, Appendix A).

2.2 Zoning

The current zoning of the site is RU2: Rural Landscape.

2.3 Adjacent Uses

The site is located within an area of residential and rural land used for grazing with some sheds, animal shelters/pens and dams.

An unnamed creek is located approximately 130 m to the north of the site and Blaxland Creek is approximately 130 m east of the site. A number of dams are located near to the site with the closest being located approximately 200 m south-west of the site.

2.4 Site Condition

Douglas Partners noted that the site sloped generally to the north-east. The EIS stated the site was used for rural and residential with two buildings and a shed present at the site. During the DSI, Douglas Partners noted that a gravel road accessed the site and the structure comprised sheds, a caged shelter, and a building. The building appeared to comprise of asbestos containing material. A stockpile was located within the eastern portion of the site. Old timber and metal sheets were observed near the shed, as well as minor staining on the ground within the shed. No other signs of potential contamination was observed.

During the auditors site visit on 21 June 2023, the site appeared very similar to Douglas Partners' observations. The structures noted by Douglas Partners were present and intact. The stockpile onsite was covered in grass and appeared to have been excavated into. The surrounding area was also grassed with residential buildings present, and earthworks were evident as part of the SCAW project to the west of the site.

2.5 Proposed Development

It is understood that the site is to be redeveloped by CPBUI JV as a part of a stabling yard associated with the railway corridor for the Sydney Metro – Western Sydney Airport line. The Sydney Metro – Western Sydney Airport line development includes approximately 10km of railway track from Orchards Hills to the Western Sydney Airport, embankments/ noise barriers, a stabling yard and maintenance facility, station and passive open space adjacent to the rail corridor.

For the purposes of this audit, the ‘commercial/industrial’ land use scenario will be assumed.

3.0 Site History

Douglas Partners provided a summary of the site history based on the EIS review of aerial photographs, site photographs and NSW EPA records. Consistent with the current condition, the site has been rural land for pastoral use.

In the auditor's opinion, the site history provides an adequate indication of past activities. The auditor is satisfied that there is no evidence of past uses that have significant potential to contaminate the site.

4.0 Contaminants of Concern

Douglas Partners provided a list of the contaminants of concern and potentially contaminating activities. These have been tabulated in Table 4.1.

Table 4.1: Contaminants of Concern

Area	Activity	Potential Contaminants
Structures	Potential workshops.	Metals, total recoverable hydrocarbons (TRH), benzene, toluene, ethylbenzene and xylenes (BTEX), polycyclic aromatic hydrocarbons (PAH), organochlorine pesticides (OCP), organophosphorus pesticides (OPP), phenols and volatile organic compounds (VOCs).
Structures	Potential hazardous building material use	Lead, asbestos and PCBs.
Entire site	Minor waste disposal	Metals, TH, BTEX, PAHs, polychlorinated biphenyls (PCB) and asbestos
Entire site	Offsite migration from activities to the west of the site (including waste disposal).	Metals, TRH, BTEX, PAHs, PCBs, OCPs, OPPs, phenols, VOCs and ammonia.

Given that agricultural activities were evident historically at the site, Douglas Partners considered that perfluoroalkyl and polyfluoroalkyl substances (PFAS) impacts were unlikely.

The auditor considers that the analyte list used by Douglas Partners adequately reflects the site history and condition.

5.0 Stratigraphy and Hydrogeology

Following a review of the reports provided, a summary of the site stratigraphy and hydrogeology was compiled as follows.

5.1 Stratigraphy

The sub-surface profile of the site is summarised in Table 5.1.

Table 5.1: Stratigraphy

Depth (mbgl)	Subsurface Profile
0.0 – 0.3	Fill: sandy gravel and silty sand. The thickness of this layer varies from 0.15 m to 1.0 m.
0.3 – 5.0	Silty clay.
5.0 to depth	Siltstone.

mbgl – metres below ground level

The site is not within an area of associated with a risk of acid sulfate soil (ASS).

The auditor considers that the depth of fill and underlying stratigraphy have been adequately characterised.

5.2 Hydrogeology

Groundwater investigations have been undertaken at the site. Depth to groundwater is between approximately 3.9 mbgl and 5.7 mbgl (prior to sampling). It is noted that depth to groundwater prior to well development was between approximately 5 mbgl and 7 mbgl. Douglas Partners state a heavy rainfall was recorded a couple of days prior to the sampling which has raising the groundwater levels.

Groundwater is considered likely to flow to the north-east following the sites topography. Groundwater levels indicate flow was to the north prior to development and to the south-east following development. There are no registered bores within a 500 m radius of the site.

The nearest surface water receptor is an unnamed creek approximately 130 m to the north and Blaxland Creek located approximately 130 m to the east of the site. The unnamed creek flows into Blaxland Creek. Douglas Partners reported that surface water from the site is likely to infiltrate the ground as runoff to the north-east.

The auditor considers that the hydrogeology has been adequately characterised.

6.0 Evaluation of Quality Assurance and Quality Control

The auditor has assessed the overall quality of the data by review of the information presented in the referenced report, supplemented by field observations. The auditor's assessment follows in Tables 6.1 and 6.2.

Table 6.1: QA/QC – Sampling and Analysis Methodology Assessment

Sampling and Analysis Plan and Sampling Methodology	Auditor's Opinion
Data Quality Objectives (DQO) Douglas Partners defined specific DQOs in accordance with the seven-step process outlined in DEC (2006) Guidelines for the NSW Site Auditor Scheme.	Appropriate for the investigations conducted.
Sampling pattern and locations Soil: Investigation locations were spaced on a grid to gain coverage of the majority of the site. Two samples were collected from a stockpile. Groundwater: Three groundwater wells were installed across the site, one up-gradient (towards the western corner), and two up-gradient (towards the north and eastern portions of the site).	These investigation locations adequately target the main areas of concern.
Sampling density Soil: The sampling density of 8 locations over approximately 0.2 ha meets the minimum recommended by EPA (2022) Sampling Design Guidelines. Samples analysed for asbestos were not generally collected as outlined in NEPM (2013) (Schedule B1). However 500 ml samples were collected for analysis of fibrous asbestos from all test pits and stockpiles, and bulk (10 kg) samples were undertaken for one test pit and the two stockpiles. Groundwater: A total of 3 groundwater well were installed at the site and sampled on 13 February 2023.	With regards asbestos, given that no anthropogenic materials were identified at the site, the auditor is satisfied that the sampling is appropriate. The field work was commenced prior to the release of the updated EPA (2022) Sampling Design Guidelines. Given the consistency of the results between sampling locations, the lack of significant contaminating activities and the relatively low concentrations of the contaminants of concern, the discrepancy is not considered to affect the audit conclusions.
Sample depths Samples were collected and analysed from a range of depths, with the primary intervals being within the shallow fill (0.0-0.1 mbgl) and at and around the fill/clay interface (around 0.5-0.6 mbgl). Stockpile samples were collected and analysed from depths of 0.0-0.1 m and 0.3 m.	Adequate.
Well construction Groundwater: The monitoring wells were installed to depths of 11 mbgl and 11.5 mgbl, with a 3 m screen interval. Wells were constructed of 50 mm uPVC. A bentonite seal of 2 m was placed above the screen and then backfill to surface. The backfill material was not specified. The standing water levels (SWLs) did not intersect the screen intervals in any of the wells prior to well development or sampling.	As light non-aqueous phase liquids were not of concern, the screen depth being below the SWL is not considered to affect the results.
Sample collection method Soil: Sample collection was by hand from the excavator returns.	Overall, the sample collection method was found to be acceptable.

Sampling and Analysis Plan and Sampling Methodology	Auditor's Opinion
Groundwater: Wells were installed by solid flight augers, developed with a pump and samples were collected 5 days after development using a low flow peristaltic pump with dedicated sample tubing.	
Decontamination procedures Soil: No equipment was used that required decontamination. New gloves were reportedly used for each new sample. Groundwater: Equipment was decontaminated between monitoring well by rinsing in a diluted Liquinox solution and then rinsing with demineralised water. Dedicated tubing was used for each well. New gloves were reportedly used for each new sample.	Acceptable.
Sample handling and containers Samples were placed into prepared and preserved sampling containers provided by the laboratory and chilled during storage and subsequent transport to the labs. Samples for asbestos analysis were placed in plastic zip-lock bags. Groundwater samples to be analysed for heavy metals were not field filtered but were filtered by the laboratories. The metals concentrations reported may therefore be over- or under-estimated depending on the groundwater pH.	Overall, the sample handling was found to be acceptable.
Chain of Custody (COC) Completed chain of custody forms were provided in the report.	Acceptable.
Detailed description of field screening protocols Soil: Field screening for volatiles was undertaken using a PID. Groundwater: Field parameters were measured during well sampling and development.	Acceptable.
Calibration of field equipment The reports indicated that calibration had been undertaken prior to use. Calibration certificates from the equipment supplier were provided for the water quality meter. Field calibration records were provided for the PID.	Acceptable.
Sampling logs Soil logs are provided within the report, indicating sample depth, PID readings and lithology. Groundwater field sampling records were provided, indicating SWL, field parameters, methodology and observations.	Acceptable.

Table 6.2: QA/QC – Field and Lab Quality Assurance and Quality Control

Field and Lab QA/QC	Auditor's Opinion
Field quality control samples Field quality control samples including trip blanks, trip spikes, rinsate blanks, field intra-laboratory and inter-laboratory duplicates were undertaken. Rinsates were not required during soil sampling since dedicated sampling equipment was used for each location.	Acceptable.
Field quality control results The results of field quality control samples were generally within appropriate limits. The following exceptions were noted: Relative Percent Difference (RPDs) for the inter- and intra-laboratory soil duplicate samples for arsenic, total chromium, lead, and zinc ranged from 33% to 63%. RPDs for the inter-laboratory groundwater duplicate sample for arsenic, total chromium, copper, lead, nickel, zinc, and naphthalene ranged from 105% to 191%. The highest of the check laboratory result and the project laboratory result was used in the assessment.	Overall, in the context of the dataset reported, the elevated RPD results are not considered significant and the field quality control results are acceptable.
NATA registered laboratory and NATA endorsed methods Laboratories used included: Envirolab and Eurofins | mgt. Laboratory certificates were NATA stamped.	Acceptable.
Analytical methods Analytical methods were included in the laboratory test certificates. Both Envirolab and Eurofins | mgt provided brief method summaries of in-house NATA accredited methods used based on USEPA and/or APHA methods (excluding asbestos) for extraction and analysis in accordance with the NEPM (2013). Asbestos identification was conducted by Envirolab using polarised light microscopy with dispersion staining by method AS4964-2004 Method for the Qualitative Identification of Asbestos Bulk Samples.	The analytical methods are considered acceptable for the purposes of the site audit, noting that the AS4964-2004 is currently the only available method in Australia for analysing asbestos. DOH (2009) and enHealth (2005) state that "until an alternative analytical technique is developed and validated the AS4964-2004 is recommended for use".
Holding times Review of the COCs and laboratory certificates indicate that the holding times had been met. Douglas Partners also reported that holding times have been met.	Acceptable.
Practical Quantitation Limits (PQLs) Soil: PQLs (except asbestos) were less than the threshold criteria for the contaminants of concern. Asbestos: The limit of detection for asbestos in soil was 0.001% w/w. Groundwater: PQLs were less than the threshold criteria for the contaminants of concern.	Soil (except asbestos) and groundwater: Overall the soil PQLs are acceptable. Asbestos: In the absence of any other validated analytical method, the detection limit for asbestos is considered acceptable. A positive result would be considered to exceed the "no asbestos detected in soil" criteria, providing this is applied within a weight of evidence approach to assess the significance of the exceedance, accounting for the history of the site and frequency of the occurrence.
Laboratory quality control samples Laboratory quality control samples including laboratory control samples, matrix spikes, surrogate spikes, blanks, internal standards and duplicates were undertaken by the laboratory.	The majority of the laboratory reports did include duplicates as part of laboratory quality control samples. As such overall, sufficient quality control samples have been analysed to assess laboratory accuracy. .
Laboratory quality control results The results of laboratory quality control samples were generally within appropriate limits, with the following exceptions:	The RPD exceedances are not expected to affect the usability o the data as exceedances were due to sample heterogeneity, or failed RPDs were within the internal laboratory QC acceptance criteria.

Field and Lab QA/QC	Auditor's Opinion
RPDs for metals in three soil batches, TRH and PAHs in one soil batch, and for metals in one groundwater batch were outside the data quality indicators. Matrix spike for endrin in one soil batch was above acceptance limit. Surrogate recoveries for PFAS were over the acceptance limit in one soil batch, under the acceptance limit for phenols in one soil and groundwater batch, and over the acceptance limit for PFAS in one groundwater batch.	The matrix spike recovery for endrin above the acceptance limit is not considered to affect the usability of the data as endrin was not detected above the LOR or guidelines in any of the samples analysed. The surrogate recoveries outside the acceptance limits are not expected to affect the usability of the data as PFAS was not a chemical of concern of this site, and all phenols results were below the limit of reporting and guidelines in all samples analysed for the site.
Data Quality Indicators (DQI) and Data Evaluation (completeness, comparability, representativeness, precision, accuracy) Predetermined DQIs were set for laboratory analyses including blanks, replicates, duplicates, laboratory control samples, matrix spikes, surrogate spikes and internal standards. These were discussed with regard to the five category areas. There was limited discussion regarding actions required if data do not meet the expected objectives.	An assessment of the data quality with respect to the five category areas has been undertaken by the auditor and is summarised below.

In considering the data as a whole the auditor concludes that:

- The data is likely to be representative of the overall conditions of the site.
- The data is complete.
- There is a high degree of confidence that data is comparable for each sampling and analytical event.
- The primary laboratory provided sufficient information to conclude that data is of sufficient precision.
- The data is accurate.

7.0 Environmental Quality Criteria

The auditor has assessed the results against Tier 1 criteria from National Environmental Protection Council (NEPC) National Environmental Protection (Assessment of Site Contamination) Measure 1999, as Amended 2013 (NEPM, 2013). Other guidance has been adopted where NEPM (2013) is not applicable or criteria are not provided. Based on a proposed land use of a stabling yard as part of a rail corridor, the criteria for 'commercial/industrial' land use has been referred to.

The auditor has assessed the **soil** data provided with reference to Tier 1 (screening) criteria from the following:

- Human Health Assessment:
  - Health Based Investigation Levels (HIL D).
  - Soil Health Screening Levels (HSL D) for Vapour Intrusion. The most conservative criteria were adopted i.e., assumed depth to source < 1 m and sand.
  - CRC CARE (2011) Direct Contact (HSL D, and intrusive maintenance worker).
  - Asbestos Health Screening Levels (HSL D).
  - HEPA, 2020. PFAS National Environmental Management Plan (NEMP) released by the National Chemicals Working Group of the Heads of EPAs Australia and New Zealand (HEPA)
- Ecological Assessment:
  - Ecological Screening Levels (ESL Commercial/Industrial) assuming coarse/fine soil.
  - Ecological Investigation Levels (EIL Commercial/Industrial). In the absence of site specific soil data on pH, clay content, cation exchange capacity and background concentrations, the published range of the added contaminant values have been applied as an initial screen.
- Management Limits (ML Commercial/Industrial) assuming coarse soil.
- Aesthetics:
  - The auditor has considered the need for remediation based on the 'aesthetic' contamination as outlined in the NEPM (2013).

The auditor has assessed the **groundwater** data provided with reference to Tier 1 (screening) criteria from the following:

- Human Health Assessment
  - NEPM (2013) Groundwater Health Screening Levels (HSL D) for vapour intrusion (sand, 2 to <4 m) (applied for screening purposes).
- Ecological Assessment
  - Groundwater Investigation Levels (GILs) listed in NEPM (2013) for protection of aquatic ecosystems referenced in ANZECC (2000) Australian and New Zealand Guidelines for Fresh and Marine Water Quality. The ANZECC 2000 guidelines have been updated in ANZG (2018) Australian and New Zealand Guidelines for Fresh and Marine Water Quality. Australian and New Zealand Governments and Australian state and territory governments, Canberra ACT, Australia. (Available at www.waterquality.gov.au/anz-guidelines). The Default Guideline Values (DGV) provided are concentrations of toxicants that should have no significant adverse effects on the aquatic ecosystem. The marine/fresh water 95% level of protection was adopted. Some have been modified based on bioaccumulation or acute-toxicity or potential toxicity to particular species.

8.0 Evaluation of Soil Analytical Results

Soil samples were analysed for a variety of contaminants including petroleum hydrocarbons, PAHs, OCPs, OPPs, phenols, PCBs, asbestos and heavy metals. The analytical results are summarised below in Table 8.1.

The results have been assessed against the environmental quality criteria. Soil sampling locations are shown as Attachment 2, Appendix A.

Table 8.1: Evaluation of Soil Analytical Results – Summary Table (mg/kg)

Analyte	N	Detections	Maximum	n > Human Health Screening Criteria (NEPM, 2013)	n > Terrestrial Ecological Screening Criteria (NEPM, 2013)
Lead	17	17	25	0 above HIL D of 1500 mg/kg	0 above Generic ACL of 1800 mg/kg
Benzene	17	0	<PQL	0 above HSL D 0-1 m, sand of 3 mg/kg	0 above ESL (commercial/industrial) (coarse) of 75 mg/kg
Toluene	17	0	<PQL	HSL D, Non limiting	0 above ESL (commercial/industrial) (coarse) of 135 mg/kg
Ethyl benzene	17	0	<PQL	HSL D, Non limiting	0 above ESL (commercial/industrial) (coarse) of 165 mg/kg
Total Xylenes	17	0	<PQL	HSL D, Non limiting	0 above ESL (commercial/industrial) (fine) of 95 mg/kg
TRH C6-C10	17	0	<PQL	0 above ML (commercial/industrial) of 800 mg/kg	-
TRH C10-C16	17	0	<PQL	0 above ML (commercial/industrial) of 1000 mg/kg	-
F1 (TRH C6–C10 minus BTEX)	17	0	<PQL	0 above HSL D 0-1 m, sand of 260 mg/kg	0 above ESL (commercial/industrial) (coarse/fine) of 215 mg/kg
F2 (TRH >C10–C16 minus naphthalene)	17	0	<PQL	HSL D, Non limiting	0 above ESL (commercial/industrial) (coarse/fine) of 170 mg/kg
F3 (TRH C16-C34)	17	3	160	0 above ML (commercial/industrial) of 3500 mg/kg	0 above ESL (commercial/industrial) (coarse) of 1700 mg/kg
F4 (TRH C34-C40)	17	3	220	0 above ML (commercial/industrial) of 10,000 mg/kg	0 above ESL (commercial/industrial) (coarse) of 3300 mg/kg
Naphthalene	17	0	<PQL	HSL D, Non limiting	0 above Generic EIL (commercial/industrial) of 370 mg/kg

Analyte	N	Detections	Maximum	n > Human Health Screening Criteria (NEPM, 2013)	n > Terrestrial Ecological Screening Criteria (NEPM, 2013)
Benzo(a)pyrene (BaP)	17	2	0.2	-	0 above ESL (commercial/industrial) (coarse/fine) of 1.4 mg/kg
BaP TEQ	17	0	<0.5	0 above HIL D 40 mg/kg	-
Total PAHs	17	2	1.8	0 above HIL D 4000 mg/kg	-
Pentachlorophenol	2	0	<1	0 above HIL A 100 mg/kg	-
Total Phenols	17	0	<5	0 above HIL D 240000 mg/kg	-
Arsenic	17	17	13	0 above HIL D 3000 mg/kg	0 above Generic EIL (commercial/industrial) of 160 mg/kg
Cadmium	17	0	<0.4	0 above HIL D 900 mg/kg	-
Chromium	17	17	67	0 above HIL D 3600 mg/kg	0 above most conservative ACL for commercial/industrial of 310 mg/kg
Copper	17	17	55	0 above HIL D 240000 mg/kg	0 above most conservative ACL for commercial/industrial of 85 mg/kg
Mercury	17	0	<0.1	0 above HIL D 730 mg/kg	-
Nickel	17	17	13	0 above HIL D 6000 mg/kg	0 above most conservative ACL for commercial/industrial of 55 mg/kg
Zinc	17	17	49	0 above HIL D 400000 mg/kg	0 above most conservative ACL for commercial/industrial of 110 mg/kg
Total OCPs	17	0	<PQL	0 above HIL D	-
Total OPPs	17	0	<PQL	-	0 above EIL (commercial/industrial)
PCBs	17	0	<PQL	0 above HIL D 7 mg/kg	-
Asbestos (FA/AF)	12	0	<0.001	0 above HSL D 0.07%	-
Asbestos (presence/absence)	12	0	NAD	-	-

n number of samples

- No criteria available/used

NL Non-limiting

<PQL Less than the practical quantitation limit

*Note: The numbers presented in the above table have been complied and transcribed manually from data tabulated by the consultants and thus some sectios may be present. Any such errors are not considered by the auditor to be significant in the overall context and amount of data reviewed and conclusions drawn regarding the site during the audit.

The site is characterised by low level detection of metals in both fill and natural soil with all results reported below site criteria. TRH F3 and TRH F4 were detected in three samples, and BaP was detected in two samples, all within fill material and below site criteria. The remaining analytes were not reported above detection. No asbestos was identified at the site.

PID results were less than 5 ppm. No odours, staining or potential asbestos containing material were observed during sampling. This is consistent with the soil results indicating no widespread contamination at the site.

In the auditor's opinion the sites soil has been adequately characterised. The auditor is satisfied that no further investigations are needed and that the site criteria for commercial/industrial land uses have been met.

9.0 Evaluation of Groundwater Analytical Results

Three groundwater samples were collected across the site. The samples were submitted for metals, TRH, BTEX, PAH, and VOC analysis. The analytical results are summarised below in Table 9.1.

The results have been assessed against the environmental quality criteria. Sample locations are presented in Attachment 2, Appendix A.

Table 9.1: Summary of Maximum Groundwater Investigation Analytical Results (µg/L)

Analyte	n	Detections	Maximum	n > ANZG (2018)	n > HSL D (<2-4 mbgl)
TRH C_6-C_{10} less BTEX (F1)	3	0	<PQL	-	0 above 6000 µg/L
TRH >C_{10}-C_{16} less naphthalene (F2)	3	0	<50	-	NL
TRH >C16-C34 (F3)	3	0	<100	-	-
TRH >C34-C40 (F4)	3	0	<100	-	-
Benzene	3	0	<1	0 above 950 µg/L	0 above 5000 µg/L
Toluene	3	0	<1	-	NL
Ethyl benzene	3	0	<1	-	NL
Xylene	3	0	<PQL	0 above 200 µg/L	NL
Naphthalene	3	3	0.04	0 above 16 µg/L	NL
Benzo(a)pyrene	3	0	<0.01	-	-
Arsenic	3	2	**13**	0 above 13 µg/L	-
Cadmium	3	1	0.2	0 above 0.2 µg/L	-
Chromium	3	1	**44**	**1 above 0.2 µg/L**	-
Copper	3	2	**48**	**1 above 1.4 µg/L**	-
Lead	3	1	**17**	**1 above 3.4 µg/L**	-
Mercury	3	0	<PQL	0 above 0.06 µg/L	-
Nickel	3	3	**45**	**1 above 11 µg/L**	-
Zinc	3	3	**93**	**1 above 8 µg/L**	-
Total VOCs	3	0	<PQL	-	-

n number of samples
\- No criteria available/used
NL Non-limiting
<PQL Less than the practical quantitation limit

*Note: The numbers presented in the above table have been complied and transcribed manually from data tabulated by the consultants and thus some errors may be present. Any such errors are not considered by the auditor to be significant in the overall context and amount of data reviewed and conclusions drawn regarding the site during the audit.

The groundwater is characterised by low level detections of metals including arsenic, cadmium, chromium, copper, lead, nickel and zinc. Chromium, copper, lead, nickel, and zinc reported above the ecological criteria. Slightly elevated concentrations were reported for the inter-laboratory duplicate compared to the primary sample as the secondary laboratory didn't filter the sample. Considering this, levels of metals are generally consistent in all groundwater wells at the site, and the concentrations are likely to be representative of background concentrations. Naphthalene was detected in all three groundwater wells but did not exceed any criteria. The remaining analytes were reported below detection.

No hydrocarbon odours, oil sheen or phase separated hydrocarbons were observed. This is consistent with site history and soil results indicating no widespread contamination at the site. Any potential impacts from offsite sources do not appear to have migrated onto the site through groundwater.

In the auditor's opinion the sites groundwater has been adequately characterised. The auditor is satisfied that no further investigations are needed and that the site criteria for the commercial/industrial land use have been met.

10.0 Evaluation of Conceptual Site Model

A conceptual site model (CSM) is a representation of the source, pathway and receptor linkages at a site. Douglas Partners has developed a conceptual site model and has used the CSM iteratively throughout the site assessment to inform decisions around investigation requirements. The CSM was initially developed following the preliminary investigations and has been updated as new information became available. Table 10.1 provides the auditors review of the final CSM used by Douglas Partners to conclude on site suitability.

Table 10.1: Review of the Conceptual Site Model

Element of CSM	Consultant	Auditor Opinion
Contaminant source and mechanism	Contaminated ground from potential workshops, minor waste disposal, use or storage of hazardous building material, and contaminated groundwater migrating onto the site from the west.	Adequate.
Affected media	Soil. Groundwater.	Adequate.
Receptor identification	Construction workers. Future site workers including maintenance workers. Pedestrians and commuters. Adjacent site users. Surface water bodies. Groundwater. Terrestrial ecosystems. In ground structures.	Adequate. The auditor notes receptors in surface water bodies would include aquatic ecosystems.
Exposure pathways	Ingestion and direct contact. Inhalation of dust. Inhalation of vapours. Surface run-off. Leaching of contaminants into groundwater and lateral migration of groundwater.	Adequate.
Presence of preferential pathways for contaminant movement	Not specified.	The auditor considers the preferential pathways are likely to be direct contact during construction works and migration into groundwater/ run-off to surface water.
Evaluation of data gaps	None identified.	Adequate.

11.0 Contamination Migration Potential

No significant levels of contaminants were detected over the site and therefore there is little or no potential for migration of contamination from the site or vertically to groundwater. As such, groundwater characterisation is not considered necessary.

In the auditor's opinion, there is no evidence of significant migration of contamination and little potential for future migration.

12.0 Assessment of Risk

Based on assessment of results against relevant guidelines and consideration of the overall investigation, it is the auditor's opinion that the risks to human health and the environment are low.

The auditor considers that the risk of any undetected contamination is low. The expected conditions at the site are fill (sandy gravel and silty sand) overlying natural (silty clay) and siltstone with no odour or staining.

13.0 Compliance with Regulatory Guidelines and Directions

The auditor has used guidelines currently approved by the EPA under Section 105 of the NSW Contaminated Land Management Act 1997 (Appendix B).

The investigation was generally conducted in accordance with SEPP (Resilience and Hazards) 2021 and reported in accordance with the NSW EPA (2020) Consultants Reporting on Contaminated Sites Contaminated Land Guidelines. The checklist included in that document has been referred to. The EPA's Checklist for Site Auditors using the EPA Guidelines for the NSW Site Auditor Scheme 2017 (October 2017) has also been referred to.

14.0 Conclusions and Recommendations

Douglas Partner considers that the site is “suitable for the proposed development”. Based on the information presented in Douglas Partners reports and observations made on site, and following the Decision-Making Process for Assessing Urban Redevelopment Sites in NSW EPA (2017) Guidelines for the NSW Site Auditor Scheme, the auditor concludes that the site is suitable for the purposes of “a railway track, embankments/ noise barriers, a stabling yard and maintenance facility, station and passive open space adjacent to the rail corridor”.

15.0 Other Relevant Information

This audit was conducted on the behalf of Sydney Metro for the purpose of assessing whether the land is suitable for the proposed commercial/industrial uses i.e. a “Site Audit” as defined in Section 4 (definition of a ‘site audit’ (b)(iii)). The audit report has been prepared to satisfy a requirement for the redevelopment the site.

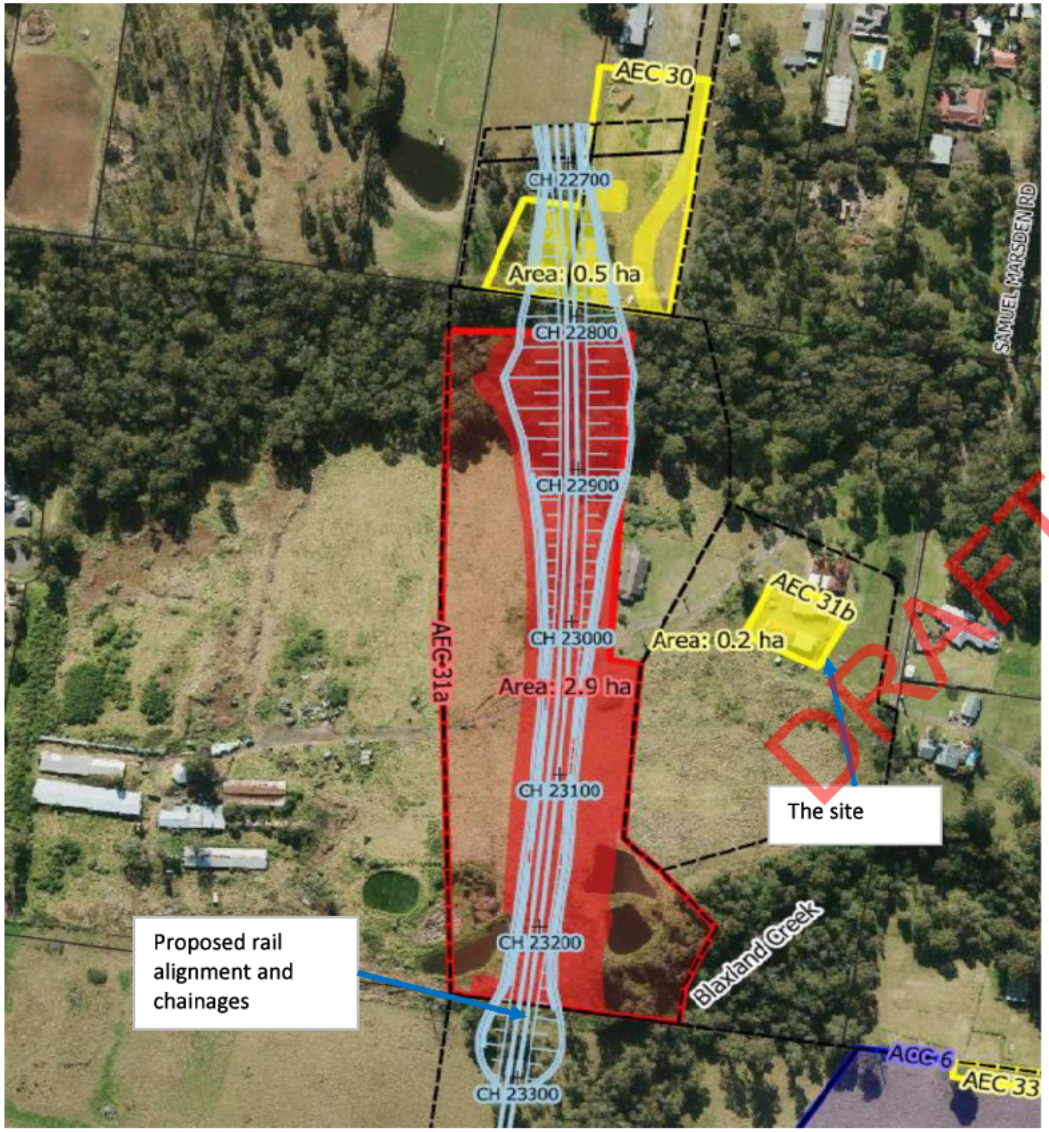
This summary report may not be suitable for other uses. Douglas Partners included limitations in their report. The audit must also be subject to those limitations. The auditor has prepared this document in good faith, but is unable to provide certification outside of areas over which the auditor had some control or is reasonably able to check.

In drawing conclusions, the auditor used reasonable care to avoid reliance upon data and information that may be inaccurate, however a degree of uncertainty is inherent in all subsurface investigations and there remains the possibility that variations may occur between sample locations. The audit and this report are limited by and rely upon the scope of the review, and the information provided by the Client and their consultants and representatives through documents provided to the auditor. The audit is based on a review of the subsurface condition of the site at the time of assessment, as described in the assessment reports attached to the audit report and site inspections conducted by the auditor and their representatives. The auditor’s conclusions presented in this report are therefore based on the information made available to them and arising from their own observations conducted during the audit. If the auditor is unable to rely on any of those documents, the conclusions of the audit could change.

It is not possible in a Site Audit Report to present all data which could be of interest to all readers of this report. Readers are referred to the referenced reports for further data. Users of this document should satisfy themselves concerning its application to, and where necessary seek expert advice in respect to, their situation.

In reaching their conclusions about the site, CPB and NSW EPA may use this audit report and site audit statement. The scope of work performed as part of the audit process may not be appropriate to satisfy the needs of any other person. Any other person’s use of, or reliance on, the audit document and report, or the findings, conclusions, recommendations or any other material presented or made available to them, is at that person’s sole risk.

Appendix A: Attachments



Site Location

Approximate scale

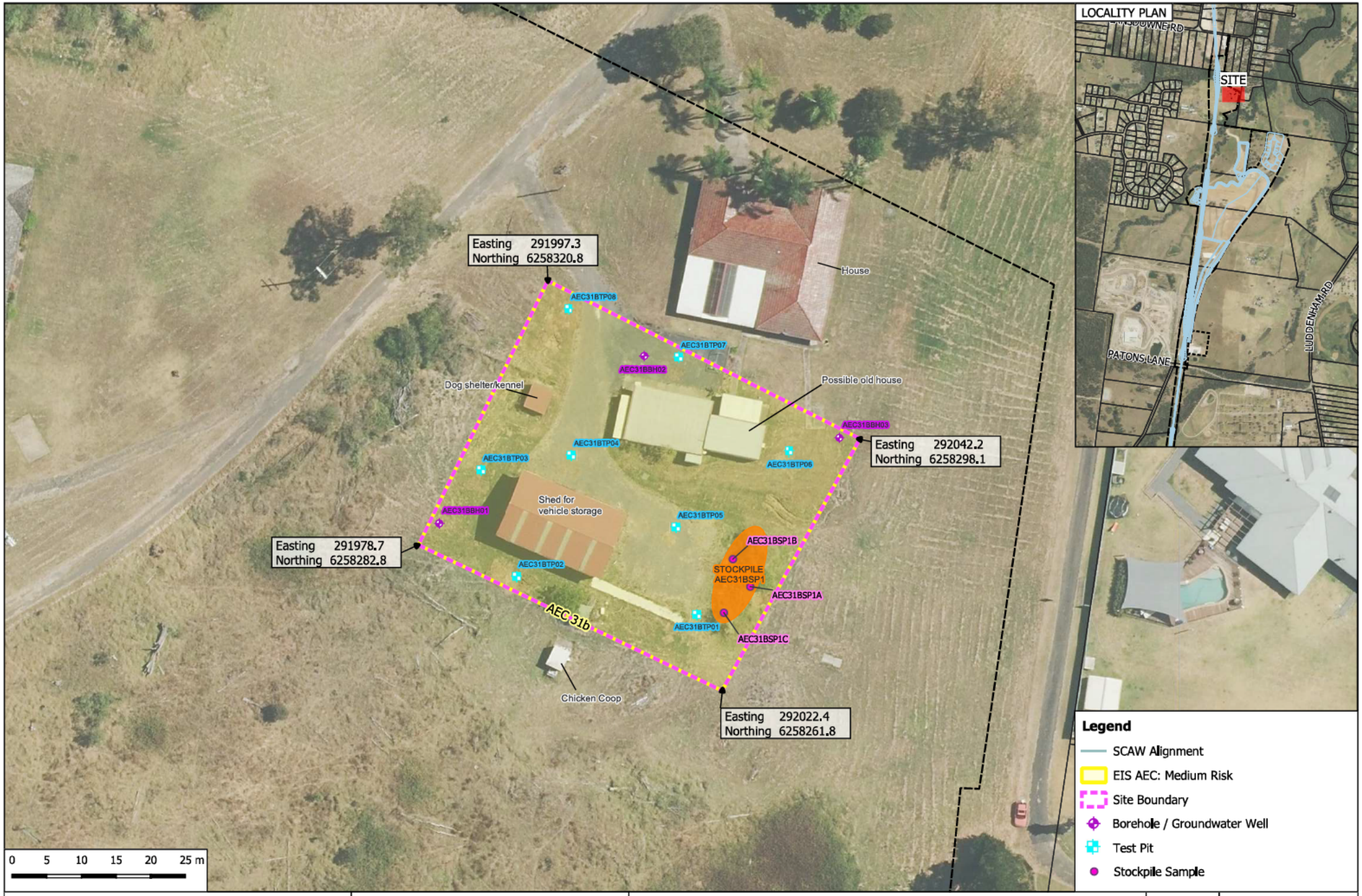
0 20 m

Legend

Areas of Environmental Concern (AEC) EIS Chapter 16

- High
- Medium
- Schedule D14 Areas of Contamination Concern (ACC)

Douglas Partners Geotechnics / Environment / Groundwater	CLIENT: CPB Contractors Pty Ltd OFFICE: Sydney DATE: 22 Jul 2022	**Site Location** **Surface & Civil Alignment Works Package for Sydney Metro - Western Sydney Airport** **Area of Environmental Concern (AEC) 31b, 146E Samuel Marsden Road, Orchard Hills**	PROJECT No: 204814.01 DWG No: 1 REVISION: 0



Douglas Partners
Geotechnics / Environment / Groundwater

CLIENT:	CPBUI JV		
OFFICE:	Sydney	DRAWN BY:	MG
SCALE:	1:500 @ A3	DATE:	28/03/2023

TITLE: **AEC31b Test Location Plan**
Sydney Metro Western Sydney Airport - SCAW
146E Samuel Marsden Road, Orchard Hills

PROJECT No:	204814.01
DRAWING No:	AEC31b-01
REVISION:	1

Appendix B: EPA Guidelines

Guidelines made or approved by the EPA under section 105 of the *Contaminated Land Management Act 1997*

(as of: 12 August 2022)

Section 105 of the Contaminated Land Management Act 1997 (CLM Act) allows the EPA to make or approve guidelines for purposes connected with the objects of the Act. The EPA must consider these guidelines whenever they are relevant. Other people must also consider the guidelines, namely, accredited site auditors when conducting a site audit; contaminated land consultants when investigating, remediating, validating and reporting on contaminated sites; and those responsible for land contamination with a duty to notify the EPA.

A current list of guidelines made or approved by the EPA under the CLM Act appears below.

Guidelines made by the EPA

- Assessment and management of hazardous ground gases: Contaminated land guidelines (PDF 4MB).
- Guidelines for the vertical mixing of soil on former broad-acre agricultural land (PDF 148KB).
- Contaminated land sampling design guidelines part 1 – application (PDF 3.3MB).
- Contaminated land sampling design guidelines part 2 – interpretation (PDF 1MB).
- Guidelines for assessing banana plantation sites (PDF 586KB).
- Consultants reporting on contaminated land: Contaminated land guidelines (PDF 1MB).
- Guidelines for assessing former orchards and market gardens (PDF 172KB).
- Guidelines for the NSW Site Auditor Scheme, 3rd edition (PDF 999KB).
- Guidelines for the assessment and management of groundwater contamination (PDF 604KB).
- Guidelines on the duty to report contamination under the Contaminated Land Management Act 1997 (PDF 412KB).

Guidelines that refer to the:

- Australian Water Quality Guidelines for Fresh and Marine Waters (ANZECC, October 2000), are replaced as of 29 August 2018 by the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZG, August 2018), with the exception of the water quality for primary industries component, which still refer to the ANZECC & ARMCANZ (2000) guidelines.
- National Environment Protection (Assessment of Site Contamination) Measure 1999 are replaced as of 16 May 2013 by the National Environment Protection (Assessment of Site Contamination) Measure 1999 (April 2013).

Guidelines approved by the EPA

- Australian and New Zealand Guidelines for Fresh and Marine Water Quality, ANZG (August 2018)
- Australian and New Zealand Guidelines for Fresh and Marine Water Quality, Volume 3, Primary Industries - Rationale and Background Information (ANZECC & ARMCANZ (October 2000).
- Composite sampling, Lock, W. H., National Environmental Health Forum Monographs, Soil Series No.3, 1996, SA Health Commission, Adelaide. Email enHealth.Secretariat@health.gov.au for a copy of this publication.
- Environmental health risk assessment: Guidelines for assessing human health risks from environmental hazards, Department of Health and Ageing and EnHealth Council, Commonwealth of Australia (June 2012).
- National Environment Protection (Assessment of Site Contamination) Measure 1999 (April 2013)* (ASC NEPM).
- Guidelines for the Assessment and Clean Up of Cattle Tick Dip Sites for Residential Purposes, NSW Agriculture and CMPS&F Environmental (February 1996).
- Australian Drinking Water Guidelines, NHMRC and Natural Resource Management Ministerial Council of Australia and New Zealand (2011).

*The ASC NEPM was amended on 16 May 2013.

Appendix C: Interim Audit Advice

Senversa Pty Ltd
Level 24, 1 Market St, Sydney 2000
ABN 89 132 231 380 www.senversa.com.au

1 September 2022

[redacted]
CPBUI JV
Level 5, 60 Miller Street
North Sydney NSW 2060

Dear [redacted]

Re: Interim Audit Advice No. 1: AEC31b, 146E Samuel Marsden Road, Orchard Hills

Review of Sampling and Analysis Quality Plan

1. Introduction and Background

[redacted] (the Site Auditor) of Senversa Pty Ltd (Senversa) has been engaged by CPB Contractors Pty Ltd and United Infrastructure Pty Ltd (CPBUI JV) on behalf of Sydney Metro as a NSW Environment Protection Authority (EPA) Accredited Contaminated Sites Auditor for the proposed development of the Sydney Metro to Western Sydney Airport line. The site is part of the proposed Sydney Metro line and is located at 146E Samuel Marsden Road, Orchard Hills (hereafter referred to as 'the site').

The site is currently occupied by rural and residential purposes. The site is potentially impacted from former workshops, minor waste disposal activities and use or storage of hazardous building materials. It is understood that the site will be disturbed during rail line construction which will likely include stripping of the topsoil. Douglas Partners Pty Ltd (Douglas Partners), engaged as the environmental consultant to assess the contamination status of the site, produced the following report, which was forwarded to the Site Auditor for review:

- 'Sampling and Analysis Quality Plan (SAQP), Surface & Civil Alignment Works (SCAW) Package for Sydney Metro – Western Sydney Airport (SMWSA), Area of Environmental Concern (AEC) 31b, 146E Samuel Marsden Road, Orchard Hills' dated 19 August 2022 by Douglas Partners (DRAFT).

This interim audit advice details the review of the SAQP for a detailed site investigation in relation to the contamination status of the site.

2. Review Comments

The Site Auditor has undertaken a review of the SAQP against the requirements specified in the *Guidelines for the NSW Site Auditor Scheme (3rd edition)* (NSW EPA, 2017) and the *Guidelines for Consultants Reporting on Contaminated Sites* (NSW Office of Environment and Heritage, 2011).

Review comments are detailed herein.

- Section 1. Please consider the NSW EPA Sampling Design Guidelines (2022), implement appropriate and compliant densities where feasible or provide justification for reduced sampling densities i.e., consistently low results and consistent with the known site history.
- Section 6. Please confirm review of Appendix B in the NEMP regarding the potential for PFAS contamination for the historical and current land use.
- Section 7. Site Assessment Criteria in Appendix B cover a wide range of analytes and depths. The actual criteria to be applied at the site should be outlined in Section 7 if auditor review is required.
- Section 10. No sediment or surface water samples are listed in Section 9 or Appendix A, please remove.
- Appendix A: Pease reference the waste storage/dumping areas, former poultry farm sheds and workshops identified in Section 1 (specific to AEC31a) on Drawing 2 where relevant.

It is understood that material reuse criteria in the SAQP was derived from the Human Health and Ecological Risk Assessment (HHERA) prepared to facilitate the re-use of spoil along the Sydney Metro alignment. At this stage we cannot comment on the material reuse criteria stated in the SAQP until approval to the HHERA has been received (if required).

3. Close

We look forward to receiving a response to the comments above and trust this meets your current requirements. Should you have any queries or require further information, please do not hesitate to contact the undersigned.

Yours sincerely,
On behalf of **Senversa Pty Ltd**

[redacted]

NSW EPA Accredited Site Auditor (0803)

MC/MP

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Consistent with NSW EPA requirements for staged "sign-off" of sites that are the subject of progressive assessment, remediation and validation, the Auditor is required to advise that:

- *This site audit advice does not constitute a site audit report or statement.*
- *This letter is considered by the Auditor to be consistent with NSW EPA guidelines and policies.*
- *This letter will be documented in the final Site Audit Statement and associated documentation.*
- *At the completion of the site audit, a Site Audit Statement will be prepared, for the consent agency to include the Site's property information, held by the local council.*

Reliance *–This document has been prepared solely for the use of CBPUI JV. No responsibility or liability to any third party is accepted for any damages arising out of the use of this document by any third party.*

Senversa Pty Ltd
Level 24, 1 Market St, Sydney 2000
ABN 89 132 231 380 www.senversa.com.au

21 March 2023

[redacted]
CPBUI JV
Level 5, 60 Miller Street
North Sydney NSW 2060

Dear [redacted]

Re: Interim Audit Advice No. 2: AEC31b, 146E Samuel Marsden Road, Orchard Hills

Review of Detailed Site Investigation

1. Introduction and Background

[redacted] (the Site Auditor) of Senversa Pty Ltd (Senversa) has been engaged by CPB Contractors Pty Ltd and United Infrastructure Pty Ltd (CPBUI JV) on behalf of Sydney Metro as a NSW Environment Protection Authority (EPA) Accredited Contaminated Sites Auditor for the proposed development of the Sydney Metro to Western Sydney Airport line. The site is part of the proposed Sydney Metro line and is located at 146E Samuel Marsden Road, Orchard Hills (hereafter referred to as 'the site').

The site is currently occupied by rural and residential purposes. The site is potentially impacted from former workshops, minor waste disposal activities and use or storage of hazardous building materials. It is understood that the site will be disturbed during rail line construction which will likely include stripping of the topsoil. Douglas Partners Pty Ltd (Douglas Partners), engaged as the environmental consultant to assess the contamination status of the site, produced the following report, which was forwarded to the Site Auditor for review:

- 'Sampling and Analysis Quality Plan (SAQP), Surface & Civil Alignment Works (SCAW) Package for Sydney Metro – Western Sydney Airport (SMWSA), Area of Environmental Concern (AEC) 31b, 146E Samuel Marsden Road, Orchard Hills' dated 19 August 2022 by Douglas Partners (DRAFT).
- 'Report on Detailed Site Investigation (Contamination), Surface & Civil Alignment Works (SCAW) Package for Sydney Metro – Western Sydney Airport (SMWSA), Area of Environmental Concern (AEC) 31b, 146E Samuel Marsden Road, Orchard Hills' dated 2 March 2023 by Douglas Partners (DRAFT) (DSI).

This interim audit advice details the review of the detailed site investigation in relation to the contamination status of the site. A previous IAA No. 1 issued 1 September 2022 detailed auditor review of the SAQP and provided comment.

2. Review Comments

The Site Auditor has undertaken a review of the DSI against the requirements specified in the *Guidelines for the NSW Site Auditor Scheme (3rd edition)* (NSW EPA, 2017) and the *Guidelines for Consultants Reporting on Contaminated Sites* (NSW EPA, 2020).

Review comments are detailed herein.

- Section 2. Confirm site owner.
- Section 4.
  - Note distance/direction of closest dam to the site.
  - Discuss where surface water from the site is likely to flow.
  - Please note if waste storage/dumping areas, former poultry farm sheds and workshops are up or down gradient.
  - Confirm if any signs of contamination (including odours, staining, chemical/fuel storage, asbestos containing material on surface and in building structures) were noted during the field work for the DSI at the site and around/within the structures. Note what the structures appear to have been used for, e.g. storage, animals. Photographs in Appendix K show a possible storage drum and spoil located within the caged shelter, please discuss.
- Section 11. Please close out potential impacts beneath the structure. An unexpected finds protocol must be implemented during any demolition/construction works at the site. The footprints of the structures will require inspection following demolition. The footprints will require assessment if the potential for contamination beneath the structure cannot be close out and/or signs of contamination are identified.
- Appendix A. Drawings. A survey plan of the site boundary is required. Please show stockpile sample locations on the drawing.
- Appendix G. Please show standing water level prior to sampling on borelogs.
- Appendix J. DQA and QC. Section 1 mentions surface water and sediment sampling however none was completed, please remove. Surface water sampling also stated in second page of Table QA4, please remove. Confirm disposable nitrile gloves used for each groundwater sampling event and groundwater samples field filtered for metals.

3. Close

We look forward to receiving a response to the comments above and trust this meets your current requirements. Should you have any queries or require further information, please do not hesitate to contact the undersigned.

Yours sincerely,

[redacted]

NSW EPA Accredited Site Auditor (0803)

ES/MP

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Consistent with NSW EPA requirements for staged "sign-off" of sites that are the subject of progressive assessment, remediation and validation, the Auditor is required to advise that:

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- *This letter is considered by the Auditor to be consistent with NSW EPA guidelines and policies.*
- *This letter will be documented in the final Site Audit Statement and associated documentation.*
- *At the completion of the site audit, a Site Audit Statement will be prepared, for the consent agency to include the Site's property information, held by the local council.*

Senversa Pty Ltd
Level 24, 1 Market St, Sydney 2000
ABN 89 132 231 380 www.senversa.com.au

26 April 2023

[redacted]
CPBUI JV
Level 5, 60 Miller Street
NORTH SYDNEY NSW 2060

Dear [redacted]

Re: Interim Audit Advice No. 3: AEC31b, 146E Samuel Marsden Road, Orchard Hills

Review of updated Detailed Site Investigation

1. Introduction and Background

[redacted] (the Site Auditor) of Senversa Pty Ltd (Senversa) has been engaged by CPB Contractors Pty Ltd [redacted] United Infrastructure Pty Ltd (CPBUI JV) on behalf of Sydney Metro as a NSW Environment Protection Authority (EPA) Accredited Contaminated Site Auditor for the proposed development of the Sydney Metro to Western Sydney Airport line. The site is part of the proposed Sydney Metro line and is located at 146E Samuel Marsden Road, Orchard Hills (hereafter referred to as 'the site').

The site is currently occupied by rural and residential purposes. The site is potentially impacted from former workshops, minor waste disposal activities and use or storage of hazardous building materials. It is understood that the site will be disturbed during rail line construction which will likely include stripping of the topsoil. Douglas Partners Pty Ltd (Douglas Partners), engaged as the environmental consultant to assess the contamination status of the site, produced the following report, which was forwarded to the Site Auditor for review:

- 'Sampling and Analysis Quality Plan (SAQP), Surface & Civil Alignment Works (SCAW) Package for Sydney Metro – Western Sydney Airport (SMWSA), Area of Environmental Concern (AEC) 31b, 146E Samuel Marsden Road, Orchard Hills' dated 19 August 2022 by Douglas Partners (DRAFT).
- 'Report on Detailed Site Investigation (Contamination), Surface & Civil Alignment Works (SCAW) Package for Sydney Metro – Western Sydney Airport (SMWSA), Area of Environmental Concern (AEC) 31b, 146E Samuel Marsden Road, Orchard Hills' dated 4 April 2023 by Douglas Partners (DSI).

This interim audit advice details the review of the updated detailed site investigation in relation to the contamination status of the site. A previous IAA No. 1 issued 1 September 2022 detailed auditor review of the SAQP and provided comment. A second previous IAA No. 2 issued 21 March 2023 detailed auditor review of the DSI and provided comment.

2. Review Comments

The Site Auditor has undertaken a review of the DSI against the requirements specified in the *Guidelines for the NSW Site Auditor Scheme (3rd edition)* (NSW EPA, 2017) and the *Guidelines for Consultants Reporting on Contaminated Sites* (NSW EPA, 2020).

The auditor considers that the DSI addresses the comments provided in IAA No.2 and the DSI can be finalised. An unexpected finds protocol must be implemented during any demolition/construction works at the site. Any signs of contamination beneath the structures will require assessment.

3. Close

We look forward to receiving a response to the comments above and trust this meets your current requirements. Should you have any queries or require further information, please do not hesitate to contact the undersigned.

[redacted]

NSW EPA Accredited Site Auditor (0803)

ES/MP

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Consistent with NSW EPA requirements for staged "sign-off" of sites that are the subject of progressive assessment, remediation and validation, the Auditor is required to advise that:

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- *This letter is considered by the Auditor to be consistent with NSW EPA guidelines and policies.*
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- *At the completion of the site audit, a Site Audit Statement will be prepared, for the consent agency to include the Site's property information, held by the local council.*

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Senversa Pty Ltd

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