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AEC 44: 1793 Elizabeth Drive, Badgerys Creek

Audit Number: MP181_9

19 September 2024

Site Audit Report

Document Information

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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
mg/L	Milligrams per Litre
mm	Millimetre
ACL	Added Contaminant Limit
ADWG	Australian Drinking Water Guidelines
AEC	Areas of Environmental Concern
AF	Asbestos Fines
ANZECC	Australian and New Zealand Environment and Conservation Council
ANZG	Australian and New Zealand Guidelines
BaP	Benzo(a)pyrene
BGL	Below Ground Level
BTEX	Benzene, Toluene, Ethylbenzene, Xylenes & Naphthalene
Cardno	Cardno (NSW/ACT) Pty Ltd
CLM Act	NSW Contaminated Land Management Act 1997
COC	Chain of Custody
Council	Penrith City Council
CPBUI JV	CPB Contractors Pty Ltd and United Infrastructure Pty Ltd

Acronym	Definition
DGV	Default Guideline Value
DP	Deposited Plan
DQI	Data Quality Indicator
DQO	Data Quality Objective
DSI	Detailed Site Investigation
EIL	Ecological Investigation Level
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
mbgl	Metres Below Ground Level
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
NEPM	National Environment Protection Measure
NHMRC	National Health and Medical Research Council
NL	Non-Limiting
n	Number of Samples

Acronym	Definition
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
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
RAP	Remediation Action Plan
RPD	Relative Percent Difference
SAQP	Sampling Analysis and Quality Plan
SAR	Site Audit Report
SAS	Site Audit Statement
SCAW	Surface & Civil Alignment Works
SMWSA	Sydney Metro – Western Sydney Airport
SWL	Standing Water Level
TRHs	Total Recoverable Hydrocarbons
USEPA	United States Environmental Protection Agency
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 Luddenham Road, Orchard Hills NSW (known as 'AEC 44').

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 44. 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).

1.1 Scope of the Audit

Requested by: [redacted] on behalf of CPB Contractors Pty Ltd and United Infrastructure Pty Ltd (CPBUI JV)

Request/Commencement Date: 7 June 2022

Auditor: [redacted]

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), Areas of Environmental Concern (AEC) 44, 1793 Elizabeth Drive, Badgerys Creek' dated 9 August 2022 by Douglas Partners Pty Ltd (Douglas Partners) (SAQP).
  - 'Report on Detailed Site Investigation (Contamination), Surface & Civil Alignment Works (SCAW) Package for Sydney Metro – Western Sydney Airport (SMWSA), Areas of Environmental Concern (AEC) 44, 1793 Elizabeth Drive, Badgerys Creek' dated 14 March 2023 by Douglas Partners (DSI).
  - 'Memorandum, Contamination Investigation Results for AEC44 Dams Footprint Sydney Metro WSA -SCAW' dated 15 February 2024 by Douglas Partners.
  - 'Report on Detailed Site Investigation, Surface & Civil Alignment Works (SCAW) Package for Sydney Metro – Western Sydney Airport (SMWSA), Dams at Area of Environmental Concern (AEC) 44, 1793 Elizabeth Drive, Badgerys Creek' dated 26 February 2024 by Douglas Partners.
- The following report was provided to the auditor but was not within the scope of the audit:
  - 'Asbestos Materials Clearance Inspection Report' dated 28 February 2024 by Sydney Environmental Group.
- Site visits by the auditor on 11 August 2022, 29 November 2022 and 8 November 2023.
- Discussions with CPBUI JV and with Douglas Partners who undertook the investigation.

A previous investigation by Cardno (NSW/ACT) Pty Ltd (Cardno) dated 26 November 2021 was undertaken for a larger area that included the current site. One sample location was positioned within the centre of the site. The Cardno report was not provided for auditor review but Douglas Partners have included relevant information within the reports listed above.

Several Interim Audit Advice (IAA) have been issued for the site (Appendix C) providing comments on the various reports. IAA No. 1 dated 25 August 2022 confirmed that the SAQP could be finalised, IAA No. 5 dated 12 July 2023 that the DSI excluding the dams could be finalised, and IAA No. 7 dated 12 September 2024 stated that the DSI for the dams 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:	1793 Elizabeth Drive, Badgerys Creek NSW 2555
Identifier:	Part Lot 2 Deposited Plan (DP) 1274964, Part Lot 73 DP 1277011 and Part Lot 74 DP 1277011 (**Attachment 2, Appendix A**)
Local Government:	Penrith City Council
Owner:	Lot 2 DP 1274964: Transport for NSW – M12 Lot 73 DP 1277011: Transport for NSW – Sydney Metro Lot 74 DP 1277011 – The University of Sydney
Site Area:	Approximately 15.34 ha

The boundaries of the site are not well defined. A survey plan of the site has been provided (**Attachment 2, Appendix A**).

2.2 Zoning

The current zoning of the site provided by Douglas Partners is ENT: Enterprise and ENZ: Environment and Recreation. A section where the rail alignment is proposed currently does not have a zoning.

2.3 Adjacent Uses

The site is located within an area of rural land. The surrounding site use includes:

North: Rural grazing land, buildings including residential dwellings, sheds and animal shelters/pens.

East: Rural grazing land followed by Kemps Creek Resource Recovery Park and Landfill.

South: Rural grazing land and Elizabeth Drive.

West: Rural grazing land.

A creek crosses through the site flowing from two large dams to the south of the site. Several other dams are located to the east and west of the site.

The nearest surface water receptor is Badgerys Creek located approximately 150 m east of the site.

Kemps Creek Resource Recovery Park and Landfill is located approximately 350 m to the northeast of the site and is licenced for composting, recovery or general waste and waste storage and as well as non-thermal treatment of hazardous waste and other waste.

2.4 Site Condition

Douglas Partners noted the following in the DSI:

- The site is rural land.
- It is grassed covered and appears to be used for grazing.
- A creek flows through the eastern portion of the site from the dams located to the south.
- During investigation works, pipes with asbestos containing material were identified at two test pit locations within fill and at a third location within the southeastern portion of the site.

The following was noted by the auditor during the site visit on 11 August 2022:

- The site is rural land and grass covered.
- Several dirt tracks used for access to various areas cross through parts of the site.
- Two large dams are located to the south.
- Kemp Creek Resource Recovery Park and Landfill is visible to the northeast.
- Buildings to the northwest of the site appear to be disused.

The following was noted by the auditor during the site visit on 8 November 2023:

- The site had undergone earthworks which included stripping and levelling of surface soils.
- The dams were no longer visible.
- Asbestos conduit removal works were in progress.

2.5 Proposed Development

It is understood that the site is to be redeveloped by CPBUI JV as a railway track with associated passive open space.

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

3.0 Site History

Douglas Partners provided a site history based on information from the EIS including aerial photographs, site photographs and NSW EPA records. The site has been used for rural grazing land since at least 1955.

The auditor considers that the site history is broadly understood. There were no indicators of significant industrial uses on-site and surrounds that would have the 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
Southeastern Portion	Asbestos containing material within pipes.	Asbestos.
Dams to the South of the Site	Potential use of fill.	Metals, total recoverable hydrocarbons (TRH), benzene, toluene, ethylbenzene and xylenes (BTEX), polycyclic aromatic hydrocarbons (PAH), organochlorine pesticides (OCP), organophosphorus pesticides (OPP), polychlorinated biphenyls (PCB), phenols and asbestos.

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: Stratigraphy**

Table 5.1: Stratigraphy

Depth (mbgl)	Subsurface Profile
0.0 – 0.2	Topsoil (sandy silt).
0.0 – 0.2	Fill (silty sand, sandy silt, gravelly sand). Pipes assumed to asbestos identified at two locations within fill. Fill was encountered to a maximum depth of 1.2 m to the north of the dams. Fill was generally not encountered at locations within the dams.
0.2 to depth	Silty clay, sandy silt, sandy clay and gravelly clay.

mbgl – metres below ground level

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

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

5.2 Hydrogeology

Groundwater investigations at the site have been undertaken. Depth to groundwater over the site is between 0.13 and 2.31 mbgl. Groundwater is considered likely to flow to the east. The nearest registered bore in the area is located approximately 350 m to the north-east of the site and was installed for monitoring purposes.

The nearest surface water receptor is Badgerys Creek located approximately 150 m east of the site.

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 reports, 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.	These were considered appropriate for the investigations conducted.
Sampling Pattern and Locations Soil: Investigation locations were spaced on a broad grid to gain coverage of the majority of the site. The various fill materials at the site were also targeted for sampling. Sediment: Investigation locations were located to determine potential impacts at the site boundary and where the creek could be safely accessed. Groundwater: One monitoring well was placed up-gradient on the site, and two monitoring wells were placed downgradient along the eastern boundary of the site.	These investigation locations adequately target the main areas of concern.
Sampling density Soil: The sample density of 176 locations over the 15.34 ha exceeds sampling density recommended by the EPA (2022) Sampling Design Guidelines for 5 ha. Samples analysed for asbestos were not collected as outlined in NEPM (2013) (Schedule B1); however, it is noted that 500ml samples were collected for analysis of fibrous asbestos from all soil locations. Sediment: Two sediment samples were collected from the creek that crosses through the eastern portion of the site. Groundwater: A total of three groundwater wells were installed at the site. One of the wells was dry during sampling, and two groundwater wells were sampled on 15 September 2023. Surface water: One surface was sample was collected from the eastern dam.	The sampling density was appropriate.
Sample Depths Soil samples were collected and analysed from a range of depths, with the primary intervals being within the shallow fill/topsoil (0.0-0.2 mbgl), at and around the fill/natural interface (0.1-0.3 mbgl) and within the natural clay soil (0.4 – 0.9 mbgl). Sediment samples were collected from the top 0.1 m in the creek.	This sampling strategy was appropriate and adequate to characterise the primary material types present on site.
Well Construction Groundwater: The monitoring wells were installed to depths of 4.5, 7.5, and 15 mbgl, with screen intervals of 3 m, 6 m, and 9 m placed in gravel. Wells were constructed of 50 mm uPVC. A bentonite seal of 0.5-1 m thickness was placed above the screen and the well backfilled with soil cuttings to the ground surface (where the bentonite seal depth didn't extend to the surface).	The well construction was generally acceptable.

Sampling and Analysis Plan and Sampling Methodology	Auditor's Opinion
One of the monitoring wells was dry at the time of development and sampling. The SWL was above the screen for one well at the time of sampling, and within the screen for the other well.	
Sample Collection Method Soil: Sample collection was by hand, from a hand auger or from the excavator bucket returns. Sediment: Sample collection was by hand from a hand auger. Groundwater: Wells were installed by solid flight augers, developed with a pump and samples were collected by low flow peristaltic with dedicated sample tubing. Surface water: Sample collected was by decanting surface water collected from a dedicated sample bottle into the laboratory supplied bottles.	Sample collection from the auger flights is not ideal as it can result in loss of volatiles and sample cross contamination, although cross contamination was minimised by removing external material. Given the key contaminants at the site are heavy metals, this deficiency is not considered to be of great significance. Overall, the sample collection method was found to be acceptable.
Decontamination Procedures Soil and Sediment: New gloves were reportedly used for each new sample. No equipment during test-pitting required decontamination. The hand auger was not reported as being decontaminated between soil and sediment sample locations. Groundwater: Dedicated sampling equipment was used for each well. New gloves were reportedly used for each new sample. Surface water: No equipment was used that required decontamination.	The auditor notes that the hand auger was not decontaminated between soil and sediment sampling, indicating the potential for cross-contamination. Given no soil or sediment results were reported above the criteria, the potential impacts from cross-contamination are considered minimal.
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. For groundwater, one sample was not field filtered for metals. Metals concentrations in this sample may be over- or under-estimated depending on the groundwater pH.	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, but not during development. Surface water: Field parameters were measured during sampling.	Acceptable.
Calibration of Field Equipment Calibration certificates from the equipment supplier were provided for the PID and water quality meter. Calibration field sheets 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. Surface water field sampling record was provided indicating field parameters and observations. No sampling records were provided for sediment.	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, rinsates blanks, field intra-laboratory and inter-laboratory duplicates were undertaken. Rinsates were not taken for soil and sediment sampling. No rinsates were required for test pit locations. No sediment duplicates were collected.	Duplicate samples for sediment were not taken. This isn't considered to affect the reliability of the results as the overall frequency of duplicates for both soil and sediment were met. No rinsates blanks were taken for soil and sediment sampling using the hand auger. It is also noted that no decontamination procedures were reported for the hand auger equipment. Given the analytical results were considered appropriate for the site, the potential impact from cross-contamination is not considered to affect the reliability of the results.
Field Quality Control Results The results of field quality control samples were generally within appropriate limits. The following exceptions were noted: RPDs for the intra- and inter-laboratory soil duplicate sample for several metals ranged from 31 to 108%. The lowest of the check laboratory result and the project laboratory result was used for the assessment. RPDs for the inter-laboratory soil duplicate sample for TRH ranged from 31 to 35%.	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 for primary samples had been met (with the exception of pH). Eurofins reported that the inter-laboratory duplicate groundwater sample exceeded the holding times for TRH, PAH, VOCs, PCBs, OCPs, OPPs, and phenols by 1 to 6 days. It is noted that the holding times for the above analyte groups is 14 days and not 7 days as reported by Eurofins, so with the exception of vinyl chloride and styrene (which have holding times of 7 days), the inter-laboratory duplicate sample was analysed within holding times. Douglas Partners also reported that holding times have generally been met with the exception of pH and the inter-laboratory groundwater duplicate sample.	The holding time exceedances for pH, vinyl chloride, and styrene are not considered to affect the reliability or interpretation of the results.

Field and Lab QA/QC	Auditor's Opinion
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 0.01% w/w. Groundwater: The following trigger values were less than the PQLs: Chromium 0.001 mg/L, trigger value 0.0002 mg/L Anthracene 0.1µg/L, trigger value 0.01 µg/L	Soil (except asbestos): 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. Groundwater: Overall, these discrepancies do not materially affect the outcome of the audit.
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. Envirolab in three batches did not include duplicates, and in two batches did not include matrix spikes. This is due to less than 20 samples being submitted in the batch, but duplicate and matrix spikes were analysed overall by Envirolab at an acceptable frequency.	Acceptable.
Laboratory Quality Control Results The results of laboratory quality control samples were generally within appropriate limits, with the following exceptions: Several RPDs for metals ranged from 32 to 50% and for TRH ranged from 31 to 35%.	In the context of the dataset reported, the elevated RPD is not considered significant and the laboratory quality control results are acceptable.
Data Quality Indicators (DQI) and Data Evaluation (Completeness, Comparability, Representativeness, Precision, Accuracy) Predetermined data quality indicators (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 representative.
- The data is complete.
- There is a high degree of confidence that data is comparable for each sampling and analytical event.
- The laboratories provided sufficient information to conclude that data is of sufficient precision.
- While most of the data is likely to be accurate, there is some doubt regarding cross-contamination of the soil and sediment samples where hand auguring was used. This is due to no decontamination procedures being reported for the hand auger, and no rinsate blank samples were taken. Despite this, the impact on potential cross-contamination on the results is considered minimal as all soil and sediment concentrations were within acceptable limits are considered suitable for the proposed site use.

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 the proposed development the criteria for 'commercial/industrial' is 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, 2017. 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.
- 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).
- 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 **sediment** 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).
- Ecological Assessment:
  - The ANZECC 2000 guidelines have been updated in ANZG (2022) 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.

- Ecological Assessment, where no ANZG values exist:
  - 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.

The auditor has assessed the **groundwater** and **surface water** 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).
  - NHMRC and NRMMC (2011) Australian Drinking Water Guidelines (ADWG).
  - WHO (2008) Petroleum Products in Drinking-water. applicable where HSLs are not applicable.
  - WHO (2011) Guidelines for drinking-water quality, fourth edition, applicable where the ADWG are not available.
- 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, 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 **Attachments 2 and 3, Appendix A**. Some sample locations were collected within the footprint of the dams and maybe considered sediment, however these samples have been included in the soil table below.

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	198	195	36	0 above HIL D of 1,500 mg/kg	0 above Generic ACL of 1,800 mg/kg
Benzene	198	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	198	0	<PQL	HSL D, Non limiting	0 above ESL (commercial/industrial) (coarse) of 135 mg/kg
Ethyl benzene	198	0	<PQL	HSL D, Non limiting	0 above ESL (commercial/industrial) (coarse) of 165 mg/kg
Total Xylenes	198	0	<PQL	HSL D, Non limiting	0 above ESL (commercial/industrial) (coarse) of 135 mg/kg
TRH C6-C10	198	0	<PQL	0 above ML (commercial/industrial) of 700 mg/kg	-
TRH C10-C16	198	1	91	0 above ML (commercial/industrial) of 1,000 mg/kg	-
F1 (TRH C6–C10 minus BTEX)	198	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)	198	1	91	HSL D, Non limiting	0 above ESL (commercial/industrial) (coarse/fine) of 170 mg/kg
F3 (TRH >C16-C34)	198	4	190	0 above ML (commercial/industrial) of 3,500 mg/kg	0 above ESL (commercial/industrial) (coarse) of 1,700 mg/kg

Analyte	N	Detections	Maximum	n > Human Health Screening Criteria (NEPM, 2013)	n > Terrestrial Ecological Screening Criteria (NEPM, 2013)
F4 (TRH >C34-C40)	198	1	170	0 above ML (commercial/industrial) of 10,000 mg/kg	0 above ESL (commercial/industrial) (coarse) of 3,300 mg/kg
Naphthalene	198	0	<PQL	HSL D, Non limiting	0 above Generic EIL (commercial/industrial) of 370 mg/kg
Benzo(a)pyrene	198	0	<PQL	-	0 above ESL (commercial/industrial) (coarse/fine) of 1.4 mg/kg
BaP TEQ	198	0	<PQL	0 above HIL D 40 mg/kg	-
Total PAHs	198	0	<PQL	0 above HIL D 4,000 mg/kg	-
Total Phenols	198	2	0.7	0 above HIL D 240,000 mg/kg	-
Arsenic	198	187	22	0 above HIL D 3,000 mg/kg	0 above Generic EIL (commercial/industrial) of 160 mg/kg
Cadmium	198	0	<PQL	0 above HIL D 900 mg/kg	-
Chromium	198	198	38	0 above HIL D 3,600 mg/kg	0 above most conservative ACL for commercial/industrial of 310 mg/kg
Copper	198	198	48	0 above HIL D 240,000 mg/kg	0 above most conservative ACL for commercial/industrial of 85 mg/kg
Mercury	198	0	<PQL	0 above HIL D 730 mg/kg	-
Nickel	198	198	48	0 above HIL D 6,000 mg/kg	0 above most conservative ACL for commercial/industrial of 55 mg/kg
Zinc	198	198	100	0 above HIL D 400,000 mg/kg	0 above most conservative ACL for commercial/industrial of 110 mg/kg
Total OCPs	198	0	<PQL	0 above HIL D	0 above EILs
Total OPPs	198	0	<PQL	-	-
PCBs	198	0	<PQL	0 above HIL D 7 mg/kg	-
Asbestos (FA/AF)	159	0	<0.001%	0 above HSL D 0.001%	-

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.

Metals were detected across the site however below the site criteria. Low level detections of petroleum hydrocarbons and phenols were detected in soil within the dam areas however below site criteria. The remaining analytes were not detected.

Two asbestos pipes were encountered approximately 0.3 mbgl around the dams. These were considered suitable to stay in-situ but were ultimately removed due to earthwork requirements and were managed in accordance with Work Health and Safety standards.

The auditor considers that the soil analytical results are consistent with the site history and field observations.

9.0 Evaluation of Groundwater and Surface Water Analytical Results

9.1 Groundwater

Groundwater samples were collected from two wells in September 2022. One groundwater monitoring well was dry at the time of development and sampling. The current monitoring well network is summarised in **Table 9.1**. The samples were submitted for metals, PAH, TRH, BTEX, OCPs, OPPs, PCBs, phenols, VOCs. The analytical results are summarised below in **Table 9.2**.

Table 9.1: Groundwater Monitoring Well Network

Locations	Monitoring Well
West	AEC44BH01
Southeast	AEC44BH03
Northeast	AEC44BH02

Table 9.2: Summary of Maximum Groundwater Investigation Analytical Results (µg/L)

Analyte	n	Detections	Maximum	n > ANZG (2018)	n > HSL D (<2-4 mbgl)	n > DWG (ADWG 2011, WHO 2008, WHO 2011)
TRH C_6-C_{10} less BTEX (F1)	2	0	<10	-	0 above 6000 µg/L	0 above 90 µg/L
TRH >C_{10}-C_{16} less naphthalene (F2)	2	0	<50	-	NL	0 above 900 µg/L
TRH >C16-C34	2	0	<100	-	-	0 above 900 µg/L
TRH >C34-C40	2	0	<100	-	-	0 above 900 µg/L
Benzene	2	0	<1	0 above 950 µg/L	0 above 5000 µg/L	0 above 1 µg/L
Toluene	2	0	<1	-	NL	0 above 800 µg/L
Ethyl benzene	2	0	<1	-	NL	0 above 300 µg/L
Xylene	2	0	<2	0 above 200 µg/L	NL	0 above 600 µg/L
Naphthalene	2	0	<0.2	0 above 16 µg/L	NL	-
Benzo(a)pyrene	2	0	<0.1	-	-	-
Anthracene	2	0	<0.1	0 above 0.01 µg/L	-	-

Analyte	n	Detections	Maximum	n > ANZG (2018)	n > HSL D (<2-4 mbgl)	n > DWG (ADWG 2011, WHO 2008, WHO 2011)
Fluoranthene	2	0	<0.1	0 above 1 µg/L	-	-
Phenanthrene	2	0	<0.1	0 above 0.6 µg/L	-	-
Arsenic	2	1	2	0 above 13 µg/L	-	0 above 10 µg/L
Cadmium	2	0	<0.1	0 above 0.2 µg/L	-	0 above 2 µg/L
Chromium	2	0	<1	0 above 0.2 µg/L	-	0 above 50 µg/L
Copper	2	1	**3**	**1 above 1.4 µg/L**	-	0 above 2000 µg/L
Lead	2	0	<1	0 above 3.4 µg/L	-	0 above 10 µg/L
Mercury	2	0	<0.05	0 above 0.06 µg/L	-	0 above 1 µg/L
Nickel	2	2	**7**	**2 above 11 µg/L**	-	0 above 20 µg/L
Zinc	2	2	22	2 above 8 µg/L	-	0 above 3000 µg/L

n number of samples

- No criteria available/used

<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 levels detections of metals. Copper was reported above the site criteria. Douglas Partners considers the detection of copper to be representative of background concentrations. Similarly, concentrations of nickel and zinc which were above the auditor's adopted Tier 1 criteria are likely representative of background conditions. Concentrations for remaining analytes were below the PQL.

In the auditor's opinion the sites groundwater has been adequately characterised.

9.2 Surface Water

One surface water sample from the eastern dam was analysed for metals, PAH, TRH, BTEX, OCPs, OPPs, PCBs, phenols, VOCs. The results have been assessed against the environmental quality criteria. Surface water sample location is shown in **Attachment 3, Appendix A**.

Metals were detected with copper above site criteria. The concentrations reported for TRH, BTEX, PAHs, OCPs, OPPs, PCBs, phenols, and VOC were reported below detection.

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 CSM and has used it 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	Potential use of fill around dams. Asbestos pipes around dams.	Adequate.
Affected Media	Soil.	Adequate.
Receptor Identification	Construction workers (for the proposed development). Future site workers including maintenance workers (post-development). Pedestrians and commuters. Adjacent site users. Surface water bodies. Groundwater. Terrestrial ecosystems. In ground structures.	Adequate.
Exposure Pathways	Ingestion. 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.

No significant levels of chemical 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, or in surface water or dust. The asbestos pipes encountered around the dams were removed.

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

11.0 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 topsoil (sandy silt) overlying fill (silty sand, sandy silt and gravelly sand) and natural (silty clay, sandy silt, sandy clay and gravelly clay) with no odour or staining.

12.0 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 C**).

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.

13.0 Conclusions and Recommendations

Douglas Partners considers that the site is “suitable for the final intended land use (a stormwater basin adjacent to the rail corridor)”. 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 commercial/industrial land uses including a “railway track, embankments/ noise barriers, a stabling yard and maintenance facility, station and passive open space adjacent to the rail corridor”.

14.0 Other Relevant Information

This audit was conducted on the behalf of CPBUI JV 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.

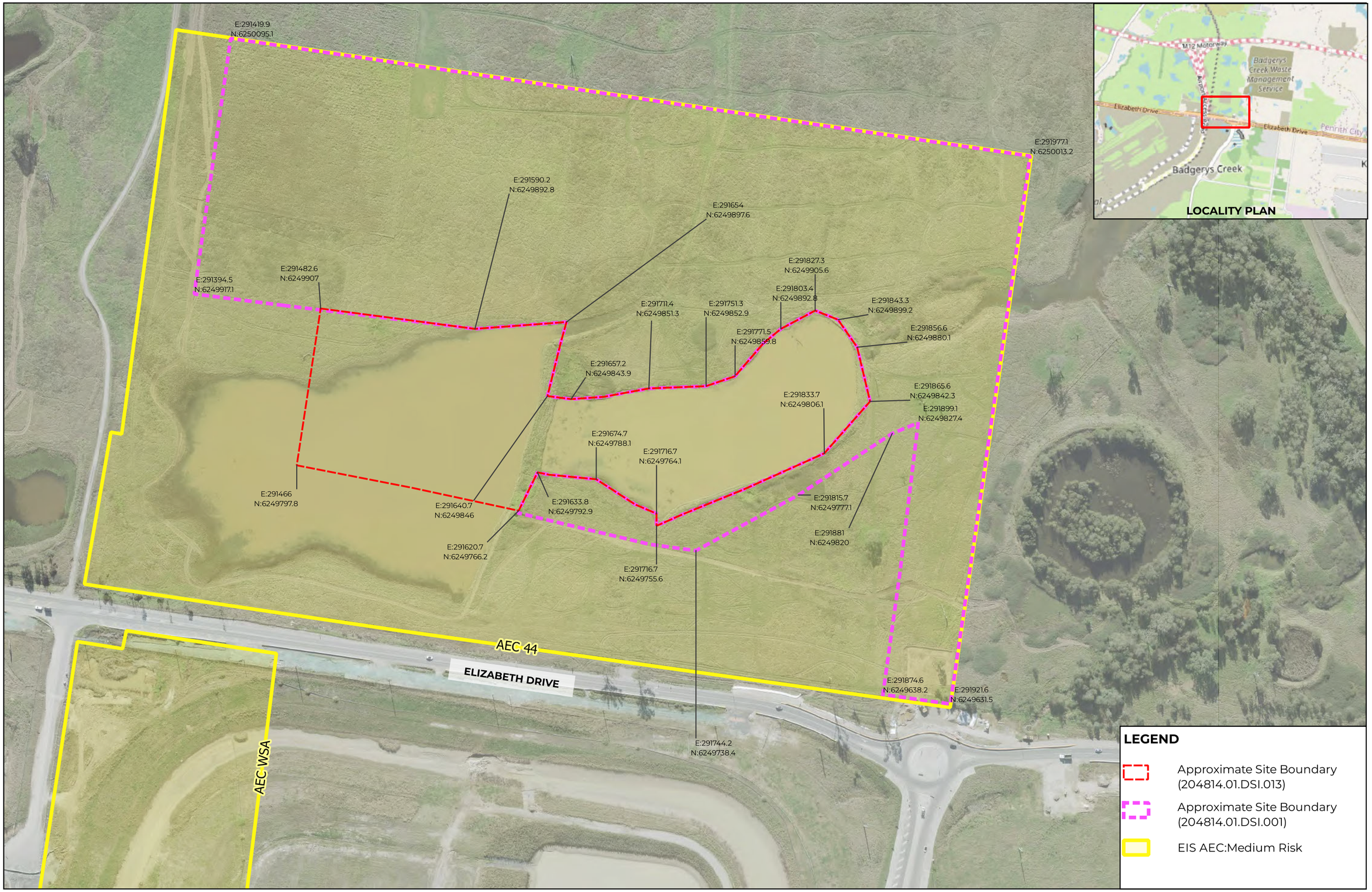
In drawing conclusions, the auditor used reasonable care to avoid reliance upon data and information that may be inaccurate, however a degree of uncertainty is inherent in all subsurface investigations and there remains the possibility that variations may occur between sample locations. The audit and 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, the Client 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

Douglas Partners Geotechnics / Environment / Groundwater	**Location of Kemps Creek Recovery Park and Landfill** **Sydney Metro Western Sydney Airport-SCAW, Elizabeth Drive, Badgerys Creek**	PROJECT: 204814.01
		DWG No: AEC44-02
		REV: 0
	CLIENT: CPBUI JV	DATE: 12-Oct-22



REV	DESCRIPTION/COMMENT	DATE	DRAWN BY
0	AEC44 Dams 01	16.09.2024	MN

SCALE: 0 20 40 60 80 m
1:2500 @ A3

Douglas PARTNERS
OFFICE: SYDNEY
96-98 Hermitage Rd, West Ryde NSW 2114
(02)9809 0666

CLIENT: **CPBUI JV**

NOTE:
1:Basemap from Metromap (Dated 01.08.2023)

COORDINATE REFERENCE SYSTEM: GDA2020 / MGA zone 56

PROJECT NAME: **Sydney Metro Western Sydney Airport – SCAW**

PROJECT ADRESS: **Elizabeth Drive, Badgerys Creek**

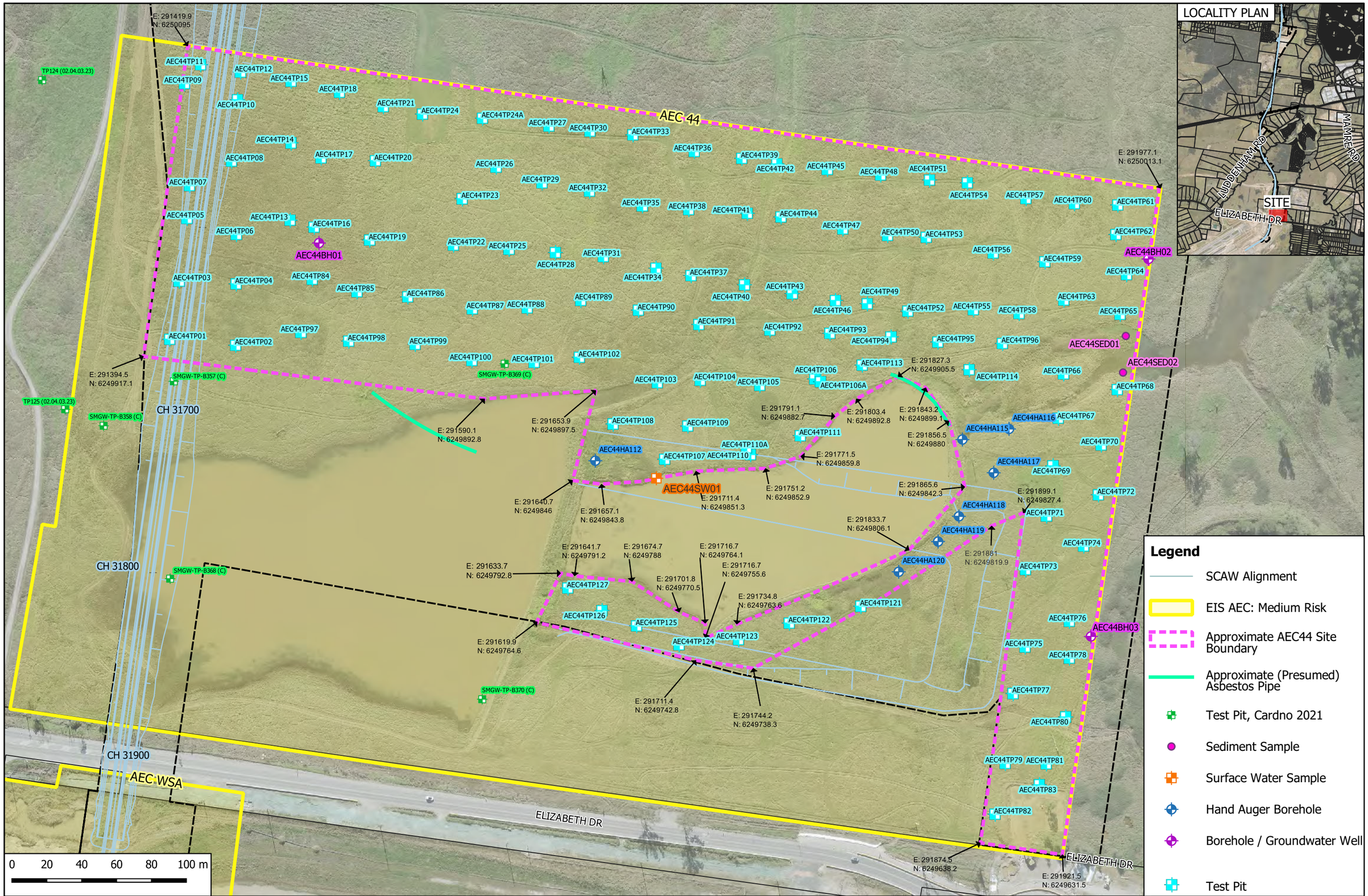
DRAWING TITLE: **Investigation Areas at AEC44**

PROJECT NO: **204814.01**

DRAWING NO: **A**

REVISION: **0**

\\dasyd\nas02\Projects\204814.01 - LUDDENHAM WSA SCAW\7.0 Drawings\7.3 QGIS\DSI.013 AEC44 Dams\AEC44 Dams.MN.qgz



Legend

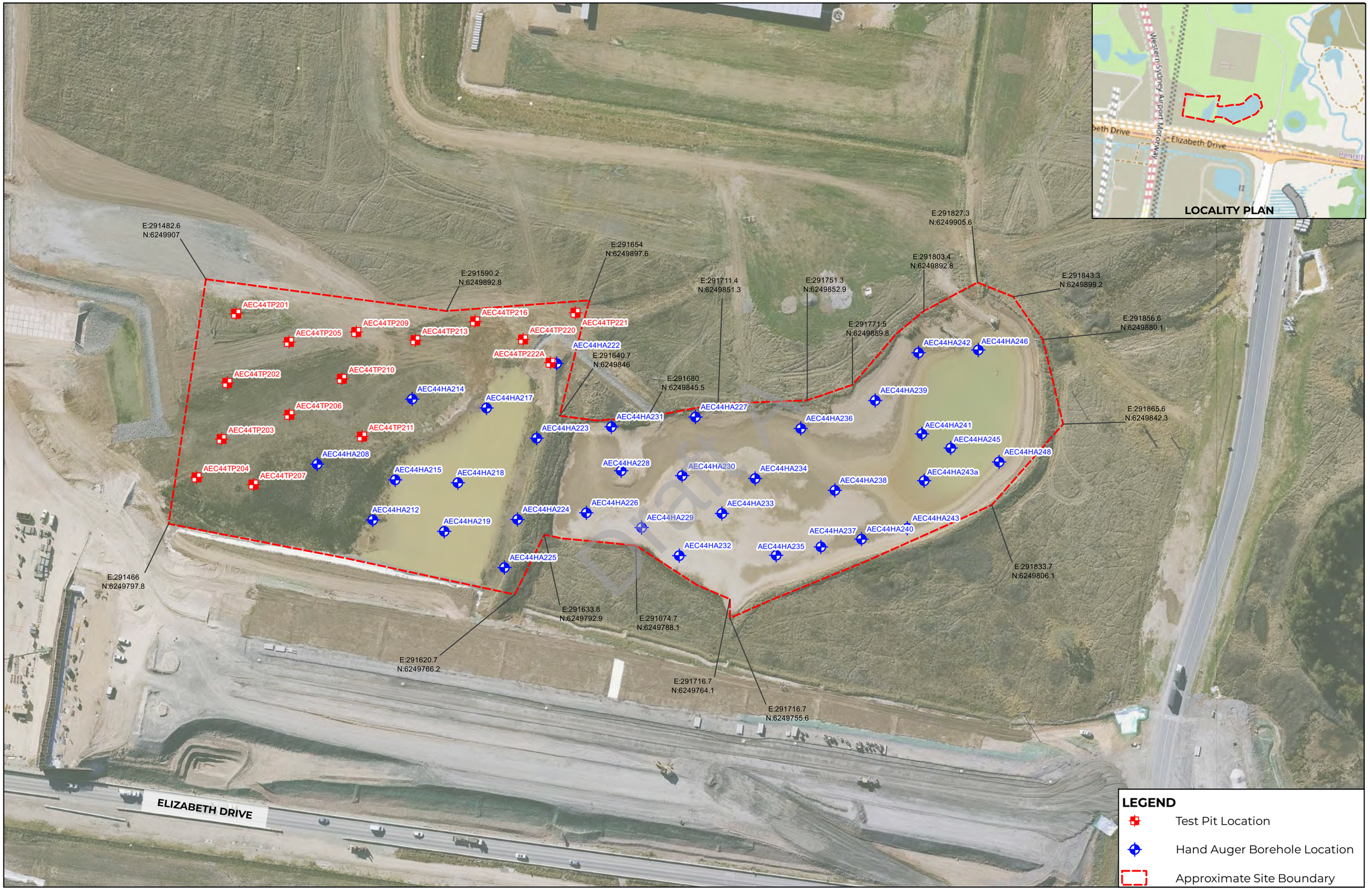
- SCAW Alignment
- EIS AEC: Medium Risk
- Approximate AEC44 Site Boundary
- Approximate (Presumed) Asbestos Pipe
- Test Pit, Cardno 2021
- Sediment Sample
- Surface Water Sample
- Hand Auger Borehole
- Borehole / Groundwater Well
- Test Pit

Douglas Partners
Geotechnics / Environment / Groundwater

CLIENT:	CPBUI JV		
OFFICE:	Sydney	DRAWN BY:	MG/MN
SCALE:	1:2000 @ A3	DATE:	22/06/2023

TITLE: **AEC44 Test Location Plan**
Sydney Metro Western Sydney Airport - SCAW
Elizabeth Drive, Badgerys Creek

PROJECT No:	204814.01
DRAWING No:	AEC44-01
REVISION:	Rev 2



REV	DESCRIPTION/COMMENT	DATE	DRAWN BY
2	AEC44 Dams 01	26.02.2024	MN
1	AEC44 Dams 01	19.11.2023	MN
0	AEC44 Dams 01	19.10.2023	MN

SCALE: 0 20 40 60 80 m
1:1600 @ A3

Douglas PARTNERS
OFFICE: SYDNEY
96-98 Hermitage Rd, West Ryde NSW 2114
(02)9809 0666

CLIENT: **CPBUI JV**

NOTE:
1:Basemap from Metromap (Dated 01.08.2023)

COORDINATE REFERENCE SYSTEM: GDA2020 / MGA zone 56

PROJECT NAME: **Sydney Metro Western Sydney Airport – SCAW**

PROJECT ADRESS: **Elizabeth Drive, Badgerys Creek**

DRAWING TITLE: **TEST LOCATION PLAN**

PROJECT NO: **204814.01**

DRAWING NO: **1**

REVISION: **2**

Draft

\\dpsydnas02\Projects\204814.01 - LUDDENHAM WSA SCAW\7.0 Drawings\7.3 QGIS\DS\013 AEC44 Dams\AEC44 Dams.MN.qgz

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 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

25 August 2022

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

Dear [redacted]

Re: Interim Audit Advice No. 1: AEC44, 1793 Elizabeth Drive, Badgerys Creek

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 1793 Elizabeth Drive, Badgerys Creek (hereafter referred to as 'the site').

The site is currently occupied by rural land used for grazing. The site is potentially impacted from two dams within the wider AEC44. It is understood that the development of part of the site will likely include cut and fill works for the rail lines. Areas alongside the proposed rail lines will be used by contractors for staging and maintenance for the Metro. 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) 44, 1793 Elizabeth Drive, Badgerys Creek' dated 9 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 4. Please confirm review of Appendix B in the NEMP regarding the potential for PFAS contamination for the historical and current land use.
- Section 5. Summarise all the analytical results for previous sample locations here. Please include logs as well for previous locations in an appendix.
- Section 7. Site Assessment Criteria in Appendix B over a wide range of analytes, depths and two separate landuses. The actual criteria to be applied at the site should be outlined in Section 7 if auditor review is required.
- Section 9. Note. If the site extends across the dams within AEC 44 in the future, sediment and surface water samples should be collected.
- Appendix A. Show where the Kemps Creek Resource Recovery Park and Landfill is located in reference to the site.
- Please apply the most up to date PFAS criteria from NEMP 2.0 for recreational waters.

It is noted that the SAQP states that 'soil may be imported from off-site'. The sampling regime be applied are not specified in the SAQP and cannot be commented upon by the auditor. 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,

NSW EPA Accredited Site Auditor (0803)

MC/MP

Technical Limitations and Uncertainty – *This Interim Advice is not a Site Audit Report or a Site Audit Statement, as defined in the Contaminated Land Management Act 1997, but forms part of the Site Audit process.* It is intended that a Site Audit Statement and report will be issued at the completion of the site audit.
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.*

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

1 September 2022

[redacted]

Re: Interim Audit Advice No. 2: AEC44, 1793 Elizabeth Drive, Badgerys Creek

Review of Detailed Site Investigation

1. Introduction and Background

[redacted] 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 1793 Elizabeth Drive, Badgerys Creek (hereafter referred to as 'the site').

The site is currently occupied by rural land used for grazing. The site is potentially impacted from two dams within the wider AEC44. It is understood that the development of part of the site will likely include cut and fill works for the rail lines. Areas alongside the proposed rail lines will be used by contractors for staging and maintenance for the Metro. Douglas Partners Pty Ltd (Douglas Partners), engaged as the environmental consultant to assess the contamination status of the site, produced the following reports, 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) 44, 1793 Elizabeth Drive, Badgerys Creek' dated 9 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) 44, 1793 Elizabeth Drive, Badgerys Creek' dated 31 August 2022 by Douglas Partner (DRAFT).

The SAQP has previously been reviewed and comments provided by the auditor in interim audit advice (IAA) No.1 dated 25 August 2022.

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

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 Office of Environment and Heritage, 2011). Review comments are detailed below:

- Please provide a summary of previous investigations and analytical results. Please include logs for previous locations in an appendix.
- Confirm review of Appendix B in the NEMP regarding the potential for PFAS contamination for the historical and current land use.
- Section 6.2. Please provide discussion on using the NSW EPA sampling design guidelines 1995 rather than the updated 2022 guidelines.
- Section 9.1. State what depth the hydrocarbon odour was detected.
- Section 10. Discuss DSI compliance with the SAQP.
- Appendix A.
  - Show where the Kemps Creek Resource Recovery Park and Landfill is located in reference to the site.
  - AEC44TP24a is noted to be in close proximity to AEC44TP24 in Section 6.2 however appears to be a similar distance as the other locations around. Please clarify position is correct in the drawing.
- Appendix F. AECTP49. The log notes ‘timber’ in the sandy silt layer, please confirm if this was on the surface or anthropogenic material within the soil. Note the hydrocarbon odour here as well.
- Appendix G. Please include another column with soil description i.e., fill or natural.
- Include calibration certificate for PID and discuss decontamination procedures in QA/QC section.
- Surface water and groundwater information including site assessment criteria and analytical data is not presented in the draft report. Please provide updated report to auditor for review with this information once available. It is further noted in the updated report please apply the most up to date PFAS criteria from NEMP 2.0 for recreational waters.
- Note. If the site extends across the dams within AEC 44 in the future, sediment and surface water samples should be collected.

The auditor will have further comments once the completed DSI is provided.

It is noted that the SAQP and DSI states that ‘soil may be imported from off-site’. The sampling regime be applied are not specified and cannot be commented upon by the auditor. 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 **Ltd**

[redacted]

NSW EPA Accredited Site Auditor (0803)

ES/MP

Technical Limitations and Uncertainty – *This Interim Advice is not a Site Audit Report or a Site Audit Statement, as defined in the Contaminated Land Management Act 1997, but forms part of the Site Audit process*. It is intended that a Site Audit Statement and report will be issued at the completion of the site audit.
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.*

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

12 October 2022

[redacted]

[redacted]

Re: Interim Audit Advice No. 3: AEC44, 1793 Elizabeth Drive, Badgerys Creek

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 1793 Elizabeth Drive, Badgerys Creek (hereafter referred to as 'the site').

The site is currently occupied by rural land used for grazing. The site is potentially impacted from two dams within the wider AEC44. It is understood that the development of part of the site will likely include cut and fill works for the rail lines. Areas alongside the proposed rail lines will be used by contractors for staging and maintenance for the Metro. Douglas Partners Pty Ltd (Douglas Partners), engaged as the environmental consultant to assess the contamination status of the site, produced the following reports, 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) 44, 1793 Elizabeth Drive, Badgerys Creek' dated 9 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) 44, 1793 Elizabeth Drive, Badgerys Creek' dated 30 September 2022 by Douglas Partner (DRAFT).

The SAQP has previously been reviewed and comments provided by the auditor in interim audit advice (IAA) No.1 dated 25 August 2022. A previous version of the DSI has also been reviewed and comments provided by the auditor in IAA No.2 dated 1 September 2022.

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

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 Office of Environment and Heritage, 2020).

Review comments requiring a response from IAA No.2 are detailed below:

- Please provide a summary of analytical results.
- Section 10. Discuss DSI compliance with the SAQP. Appendix D also notes DQOs are for the SAQP, please update for DSI.
- Appendix A. Show where the Kemps Creek Resource Recovery Park and Landfill is located in reference to the site.
- Appendix F. AECTP49. The log notes ‘timber’ in the sandy silt layer, please confirm if this was on the surface or anthropogenic material within the soil.
- Include calibration certificate for PID.
- Surface water and groundwater information including site assessment criteria and analytical data is not presented in the draft report. Please provide updated report to auditor for review with this information once available. It is further noted in the updated report please apply the most up to date PFAS criteria from NEMP 2.0 for recreational waters.

Review comments from additional information provided in the DSI are detailed below:

- Section 7.3. Please provide justification for the sediment sample locations. It is also noted that these appear different to the proposed sample locations. It is noted here that the creek is in the west of the site, please update. Please check through report as in Section 8.2 the creek is also noted in the west of site.
- Section 10.2. Confirm depth of sediment sample collection.
- Section 11.5. Please discuss whether TCLP analysis for PFAS will be required.
- Appendix A. Show on the figure where ACM pipes were identified within test pits. Following removal of the pipes, please provide the validation report to the auditor for review. Given the possibility that further pipes containing asbestos could be identified across the site during earthworks, a robust unexpected finds protocol will need to be implemented.
- Appendix H. Depending on the proposed earthworks at the site and whether the creek/sediments will remain or be removed and sediments reused/disposed, please give consideration to comparing the sediment analytical data, where applicable, to the ANZG (2018) Australian and New Zealand - Toxicant Default Guideline Values For Sediment Quality - Toxicant default guideline values for sediment quality (Water Quality 2018) default guideline values (DGV) and upper guideline values (GV-high).
- Appendix I. SAQP notes requirement of replicate sediment samples however these do not appear to be included. Please also discuss why rinsates were not required.

In addition to the above, please confirm the use of the buildings to the north west of the site.

Note. If the site extends across the dams within AEC 44 in the future, sediment and surface water samples should be collected.

The auditor will have further comments once the completed DSI is provided.

It is noted that the SAQP and DSI states that ‘soil may be imported from off-site’. The sampling regime be applied are not specified and cannot be commented upon by the auditor.

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.

[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:

- *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.*

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[redacted]

Re: Interim Audit Advice No. 4: AEC44, 1793 Elizabeth Drive, Badgerys Creek

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 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 1793 Elizabeth Drive, Badgerys Creek (hereafter referred to as 'the site').

The site is currently occupied by rural land used for grazing. The site is potentially impacted from two dams within the wider AEC44. It is understood that the development of part of the site will likely include cut and fill works for the rail lines. Areas alongside the proposed rail lines will be used by contractors for staging and maintenance for the Metro. Douglas Partners Pty Ltd (Douglas Partners), engaged as the environmental consultant to assess the contamination status of the site, produced the following reports, 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) 44, 1793 Elizabeth Drive, Badgerys Creek' dated 9 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) 44, 1793 Elizabeth Drive, Badgerys Creek' dated 14 March 2023 by Douglas Partner.

The SAQP has previously been reviewed and comments provided by the auditor in interim audit advice (IAA) No.1 dated 25 August 2022. Previous versions of the DSI have also been reviewed and comments provided by the auditor in IAA No.2 dated 1 September 2022, and IAA No. 3 dated 12 October 2022.

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

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 Office of Environment and Heritage, 2020).

- Table 1: Please specify the landowner.
- Table 2: Discuss surface water flow across the site.
- Section 7.4: Please confirm if field parameters were measured during surface water sampling and include the field sampling sheet if available.
- Appendix A. Provide a survey plan for the site.
- Appendix G. Update screen sizes for AEC44-BH01 and AEC44-BH03 on the logs (i.e., not 6 m).
- Appendix J.
    - Update table heading to include surface water.
    - Please provide justification as to why the hand auger was not decontaminated between sampling locations, and no rinsates samples were collected from this equipment.

It is noted that the SAQP and DSI states that 'soil may be imported from off-site'. The sampling regime to be applied are not specified and cannot be commented upon by the auditor.

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,

[redacted]

NSW EPA Accredited Site Auditor (0803)

KR/MP

Technical Limitations and Uncertainty – *This Interim Advice is not a Site Audit Report or a Site Audit Statement, as defined in the Contaminated Land Management Act 1997, but forms part of the Site Audit process*. It is intended that a Site Audit Statement and report will be issued at the completion of the site audit.
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.*

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Level 24, 1 Market St, Sydney 2000
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[redacted]

Re: Interim Audit Advice No. 5: AEC44, 1793 Elizabeth Drive, Badgerys Creek

Review of Updated Detailed Site Investigation

1. Introduction and Background

Melissa Porter (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 1793 Elizabeth Drive, Badgerys Creek (hereafter referred to as 'the site').

The site is currently occupied by rural land used for grazing. The site is potentially impacted from two dams within the wider AEC44. It is understood that the development of part of the site will likely include cut and fill works for the rail lines. Areas alongside the proposed rail lines will be used by contractors for staging and maintenance for the Metro. Douglas Partners Pty Ltd (Douglas Partners), engaged as the environmental consultant to assess the contamination status of the site, produced the following reports, 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) 44, 1793 Elizabeth Drive, Badgerys Creek' dated 9 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) 44, 1793 Elizabeth Drive, Badgerys Creek' dated 10 July 2023 by Douglas Partner.

The SAQP has previously been reviewed and comments provided by the auditor in interim audit advice (IAA) No.1 dated 25 August 2022. Previous versions of the DSI have also been reviewed and comments provided by the auditor in IAA No.2 dated 1 September 2022, IAA No. 3 dated 12 October 2022, and IAA No. 4 dated 14 June 2023.

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

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 Office of Environment and Heritage, 2020).

The auditor considers that the DSI addresses the comments provided in IAA No.4 and the DSI can be finalised.

It is noted that the SAQP and DSI states that 'soil may be imported from off-site'. The sampling regime to be applied are not specified and cannot be commented upon by the auditor.

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)

KR/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.*
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20 February 2024

[redacted]

Re: Interim Audit Advice No. 6: AEC44, 1793 Elizabeth Drive, Badgerys Creek
Review of Asbestos Materials Clearance Inspection Report

1.0 Introduction and Background

[redacted] 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 1793 Elizabeth Drive, Badgerys Creek (hereafter referred to as 'the site').

The site is currently occupied by rural land used for grazing. The site is potentially impacted from two dams within the wider AEC44. It is understood that the development of part of the site will likely include cut and fill works for the rail lines. Areas alongside the proposed rail lines will be used by contractors for staging and maintenance for the Metro. Douglas Partners Pty Ltd (Douglas Partners), engaged as the environmental consultant to assess the contamination status of the site, produced the following reports, which were 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) 44, 1793 Elizabeth Drive, Badgerys Creek' dated 9 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) 44, 1793 Elizabeth Drive, Badgerys Creek' dated 10 July 2023 by Douglas Partner.
- 'Asbestos Materials Clearance Inspection Report' dated 20 November 2023 by Sydney Environmental Group.

The SAQP has previously been reviewed and comments provided by the auditor in interim audit advice (IAA) No.1 dated 25 August 2022. The DSI has also been reviewed and comments provided by the auditor in IAA No.2 dated 1 September 2022, IAA No.3 dated 12 October 2022, IAA No.4 dated 14 June 2023 and IAA No.5 dated 12 July 2023.

This interim audit advice details the review of the Asbestos Materials Clearance Inspection Report in relation to the contamination status of the site.

2.0 Review Comments

The Site Auditor has undertaken a review of the inspection report 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.

- General.
  - First paragraph. Confirm if material was disposed off-site to a licensed receiving facility or please update. If disposed off-site, please provide all disposal dockets and material tracking information.
  - Confirm where the excavated material currently stockpiled in the temporary stockpiling areas is to be disposed to. Confirm where documentation of material disposal will be recorded and provided to the auditor for review. Confirm if the excavated material is being tracked.
  - Confirm the audit area. If the asbestos conduits left in-situ are within the audit area, these should be removed. Please provide reasoning for why these were not removed, it is not sufficient to say that the conduits were outside of the works alignment as they are within the audit boundary. If left in-situ, these will need to be surveyed and locations provided on a figure and registered on an AMP for the site. Discussion will need to be provided around the current and future land uses and activities and how the risks associated with these conduits will be managed mainly during the bulk earthworks associated with SCAW.
  - Confirm if the edge of the asbestos conduit left in-situ is exposed or confirm if the excavation was backfilled. If the excavation was backfilled, confirm what material was used and provide relevant documentation.
  - Confirm the depth and width of the excavation.
- Conclusion.
  - ‘The edge of the remaining in-situ conduit has been made safe.’ Please remove as this is misleading, and also please confirm if the edge of the conduit is exposed or was reburied. It is more appropriate to comment on whether the risks associated with the asbestos conduit left in-situ are low and appropriate for the current and proposed land uses and receptors.

3.0 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.

KR/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.*

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12 September 2024

[redacted]

Re: Interim Audit Advice No. 7: Dams at AEC44, 1793 Elizabeth Drive, Badgerys Creek

Review of DSI for the Dams and updated Asbestos Materials Clearance Inspection Report

1.0 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 1793 Elizabeth Drive, Badgerys Creek (hereafter referred to as 'the site').

The site is currently occupied by rural land used for grazing. The site is potentially impacted from two dams within the wider AEC44 which were investigated separately to the rest of the site. It is understood that the development of part of the site will likely include cut and fill works for the rail lines. Areas alongside the proposed rail lines will be used by contractors for staging and maintenance for the Metro. Douglas Partners Pty Ltd (Douglas Partners), engaged as the environmental consultant to assess the contamination status of the site, produced the following reports, which were 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) 44, 1793 Elizabeth Drive, Badgerys Creek' dated 9 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) 44, 1793 Elizabeth Drive, Badgerys Creek' dated 10 July 2023 by Douglas Partners.
- 'Report on Detailed Site Investigation, Surface & Civil Alignment Works (SCAW) Package for Sydney Metro – Western Sydney Airport (SMWSA), Dams at Area of Environmental Concern (AEC) 44, 1793 Elizabeth Drive, Badgerys Creek' dated 26 February 2024 by Douglas Partners.
- 'Asbestos Materials Clearance Inspection Report' dated 28 February 2024 by Sydney Environmental Group.

The SAQP has previously been reviewed and comments provided by the auditor in interim audit advice (IAA) No.1 dated 25 August 2022. The DSI for the broader site excluding the dams has been reviewed and comments provided by the auditor in IAA No.2 dated 1 September 2022, IAA No.3 dated 12 October 2022, IAA No.4 dated 14 June 2023 and IAA No.5 dated 12 July 2023. A previous version of the Asbestos Clearance Inspection Report has been reviewed and comments provided by the auditor in IAA No. 6 dated 20 February 2024.

This IAA details the review of the updated Asbestos Materials Clearance Inspection Report dated 26 February 2024, and the Report on Detailed Site Investigation for the Dams at AEC 44 dated 26 February 2024.

2.0 Review Comments

The Site Auditor has undertaken a review of the reports 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.

DSI for the Dams

- The auditor considers that the DSI is appropriate and can be finalised.

Asbestos Materials Clearance Inspection Report

- The auditor notes that asbestos clearance works were conducted in accordance with Work Health and Safety protocols and is not a part of the audit scope.

3.0 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] **td**

[redacted] 03)

KR/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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