PREPARED FOR

LAING O'ROURKE

Site Audit Report

Sydney Metro Central Station Main Works

DATE
24 April 2024

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Site Audit Report

Sydney Metro Central Station Main Works: Metro Station Box

0490589

[redacted]

[redacted]

Partner

NSW EPA Accredited Site Auditor No. 1201

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ABBREVIATIONS

Abbreviation	Description
ACM	Asbestos Containing Material
ACT	Australian Capital Territory
ADE	ADE Consulting Group
ADWG	Australian drinking water guidelines
AF	Asbestos Fines
AGJV	Aurecon & GHD Design Joint Venture
AHD	Australian Height Datum
ASC NEPM	National Environment Protection (Assessment of Site Contamination) Measure
BTEX	Benzene, Toluene, Ethylbenzene and Xylenes
CLM Act	Contaminated Land Management Act, 1997
CEMP	Construction Environmental Management Plan
CGWMP	Construction Ground Water Management Plan
CoA	Conditions of Approval
COPC	Contaminant of Potential Concern
CSM	Conceptual Site Model
CSMW	Central Station Main Works
CT	Contaminant Threshold
CWEE	Central Walk and Eastern Entrance
DP	Deposited Plan
DQI	Data Quality Indicator
DQO	Data Quality Objectives
EIL	Ecological Investigation Level
ENM	Excavated Natural Material
EMP	Environmental Management Plan
EPL	Environment Protection Licence
ERM	Environmental Resources Management Australia Pty Ltd
ESL	Ecological Screening Level
FA	Fibrous Asbestos
GHD	GHD Pty Ltd
GSW	General Solid Waste
HIL	Health Investigation Level
HSL	Health Screening Level
HW	Hazardous Waste
IAA	Interim Audit Advice

Abbreviation	Description
LOR	Laing O'Rourke Australia Construction Pty Ltd or Limit of Reporting
m	metres
MBW	Metro Box Works
NEPC	National Environment Protection Council
NSW EPA	New South Wales Environmental Protection Authority
OMP	Operational Management Plan
PAHs	Polycyclic Aromatic Hydrocarbons
PE	Polyethylene
PFAS	Per- and polyfluoroalkyl substances
PMF	Probably Maximum Flood
QRA	Quantitative Risk Assessment
RAP	Remediation Action Plan
RRO	Resource Recovery Order
RSW	Restricted Solid Waste
SAQP	Sampling and Analysis Quality Plan
SAR	Site Audit Report
SAS	Site Audit Statement
SPR	Source Pathway Receptor
SYPAA	Sydney Yard Project Access Area
TCLP	Toxicity Characteristics Leaching Procedure
TRH	Total Recoverable Hydrocarbons
VENM	Virgin Excavated Natural Material
VPR	Validation Progress Report
WTP	Water Treatment Plant

1. INTRODUCTION

1.1 OVERVIEW

Laing O'Rourke Australia Construction Pty Ltd engaged Mr [redacted], a New South Wales Environment Protection Authority (NSW EPA) accredited Site Auditor employed by Environmental Resources Management Australia Pty Ltd (ERM) to undertake an audit of the Sydney Metro Central Station Main Works (CSMW), comprising the Metro Box and the Central Walk and Eastern Entrance (CWEE). The final outcome of the statutory Site Audit was a Site Audit Statement (SAS) and associated Site Audit Report (SAR – this report).

The location and boundaries of the Site Audit are shown on Figure 1 of Appendix A and further details of the Site Auditor and the site subject to the audit are presented in Table 1-1. This audit is a Statutory Audit in accordance with definitions provided in the *Contaminated Land Management Act 1997* (CLM Act) and, as such, has been formally notified to NSW EPA.

TABLE 1-1 AUDITOR AND SITE DETAILS

Item	Details
Name of Site Auditor & Company:	[redacted] – Environmental Resources Management Australia Pty Ltd
Date of first appointment as a Site Auditor under the NSW Contaminated Land Management Act (1997):	6 November 2012
Auditor's NSW EPA Accreditation Number:	1201
Auditor's Contact Details:	Environmental Resources Management Australia Pty Ltd Level 4, 35 Terminal Ave, Plaza Offices East, Canberra Airport ACT 2609 Ph: (02) 6253 6888 Email: [redacted]
Land use(s) that may have given rise to Contamination of the Audit Site	Railway use, former gasworks
Statutory / Non-Statutory Audit	Statutory
Auditors Reference	PML009
Date Audit Commenced	Initially commenced on 21 December 2018 by Dr. [redacted] subsequently terminated 4 February 2022 and recommenced by [redacted] on 16 February 2022.
Completion date of Audit	24 April 2024
Person Requesting the Audit	Laing O'Rourke Australia Construction Pty Ltd
Street Address	Central Station, Haymarket, NSW
Property Description	Central Station is the terminus for intercity train services and provides access to all the rail lines that pass through the Sydney Central Business District (CBD), as well as the Sydney light rail.

Item	Details
	The boundaries of the Audit Area are shown in Figure 1 of Appendix A and includes Part of Lot 201 of DP1280430 (Central Station) and Lot 2 of DP1079279 (20-28 Chalmers Street). A portion of Central Walk is located subterranean between the above two lots below Chalmers Street.
Current Site Ownership	Transport Asset Holding Entity of New South Wales (the owner of the NSW Rail Network)
Geographical Co-ordinates	-33°53'2.78"S, 151°12'23.44"E
Site Area	Central Walk – approximately 2,200 m^2 Eastern Entrance – approximately 550 m^2 Metro Station Box – approximately 9,000 m^2
Local Government Area	City of Sydney Council
Subdivision	The Auditor is not aware of any plan to subdivide the site
Current Zoning and Approved Use	Zoning: Central Station: SP2 – Infrastructure: Railway under the Sydney LEP 2012. Eastern Entrance: MU1 - Mixed Use under the Sydney LEP 2012. Use: Railway Station and associated public transport infrastructure.
Proposed Zoning and Approved Use	The Auditor is not aware of a change in zoning. The Minister for Planning has approved the construction and operation of the Sydney Metro City and Southeast Chatswood to Sydenham project, part of which will be built at the site.

1.2 BACKGROUND

The Site Audit has been requested by Laing O'Rourke. The Site Audit is a statutory audit: the Conditions of Approval for the Critical State Significant Infrastructure Sydney Metro City & Southwest Chatswood to Sydenham SSI 15_7400 (dated 9 January 2017) includes a requirement (condition E67) for a site audit to determine the suitability of the site for a specified use where a site contamination report finds land that contains contamination. The condition states that where a site audit is required, a SAS and SAR must be prepared by a NSW EPA accredited Site Auditor. Contaminated land must not be used for the purpose approved under the terms of the approval until an SAS is obtained that declares the land is suitable for that purpose and any conditions of the SAS have been complied with.

The related condition E68 specifies that the SAS and SAR must be submitted to the Secretary and Council of the NSW Department of Planning and Environment for information no later than one month before the commencement of operation.

The site investigation reports prepared for the site did encounter contamination and consequently a site audit is required. There is no record of the site being subject to previous SASs.

The Audit was commenced by [redacted] (NSW EPA Accredited Site Auditor No. 1202) and the Statutory Audit was notified by [redacted] of ERM to NSW EPA on 21 December 2018, as required by the Guidelines for the NSW Site Auditor Scheme (2017). Following Dr. [redacted] retirement from ERM in 2022, [redacted] of ERM commenced as the Site Auditor on 16 February 2022. Notification of [redacted] cessation of the Site Auditor role was provided to the NSW EPA on 4 February 2022, with the NSW EPA acknowledging receipt of [redacted] cessation on 8 February 2022 (EPA Reference - DOC22/88861). A Site Audit Notification Form was submitted by [redacted] on 16 February 2022 to notify the NSW EPA of [redacted] commencement as the Site Auditor.

The site has not been notified to the NSW EPA under s.60 of the CLM Act 1997.

1.3 THE ENVIRONMENTAL AUDIT PROCESS

NSW EPA Guidelines for the NSW Site Auditor Scheme (3rd edition) (NSW EPA, 2017) describes the site assessment and audit process as follows:

> *(i) Consultant is commissioned to assess contamination. The contaminated site consultant designs and undertakes the site assessment and, where required, all remediation and validation activities to achieve the objectives specified by the owner or developer; and*
>
> *(ii) The site owner or developer commissions the site auditor to review the consultant's work. The Site Auditor prepares a SAR and a SAS at the conclusion of the review, which are given to the owner or developer. In some cases, the site owner or developer may wish to have a site audit undertaken although it is not a legal requirement. The audit is termed 'non-statutory'. For non-statutory audits, the site auditor must give a copy of the site audit report to the EPA on request.*

It is noted that the contaminated land consultant and other relevant parties should be satisfied that the work conducted conforms to all appropriate regulations, standards and guidelines and is suitable based on the site history and proposed land use.

1.4 REGULATORY REQUIREMENTS

The Audit is a statutory audit as per the requirements previously described in Section 1.2.

1.5 PURPOSE OF THE SITE AUDIT

The purpose of this Statutory Site Audit was to independently and objectively examine and review the accuracy and completeness of the investigations and assessments carried out by the Environmental Consultant. Based on this review, the Auditor was then required to provide an independent opinion on whether the Site is suitable for its intended railway / public transport infrastructure use, consistent with the approved design and operational management controls.

1.6 PROJECT APPRECIATION AND UNDERSTANDING

This audit includes the areas of the Central Station precinct which are referred to as "Metro Box", "Central Walk" and the "Eastern Entrance to Central Walk". The boundary of these areas is shown in Figure 1 of Appendix A. The construction of the MBW and CWEE involved the excavation of fill and underlying natural soils to depths greater than the identified extent of contamination.

The remediation of the contaminated soil was therefore achieved by excavation and off-site disposal of soil from the excavation, with contamination removed to the extent practicable.

1.7 AUDIT CORRESPONDENCE

During this audit, the Auditor has provided feedback on the consultant reports. This has primarily been provided via email, with tabulated auditor comments attached and collated into a consolidated register of audit comments. Five separate letters of Interim Audit Advice, primarily associated with significant milestones in the project were provided. Additionally, the Auditor has made a number of requests for additional information / clarification via email. These are included in Appendix B, together with copies of all other relevant correspondence.

1.8 SITE VISITS AND MEETINGS

Throughout the course of the project a number of site meetings and associated inspections were held between [redacted] (and previously [redacted]) and representatives of Laing O'Rourke, Aurecon GHD Design Joint Venture (AGJV) and (in some instances) ADE Consulting Group (ADE).

These meetings are summarised below and representative photographs from each site visit are presented in Appendix C.

- 13 June 2019 – General Site Inspection;
- 3 December 2019 – Inspection of Metro Box Excavation Activities;
- 14 May 2020 – Inspection of Metro Box and Central Walk Excavation Activities;
- 24 September 2020 – Inspection of Metro Box and Central Walk Excavation Activities;
- 1 April 2021 – Inspection of Metro Box and Central Walk Excavation Activities, noted that excavation of the Eastern Entrance was also underway on Chalmers St. (Former Bounce Hotel site);
- 22 June 2021 - Inspection of Metro Box (excavation complete) and Central Walk Excavation Activities, Eastern entrance excavation at depth;
- 6 December 2021 – Final site inspection by [redacted], noted that bulk excavation works were completed and almost all concreting and waterproofing were on, remaining were two escalator ramps in Central Walk; and
- 21 February 2022 – Introduction of [redacted] to project team as new Auditor and inspection of project works to date. Noted that excavation works were largely completed and final fit out was well underway in most areas.

Whilst not a site meeting, it is also important to note that a handover meeting between the former Site Auditor ([redacted]) and the current Site Auditor was held on 2 February 2022 at ERM's offices in Sydney prior to the former Auditor's termination of her audit on 4 February 2022.

A post completion condition inspection of accessible portions of the Audit Area was also conducted by a member of the Auditor's support team on 27 March 2024 to document the current status of the audit area close to completion of the SAS and SAR.

1.9 REPORTS REVIEWED

In undertaking this Site Audit, the Auditor has reviewed the following reports:

- ADE (2019a) Gasworks Investigation Report, Sydney Yard, Central Railway Station, Chippendale, NSW, dated 22 May 2019;
- ADE (2019b) Additional Gasworks Investigation Report Central Station Main Works, dated 26 September 2019;
- ADE (2020a) Central Walk Validation Sampling – Platform 16/17, Southern End ref LOR-09-14544 VAL1.v2f dated 8 July 2020;
- ADE (2020b) Waste Analysis & Classification Report Eastern Entrance - Central Station Metro Works 20-28 Chalmers Street, Surry Hills NSW, ref LOR-09-16615 /WAC1/ v4f, dated 24 July 2020;
- ADE (2020c) Phase I Preliminary Site Investigation 20-28 Chalmers Street, Surry Hills NSW, ref LOR-09-16615 / PSI/v1f, dated 24 July 2020;
- AGJV (2019a) Sampling and analysis plan for investigation of unexpected find-uncovered former gasworks brick tank, memo to [redacted] Laing O'Rourke dated 13 March 2019;
- AGJV (2019b) Central Station Main Works Remedial Action Plan for Construction of Metro Station Box – Design Report, ref SMCSWCSM-DJV-EW-00-REP-GE-000205 Rev D Final 11 April 2019;
- AGJV (2019c) Central Station Main Works; Contamination Assessment – Design Report, document number SMCSWCSM-DJV-EW-00-REP-GE-000204. 5 June 2019;
- AGJV (2020a) Hydrogeological assessment of groundwater seepage from the former gasholder intersecting the central station Metro Box, ref SMCSWCSM-DJV-EW-00-REP-GE-000232, dated 6 March 2020;
- AGJV (2020b) Central Station Main Works, Remedial Action Plan for Uncovered Gasworks Waste – Design, ref SMCSWCSM-DJV-EW-00-REP-GE-000224, Rev 1 dated 1 July 2020;
- AGJV (2020c) Change to validation work plan – Remedial Action Plan for Construction of Metro Station Box, Design Report – Memorandum, document number SMCSWCSM-DJV-NC-20-MEM-EN-000002 memo to [redacted] from [redacted], dated 24 July 2020;
- AGJV (2020e Remedial Action Plan for Construction of the Central Walk - Design Report, ref SMCSWCSM-DJV-EW-00-REP-GE-000206, Rev 1 Final dated 24/08/2020;
- AGJV (2020f) Central Station Main Works, Metro Station Box - Validation Progress Report; June 2020, Revision 1, Ref: SMCSWCSM-DJV-NC-20-REP-EN-000003, dated 17-December-2020;
- AGJV (2021a), Quantitative Risk Assessment for Gasworks - Design Report, ref SMCSWCSM-DJV-EW-00-MEM-GE-000045, Rev 4 Final dated 7 July 2021;
- AGJV (2022a) Central Station Main Works, Central Walk and Eastern Entrance - Validation Progress Report; to September 2020, Revision 1, Ref: SMCSWCSM-DJV-EW-00-REP-GE-000523, Dated 25-July-2022;
- AGJV (2023a), Central Station Main Works; Metro Station Box – Validation Progress Report; December 2020. Document number: SMCSWCSM-DJV-NC-20-REP-EN-000014. Revision 1. Dated 9 March 2023;

- AGJV (2023b), Central Station Main Works, Metro Station Box - Validation Progress Report, ref: SMCSWCSM-DJV-NC-20-REP-EN-000016, Rev 3, dated 27 July 2023;
- AGJV (2023c) Central Station Main Works – Final Groundwater Monitoring Report (October 2022 to May 2023); Document number: SMCSWCSM-DJV-EW-00-REP-GE-000239, dated 07 August 2023;
- AGJV (2023d) Central Station Main Works Long term environmental management plan – remaining gasworks chamber, dated 8 August 2023;
- AGJV (2023e) Central Station Main Works, Metro Station Box – Final Validation Progress Report, ref: SMCSWCSM-DJV-NC-20-REP-EN-000017, Revision 1, dated 31 August 2023;
- AGJV (2023f) Central Station Main Works, Central Walk and Eastern Entrance - Final Validation Report; 1 October 2020 to 15 September 2022, Revision 3, Ref: SMCSWCSM-DJV-NC-20-REP-EN-000015, Dated 22 September 2023; and
- AGJV (2023g) Central Walk and Eastern Entrance (CWEE) – Addendum for Northern Platforms 16/17 and 18/19 Central Station Main Works, ref: SMCSWCSM-DJV-NC-20-REP-EN-000018.

In addition to the above documents reviewed by the Auditor, a list of documents provided to the Auditor for information purposes is presented in Appendix E.

2. SITE DESCRIPTION

2.1 SITE CONDITION

A summary of site conditions is provided in Table 2-1.

TABLE 2-1 SUMMARY OF AUDIT SITE CONDITIONS

Feature	Details
Topography and drainage	The topography of the area is reported by AGJV to be characterised by a gentle slope towards Blackwattle Bay and Cockle Bay / Darling Harbour with local slopes towards former creek lines. To the south of the site the surface slopes towards Cooks River. Ground surface elevations within the surrounding area range from approximately 27 metres above Australian Height Datum (AHD) to the southeast of the site around Surry Hills, to sea level seaward of the shoreline within Parramatta River/Sydney Harbour. The ground level portions of the area have an elevation of approximately 20 m AHD.
Boundary condition	The site sits within the broader Central Station precinct and, upon completion, most areas will be publicly accessible with no physically defined site boundary.
Visible signs of contamination	Prior to remediation works some hydrocarbon odours and dark staining along with isolated fragments of bonded Asbestos Containing Materials (ACM) were noted in fill materials, these impacted fill materials were generally removed during the works.
Visible signs of plant stress	There are no plants present within the audit area.
Presence of drums and wastes	During site inspections, various construction related wastes and drums were identified these waste materials were however removed prior to completion of the works. It is noted that fortnightly inspections were undertaken of the project works by the Environmental Representative ([redacted] of Healthy Building International) to assess compliance with the project CEMP. A selection of these reports was requested from AGJV / LOR and were provided for review by the Auditor. Whilst some minor non-conformances / housekeeping issues were noted, these appear to have been rectified effectively and swiftly.
Odours	Prior to remediation works, some hydrocarbon odours were noted in fill materials. These impacted fill materials were removed during the works.
Conditions of buildings, site surfaces and roads	The structures within the audit area are all recently completed or refurbished as part of the broader construction of the project, refer to photographs from March 2024 within Appendix C.
Surface water quality	There are no surface water bodies present within the audit area nor in the immediate vicinity.
Flood potential	The City of Sydney (September 2016) Darling Harbour Catchment Floodplain Risk Management Plan identifies the lower lying track corridors within Central Station as falling within the 'Low Hazard' category on the Probably Maximum Flood (PMF) Event mapping presented. It is noted that much of the audit area (e.g. Central Walk) comprises constructed sub-surface infrastructure and, as such, has engineered water management features integrated into the design (including groundwater capture and treatment/discharge).

Feature	Details
Relevant local sensitive environments	As described above, the audit area falls within the Darling Harbour catchment. However, the most relevant sensitive ecological receptor was identified by AGJV to be the aquatic ecosystem of Blackwattle Bay, as this is where treated groundwater from the site was discharged to during construction (with relevant treatment and approval / license).

2.2 CURRENT DESCRIPTION OF THE SITE

As part of the construction of the *Sydney Metro City and Southeast Chatswood to Sydenham* project the below areas were defined as shown on Figure 1 of Appendix A.

- The Metro station box works (MBW);
- The Central Walk and Eastern Entrance (CWEE); and
- The Sydney Yard Project Access Area (SYPAA).

It is noted that this Audit relates only to the works undertaken in the MBW and CWEE areas (the Audit Area) which are described below, and does not include the area of the SYPAA.

2.2.1 METRO BOX

The construction works completed for the Metro Box are described in the Final Validation Progress Report as follows:

- The intercity platforms 13, 14 and 15 were demolished;
- In-situ bored piles were constructed around the perimeter of the Metro Box to form the upper part of the permanent structures;
- The perimeter piles were interconnected by a reinforced concrete capping beam at the top and shotcrete panels were installed between individual piles;
- Steel plunge columns were installed along the central portion of the Metro Box and station ends;
- Fill, natural soils and bedrock were excavated from the Metro Box footprint; and
- Permanent concrete columns were constructed from bottom up and the steel plunge columns were removed.

In relation to the area located adjacent to the former gasworks, the Gasworks Remediation Action Plan (RAP) (AGJV, 2020b) and QRA (AGJV, 2021a) detailed amended construction design to mitigate potential vapour intrusion and separate potentially contaminated groundwater draining into the Metro Box. The amendments comprised:

- Increasing the thickness of shotcrete between the perimeter piles from 150mm to 250mm, with inclusion of a waterproof admixture and steel fibres to manage crack control. The extent of the enhanced shotcrete was to be at least two panels beyond the visually assessed extent of contaminated fill, to the full depth of the piles (which extend beyond the base of the Concourse's slab floor);
- A sika waterproof liner placed on the inside of the shotcrete liner; and

- Use of cupro-nickel slotted pipe outside the pile wall to drain groundwater, and direct it to open drains at track level inside the station was originally proposed, however this was subsequently modified to incorporate drainage separation works for preferential drainage of groundwater from behind the shotcrete walls. The materials were changed to a strip drain arrangement transitioning into a PN20 polyethylene (PE) pipe instead of a cupro-nickel slotted pipe and this was documented in the Metro Station Box Final validation progress report (AGJV, 2023e).

The site specific Quantitative Risk Assessment (QRA) (AGJV, 2021a) assessed health risks potentially present given these additions to the design, as well as considering design changes to the ventilation systems in plant rooms adjacent to the gasholder.

Based on the information gathered via the site inspections (as detailed in Section 1.8), review of the validation progress reports (and particularly the as-built drawings presented within those validation progress reports) it is the Auditor's understanding that the remediation and construction works have been completed generally as described above and therefore that the final condition of the Metro Box works area is aligned with the proposed rail infrastructure facilities. Photographs of the current site condition around the time of completion of the SAR and SAS are presented in Appendix C and 'As Built' drawings in Appendix F.

2.2.2 CENTRAL WALK AND EASTERN ENTRANCE

The documentation provided for the CWEE works describes the following four stages of subterranean construction which were completed whilst the current Suburban Platforms remained operational:

- Stage 1 Adit works comprised drilling vertical shafts from the platforms into a bored adit connecting the Metro box to the Eastern Entrance, below the level of the CWEE works. The Adit allowed removal of spoil excavated from the CWEE works by dropping it down into the Adit via the shafts for removal to disposal. The Adit was converted to the Combined Services Route following completion of the excavation works;
- The Stage 2 works comprised removal of material beneath the platforms to create the CWEE tunnel and the escalators providing access from the existing platforms;
- Stage 3 involved excavation beneath the tracks down to the top of the CWEE tunnel. Structural supports were installed to support the tracks which excavation proceeded beneath. Fill, ballast and soils between the tracks and the top of the CWEE tunnel were completely removed and replaced by the support structures; and
- Stage 4 comprised completion of the CWEE tunnel excavation, which also intersected fill materials, and residual soils.

Based on the information gathered via the site inspections detailed in Section 1.8, review of the validation progress reports (and particularly the as-built drawings presented within those validation progress reports), it is the Auditor's understanding that the remediation and construction works have been completed generally as described above and the final condition of the CWEE works area is aligned with the proposed railway and associated public transport infrastructure facilities. Photographs of the current site condition around the time of completion of the SAR and SAS are presented in Appendix C and 'As Built' drawings in Appendix F.

2.3 SITE HISTORY

A history of a site provides an indication of potential sources of contamination and Contaminants of Potential Concern (COPC) that may warrant further assessment. The site history is outlined below, based on the information available in the Consultants' reports (as listed in Section 1.9).

The Central Station passenger terminus and station platforms were constructed between 1855 and 1906 when the Grand Concourse and 15 passenger platforms were officially opened. The tunnel and station box for platforms 24 and 25 (the most recent heavy rail development) were constructed in 1979. Prior to construction of the Station, the land on and surrounding the Site was used for various industrial purposes, including a public cemetery, the Devonshire Street Cemetery, located between Eddy Avenue and Elizabeth Street, and between Chalmers and Devonshire Streets, from 1820 until the mid-1860s, and in 1901 graves were removed for the construction of part of Central Station.

Central Station is currently surrounded by mixed commercial and residential, largely high-density development. Historically the area has included heavier industrial uses, including three gasworks reported to have been in operation between 1878 and 1905. The locations of the gasworks infrastructure is not well known, however the RAP (AGJV, 2020b) presented the approximate locations, shown in Figure 1 of Appendix A. The gasworks structure encountered in the southwest corner of the Metro Box was the remains of a former gasholder, but no other structures were uncovered. It was identified by the Gasworks RAP (AGJV, 2020b) as being part of "gasworks 2", located south of existing platforms 14 and 15. Two photographs of the former gasholder excavation are included as Figure 2 in IAA#4 within Appendix B.

The gasworks were situated outside the footprint of CWEE based on information provided in previous investigations undertaken. The Eastern Entrance was most recently the Bounce Hotel (20-28 Chalmers St), and has a history of various commercial uses according to a preliminary site investigation undertaken by ADE (2020c).

2.4 AUDITOR'S ASSESSMENT

The information presented in the Consultants' reports (as detailed in Section 2.1 and 2.2) provides an appropriate summary of the Site identification and Site Setting for the purpose of this Audit.

The Site identification details in the Consultants' reports refer to the property title reference as Part of Lot 118, DP1078271. Following commencement of the project and the Audit, the title reference has been revised to Lot 201 of DP 1280430.

The Auditor considers that the site history provided across the documents reviewed does not provide sufficient information in accordance with Schedule B2 of the National Environment Protection Council (NEPC) (2013) National Environmental Protection (Assessment of Site Contamination) Measure 1999 (ASC NEPM). The Validation Progress Report (VPR) provided only a basic list of former potentially contaminative site uses. However, the nature of the development is such that complete excavation of the Metro Box footprint and CWEE footprint was carried out, and irrespective of the lack of detail, the Auditor considers that the site uses most likely to potentially result in significant contamination were identified.

The Auditor considers that in view of the known history it is unlikely that any significant contaminant of concern related to unknown uses would fail to be detected by the inspection procedures outlined in the RAP and the analytical suites that were selected.

In the context of the nature of the construction works, and the provisions included in the RAP for waste classification and validation sampling, the uncertainty in the potential sources of contamination is not considered an omission likely to result in a contamination source not being addressed by the remedial works.

3. CONCEPTUAL SITE MODEL

3.1 GEOLOGY, HYDROGEOLOGY AND HYDROLOGY

A summary of the site geology, hydrogeology and hydrology are provided in Table 3-1 based on the information available in the Consultants' reports (as listed in Section 1.9) and the Auditor's review of public sources as referenced.

TABLE 3-1 SUMMARY OF AUDIT GEOLOGY, HYDROGEOLOGY AND HYDROLOGY

Feature	Details
Regional geology from Geological Maps	The landscape of the site and surrounding area is generally described as flat with gently undulating rises with local relief to 30 m and no nearby rock outcrops. The regional geology maps for the Sydney Basin (1:100,000 map) indicate the surface geology primarily comprises Ashfield Shales of the Wianamatta Group Shales underlain by Mittagong Formation (sandstone and shale) and Hawkesbury Sandstone. The Wianamatta Group shales comprise shallow marine sediments characterised by black to dark grey shale and laminate, and some sandstone beds. The Hawkesbury Sandstone formation comprise massive and interbedded or cross bedded quartzose sandstone. Intrusive features including basalt dykes and volcanic breccias were identified in the northern end of the MBW excavation, running from east to west, and are associated with an increased permeability in the surrounding fractured sandstone.
Soil types from Soil Maps	The soils in the immediate area are defined in regional soil mapping as part of the Blacktown soil landscape. The Blacktown soil landscape is characterized by moderately deep (<100 cm) red and brown podzolic soils on crests, upper slopes, and well-drained areas, and deep (150-300 cm) yellow podzolic soils and soloths on lower slopes and in areas of poor drainage.
Acid sulfate soils	Available regional mapping (Department of Land and Water Conservation (DLWC), 1997) indicates no known occurrences of acid sulfate soil materials. An acid sulfate soils report has been completed, and indicates a low probability for acid sulfate soils to be present below the site.
Ground conditions from borehole and test pits	The surface lithology encountered above the Wianamatta Group shales comprises unconsolidated sediments of varying thickness, including residual soils (colluvial deposits from weathered Ashfield Shale), alluvium (silty to peaty sand, silt and clay with deep paleochannel infill deposits) and/or anthropogenic fill. Anthropogenic fill generally consists of excavation waste rock, demolition rubble, industrial and household waste and overlies the alluvium in some areas, particularly beneath the Central Station platforms.
Regional hydrogeology	The Site is generally flat and sealed so surface water runoff from the site is expected to be directed towards drainage systems on or off-site. Natural drainage of surface water in this area has largely been altered due to the presence of the railway infrastructure and surrounding developments but is expected to flow North. The nearest waterways are Cockle Bay and Blackwattle Bay approximately 1,000 m north to northwest.
Registered bore records and use of groundwater	At the time of preparing the validation report, the Consultant reported that there were no registered groundwater bores within a 500 m radius of the Central Station Main Works on the Water NSW real time groundwater map (accessed 17 February 2022 as reported in AGJV, Final Validation Report for MBW).

Feature	Details
Depth to groundwater	Groundwater in the CWEE area is present in two water bearing layers: a shallow aquifer within the alluvium and residual soils, and a deeper aquifer in the sandstone. AGJV (2023c) reported that the groundwater elevations of the shallow aquifer ranger between 11.393 m AHD in CSM_BH10S (January 2023) and 20.299 in CSM_BH14S (October 2022) and that the groundwater elevation of the deeper aquifer ranged between -5.766 mAHD in CSM_BH04 (October 2022) and 3.787 mAHD in CSM_BH13 (December 2022).
Direction and rate of groundwater flow	Groundwater flow direction within the shallow aquifer system is toward the north-east and south-east. It appears this is generally consistent with the general fall in topography and towards harbour areas. Testing and interpretation undertaken by GHD in 2019 using the specific capacity method reported hydraulic conductivity of this formation ranging from 0.2 m/d (CSM_BH10S) to 15 m/d (GASW_BH23). Groundwater flow direction in the deeper aquifer appears to be to the north-west. AGJV (2020a) reported that packer tests at the site gave sandstone hydraulic conductivities ranging from less than 0.001 m/d to 2 m/d.
Aquifer water quality	Shallow and sometimes perched groundwater is located within fill material, residual soil and alluvium in low-lying areas. The alluvium and fill materials form discontinuous, local groundwater flow systems and are often impacted by contaminants associated with the fill materials or other contaminant sources. The Hawkesbury Sandstone is a regionally significant aquifer, with relatively high yields of good quality water in many areas, although no bores accessing the aquifer were identified within the vicinity of the Site.
Nearest surface water body (including connection to site drainage)	The nearest surface water bodies are Cockle Bay and Blackwattle Bay, located approximately 1km to the north-west. As the MBW and CWEE areas are located within a railway precinct, the ground surface is predominantly flat and sealed, with surface water generated from rainfall and runoff primarily collected in stormwater drains and diverted to the municipal stormwater system. The nearest surface water receptors are more than 1 km from the Site, and the primary receptors include ecological, primary and secondary recreation. As previously identified in Section 2.1, the audit area falls within the Darling Harbour catchment. However, the most relevant sensitive ecological receptor was identified by AGJV to be the aquatic ecosystem of Blackwattle Bay, as this is where treated groundwater from the site is discharged.

3.1.1 STRATIGRAPHY

3.1.1.1 METRO BOX

The Metro Box footprint contained fill of unknown provenance (containing waste rock, demolition rubble, industrial and household waste) and railway ballast on the platforms and tracks. Beneath the fill was alluvial silt and clay, followed by sediments of the Ashfield Shale and Mittagong Formation, underlain by the Hawkesbury Sandstone. The area is mapped as having a low probability of acid sulfate soils.

Fill thicknesses varied between approximately 0.2 m up to 6 m, generally being thicker in the southern part of the site. The fill was generally described in the VPR as gravelly sand and sandy gravel, occasionally clay, with limited occurrence of anthropogenic materials. In most locations, fill was underlain by alluvial sediments or weathered clays representing the upper layers of shale. Bedrock was generally encountered at between 3 m – 8 m below ground.

3.1.1.2 CENTRAL WALK AND EASTERN ENTRANCE

The Central Walk footprint contained fill of unknown provenance (containing waste rock, demolition rubble, industrial and household waste) and railway ballast on the platforms and tracks. Beneath the fill is alluvial silt and clay, followed by sediments of the Ashfield Shale and Mittagong Formation, underlain by the Hawkesbury Sandstone.

The Eastern Entrance footprint was underlain by sandy gravelly fill up to 1 m thick, beneath which were shales and then sandstone (ADE, Waste Classification Report, 24 July 2020).

Fill thicknesses varied between approximately 0.2 m to 3.5 m beneath the platforms, with up to 1 m thickness in the Eastern Entrance area. In most locations, fill was underlain by alluvial sediments or weathered clays representing the upper layers of shale. Bedrock was generally encountered at between 1.5 m – 6 m below ground level, however there were some areas where bedrock was present within 0.2 m of the surface.

3.1.2 GROUNDWATER RECEPTORS

The area naturally drains towards Blackwattle Bay and Cockle Bay, however drainage from the site will be controlled by the station drainage infrastructure. Groundwater was being dewatered for most of the period covered by the VPR and is not considered by the report. The Auditor understands that groundwater is pumped to a treatment plant, under a Construction Groundwater Management Plan (CGWMP) approved by the NSW Natural Resources Access Regulator. The discharge is regulated under Environmental Protection Licence 21148, which includes two discharge points to stormwater in Sydney Yard (to the south of the Metro Box). On this basis, the Auditor considers that groundwater during construction was adequately managed.

3.2 SURROUNDING LAND USES

A summary of the surrounding land uses discussed by AGJV in the Metro Station Box Final Validation Progress Report and in the other reports reviewed by this audit listed in Section 1.9:

- North – Central Station Concourse, followed by Belmore Park followed by Sydney CBD consisting of high-density mixed use commercial and residential properties;
- South – Railway yard followed by Prince Alfred Park and medium density residential properties;
- East – Randle and Elizabeth Streets, Light Rail infrastructure followed by commercial and industrial properties, medium to high density residential properties beyond Central Station; and
- West – Inter-City Platforms followed by mixed commercial.

3.3 CONTAMINANTS OF CONCERN

Based on historic site uses described in *Section 2* and in the Contamination Assessment Design Report by AGJV (2019c) the COPCs associated with the site are outlined in Table 3-2.

TABLE 3-2 POTENTIAL COPCS

Source	Potential COPC	Soil	Groundwater	Soil Vapour and Ground Gas	Details and Auditor Comments
Railway uses (including placement of fill material)	Asbestos	✓			The source of fill material, which was identified across the while site is unknown so fill may contain a range of contaminants. The historical and current railway uses are associated with a range of COPCs. The range of potential COPCs listed include chemical suites that the Auditor considers appropriate based on the current and former uses.
	Hydrocarbons including Total Recoverable Hydrocarbons (TRH), benzene, toluene, ethylbenzene and xylenes (BTEX) and polycyclic aromatic hydrocarbons (PAHs).	✓	✓	✓	
	Heavy metals	✓	✓		
Historical Gasworks	Hydrocarbons including TRH, BTEX and PAH	✓	✓	✓	Historical gasworks were known to have operated within the site boundary. The range of potential COPCs listed include chemical suites that the Auditor considers appropriate to assess potential contamination associated with gasworks wastes.
	Heavy metals	✓	✓		
	Cyanide (in groundwater)		✓		
	Ammonia, sulfate and sulfide (in groundwater)		✓		

3.4 SENSITIVE RECEPTORS

Receptors were identified as workers responsible for construction of the MBW and CWEE, future intrusive maintenance workers and future users of the metro station. The closest ecological receptor was identified as the aquatic ecosystem at Blackwattle Bay, where treated groundwater collected from site was discharged in accordance with the CGWMP and Environment Protection Licence (EPL) 21148. The Consultant considered that off-site migration of groundwater to Blackwattle Bay was not likely. The Auditor disagrees with this statement (on the basis that the groundwater treatment plant discharge into the stormwater is quite likely to drain into Blackwattle Bay), however given that discharge is controlled by an EPL, and the VPR does not validate groundwater remediation, ecological receptors are not a significant receptor requiring consideration.

Pathways for human exposure to COCs include ingestion, inhalation (hydrocarbon vapours and asbestos fibres) and dermal contact with impacted soil and groundwater.

The Auditor notes that for the Metro Box more detailed consideration of receptors and exposure pathways was included in the QRA (AGJV, 2021a) (refer to Section 7), with specific reference to inhalation of vapours. The QRA (AGJV, 2021a) identified maintenance workers in the plant room (Ventilation Fan Room) located adjacent to the gasholder as separate receptors from the station workforce working in other areas of the Metro Box.

3.5 AUDITOR'S ASSESSMENT - CONCEPTUAL SITE MODEL

The information required by NSW EPA (2017) and the ASC NEPM 2013 Schedule B2 with respect to the site history, condition, geology, hydrogeology and hydrology has been provided in the remediation and validation reports for MBW and CWEE. The scope of assessments undertaken is considered largely adequate to construct a robust conceptual site model, and to provide an adequate basis for determining potential impacts associated with the proposed site use.

The remediation reports identify the Conceptual Site Model (CSM) and Source Pathway Receptor (SPR) linkages prior to remediation and validation activities occurring and subsequent implementation of management controls post-construction. The following potentially complete human health SPR linkages were identified for the Site:

- Inhalation of hydrocarbon vapours (associated with gasworks);
- Inhalation of asbestos fibres;
- Incidental ingestion of impacted soil and dust and dermal contact with impacted soil; and
- Incidental ingestion of contaminated groundwater and dermal contact with contaminated groundwater.

The potentially complete SPR linkages identified above were addressed through the implementation of remediation and validation works of the MBW and CWEE (and implementation of ongoing management controls during construction).

The Auditor notes that the Consultant considered migration of contaminated groundwater offsite to the identified ecological receptors in Blackwattle Bay to be unlikely. The Auditor disagrees with this statement (on the basis that the groundwater treatment plant discharge into the stormwater is quite likely to drain into Blackwattle Bay), however given that discharge is controlled by an EPL and the CGWMP, and that groundwater remediation is not required, risks to potential ecological receptors from impacted groundwater are not a significant receptor requiring further consideration.

The Auditor considers that the CSM presented in the remediation and validation reports is sufficient and is representative of potential exposure scenarios at the Site, in the context of the Site's ongoing usage as a commercial/industrial public railway station.

4. ENVIRONMENTAL QUALITY CRITERIA

4.1.1 SOIL

The soil data were assessed against the ASC NEPM HILs and HSLs for commercial / industrial use (i.e. HSL-D (sand) and HIL-D), and the ASC NEPM criteria for asbestos. The ASC NEPM Management Limits were also adopted for the assessment.

The Auditor considers that, based on the nature of the development (construction of railway infrastructure with significant concrete foundations / walls or active rail corridor) that assessment criteria for ecological risks was not necessary.

4.1.2 GROUNDWATER

Groundwater was assessed against the ASC NEPM groundwater investigation levels including:

- ANZG (2018) marine ecosystem trigger values for slightly to moderately disturbed ecosystems - 95% levels of protection;
- *Guidelines for Managing Risk in Recreational Waters 2008 (GMRRW) (*NHMRC, 2008) which are conservatively based on the *Australian Drinking Water Guidelines* (NHMRC/NRMMC, 2011, updated 2018) multiplied by a factor of 10; and
- ASC NEPM (2013) Health screening levels for commercial and industrial use (HSL D).

The Auditor notes that the recreational screening levels were applied in the context of consideration of the final surface water receiving body, which is located >1 km from the Site. It is unlikely that the future occupants of the Metro Station would come into direct contact with groundwater, as this is retained behind the tanked structure, with groundwater collected in sumps which are restricted from public access.

TABLE 4-1 SUMMARY OF GROUNDWATER CRITERIA

Receptor	Criteria	Comments
Human Health – vapour intrusion	HSL-D for petroleum hydrocarbons for commercial/industrial land use	Assessment of potential pathways for vapour intrusion risks to human receptors
Human Health - recreational	NHMRC guidelines for recreational water quality	There were no identified potentially complete pathways to receptors associated with direct contact or ingestion pathways, and therefore no other investigation levels for groundwater were applied. There were no identified extraction uses for potable water and therefore the ADWG guidelines for drinking water were not adopted in the site investigation. The nearest recreational surface water bodies are approximately 1km from the site. Groundwater extracted during dewatering may be ultimately discharged (under an EPL) to Cockle Bay/Blackwattle Bay, and therefore the NHMRC guidelines for recreational water quality were applied in the site investigation.

Receptor	Criteria	Comments
Ecological - waters	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	Treated groundwater from the project was discharged to the aquatic systems of Cockle Bay and/or Blackwattle Bay. As such, NEPM Groundwater Investigation Levels (GILs) for protection of marine water ecosystems were initially adopted (NEPC, 2013). GILs comprise screening criteria outlined in the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC & ARMCANZ, 2000). It is noted that the ANZECC & ARMCANZ has since been updated (ANZG, 2018), and therefore, the ANZG (2018) guidelines have been adopted. The guidelines for or slightly to moderately disturbed ecosystems were adopted. It is noted that whilst the 99% protection values for bioaccumulative contaminants were not adopted by AGJV in all instances (e.g. mercury, endrin). Further discussion of this issue is included in Section 4.1.4 below.
Ecological - waters	PFAS NEMP dated January 2018, 95% level of protection for marine and freshwater	Groundwater seepage samples collected during initial investigations in November 2017 were analysed for PFAS, with all results being less than the adopted criteria (the PFAS NEMP (January 2018) interim marine water quality guidelines for 95% level of protection).
Discharge to surface water	Discharges from the water treatment plant were regulated under EPL 21148 and licensed discharges from Points 1 and 2 were required to comply with the associated concentration limits.	• Oil and Grease - Not visible • pH -6.5-8.5 • Total suspended solids – 50 mg/L
Discharge to surface water	As water from the WTP was proposed to be discharged into Sydney Water's stormwater network, water was treated to meet the requirements of Sydney Water's Stormwater Quality Targets Policy for average annual pollutant load reduction objectives.	• Gross pollutants – 90%; • Total suspended solids – 85%; • Total phosphorus – 60%; and • Total nitrogen – 45%. • Dissolved Oxygen (DO); • Salinity (EC); and • Other parameters as required.

4.1.3 OTHER MEDIA

The Gasworks QRA (AGJV, 2021a) included data collected from 7 soil vapour bores advanced outside of but in close proximity to the Metro Box boundary. Results from these soil vapour samples were screened against the ASC NEPM (2013) Table 1A(5) HSL D Commercial/Industrial Soil Vapour for Vapour Intrusion screening values for Sand in the 0-1 m depth range. Further detailed discussion of the risks associated with vapour intrusion in relation to the former gasworks is presented in Section 7.

4.1.4 AUDITOR'S ASSESSMENT

The Auditor considers that the published assessment criteria adopted by the Consultant were appropriate for the assessment of potential risks to the identified current and future receptors. Application of screening values for waste disposal and material reuse is discussed further in Section 8.

As noted previously, the offsite recreational and ecological risks associated with groundwater discharge to surface water during construction were managed as part of the construction groundwater management plan (CGWMP) and ongoing water quality treatment and discharge occurred in accordance with EPL 21148 issued by the NSW EPA for the site originally issued 11 September 2019 and surrendered on 13 November 2023.

A site-specific risk assessment was undertaken to evaluate potential risks to human health that may be associated with the presence of residual contaminated soil and gasworks waste within the gasholder footprint adjacent to the Metro Box. A detailed review of the site-specific risk assessment and the subsequent re-evaluation of data following completion of the works is presented in Section 7. This review found that the risk assessment approach adopted was appropriate and had been completed in accordance with the relevant guidance.

5. ASSESSMENT OF SITE CONTAMINATION

5.1 INVESTIGATION DATA AND RESULTS

A detailed desktop study was prepared by AGJV *(2019c), Contamination Assessment – Design Report, document number SMCSWCSM-LOR-SMC-GE-REP-000204,* dated 5 June 2019 which consolidated the findings of several initial site investigation reports and identifies the nature and extent of contamination within and adjoining the Audit boundaries including the following reports:

- GHD (2017a) Sydney Metro City and Southwest, Central Station – Contamination Assessment;
- Golder-Douglas (2017b) Contamination Assessment Report – Central Station Works, dated 24 July 2017;
- Golder-Douglas (2017b) Targeted Environmental Site Assessment – Central Station Gasworks Site, dated 24 July 2017;
- Golder-Douglas (2017c) Sydney Metro - Central Station Gasworks – Slit Trenching Soil Sampling, dated 21 September 2017; and
- Golder-Douglas (2016) Contamination Assessment Report – Sydney Yard Access Bridge (SYAB), dated 30 September 2016.

With the exception of GHD (2017a), the Auditor was not provided with the original reports which were consolidated in AGJV (2019c), and has therefore reviewed the work as presented in the consolidated investigation report.

Subsequent to the above, further investigations were reported in the following reports:

- ADE (2019a) Additional Gasworks Investigation Report Central Station Main Works Chippendale NSW, dated 18 October 2019; and
- ADE (2020c) Phase I Preliminary Site Investigation 20-28 Chalmers Street, Surry Hills NSW, dated 24 July 2020 (this report incorporated results of soil data from ADE (2020b) Waste Analysis & Classification Report Eastern Entrance - Central Station Metro Works 20-28 Chalmers Street, Surry Hills NSW, dated 24 July 2020).

A detailed review of these investigations is provided in Table 5-1.

TABLE 5-1 SUMMARY OF DATA INVESTIGATIONS EVALUATED AS PART OF THE ASSESSMENT

Investigation	Objective and Scope	Number of Primary Samples / Locations	
		Soil	Groundwater
GHD (2017a) Sydney Metro City and Southwest, Central Station – Contamination Assessment	Contamination assessment of Central Station Platforms 12 to 23 to inform the Central Station Main Works. Scope including 18 boreholes, 2 geotechnical boreholes, installation of 5 groundwater monitoring wells, one round groundwater monitoring.	102 samples collected from 20 locations	14 samples from shallow groundwater aquifer 2 samples from deep aquifer 3 samples from seepage water
Golder-Douglas (2017a) Contamination Assessment Report – Central Station Works, dated 24 July 2017	Contamination assessment to supplement existing data to inform the tendering process for Central Station main works project. Scope included 16 geotechnical boreholes, installation of 10 groundwater monitoring wells and one round of groundwater monitoring.	41 samples collected from 18 locations	10 samples from shallow groundwater
Golder-Douglas (2017b) Targeted Environmental Site Assessment – Central Station Gasworks Site, dated 24 July 2017	Targeted assessment in the footprint of the former gasworks sites within Central Station main works precinct. Scope included 5 boreholes, one test-pit, installation of 3 groundwater monitoring wells and one round of groundwater monitoring	28 samples collected from 8 locations	5 samples from shallow groundwater 1 sample from deep aquifer
Golder-Douglas (2017c) Sydney Metro - Central Station Gasworks – Slit Trenching Soil Sampling, dated 21 September 2017	Sampling to inform preliminary in-situ waste classification of soil and fill to be excavated for off-site disposal. Scope included collection of samples of fill and soil during excavation of slit trenches using NDD for utility location prior to construction works.	18 samples collected from 11 locations	N/A
Golder-Douglas (2016) Contamination Assessment Report – Sydney Yard Access Bridge (SYAB), dated 30 September 2016	Contamination and ASS investigation for the Sydney Yard Access Bridge works package. Scope included 5 geotechnical boreholes and installation of 2 groundwater monitoring wells.	9 samples collected from 3 locations	Sampling from 2 wells.

Investigation	Objective and Scope	Number of Primary Samples / Locations	
		Soil	Groundwater
ADE (2019a), Gasworks Investigation Report, Sydney Yard, Central Railway Station, Chippendale NSW, dated 22 May 2019	Investigation of the extent of contamination associated with the former gasholder un-earthed during excavations within the metro-box. Investigations were completed in March and April 2019 including 14 boreholes with 3 converted to monitoring wells.	70 samples collected from 14 locations	Sampling from 3 wells.
ADE (2019b) Additional Gasworks Investigation Report Central Station Main Works, dated 26 September 2019	Further investigation of the extent of contamination associated with the former gasholder un-earthed during excavations within the metro-box. Investigations were completed in August and September 2019.	11 samples from 5 locations	Sampling from 2 wells.
ADE Waste Classification Reports (various, refer to list in Appendix E)	In-situ waste classification analytical data collected and reported by ADE was used to characterise the fill material as well as the underlying residual soil and bedrock in a suite of Waste Analysis and Classification (WAC) reports. In general terms, the upper samples in each in situ classification location provide investigation results to inform the remedial design and waste classification. Whilst the deepest samples from relevant locations characterised the bedrock (confirming it would meet the classification of VENM). The WAC reports relevant to the assessment/validation of the audit areas were detailed in each of the various VPRs and the relevant data from each was also presented within the VPRs (refer to Sections 6.5 and 8.1 for further details).	Relevant samples presented in summary tables in Appendix D.	N/A
AGJV (2019) Groundwater Monitoring Report	An initial baseline groundwater monitoring program was conducted with sampling on monthly basis for up to 15 monitoring wells for 6 months.	N/A	15 monitoring wells
ADE (2020c) Phase I Preliminary Site Investigation 20-28 Chalmers Street, Surry Hills NSW, dated 24 July 2020	ADE completed a Phase I Preliminary Site Investigation (PSI) to assess the potential for contamination at 20-28 Chalmers Street, Surry Hills prior to construction of the Eastern Entrance on the site of the Former Bounce Hotel.	10 Samples from 8 locations	N/A

5.2 ASSESSMENT OF RESULTS

5.2.1 OVERVIEW

Data representative of the soil, groundwater and soil vapour has been collected as part of intrusive environmental investigations. Applicable datasets evaluated as part of this assessment and comment regarding potential contamination is provided in the following section. It is important to note that as the excavation zones were defined by the extent of the infrastructure within the audit area (rather than a requirement to fully understand the extent of any identified impacts) the investigation works were primarily associated with appropriately classifying waste spoil within the excavation areas and confirming the suitability of the residual materials remaining in the bases and walls of the excavation. The analytical data therefore comprised only one portion of the validation process, with as-built drawings and observations collected during excavation and construction works providing additional lines of evidence relating to the condition of the side walls and bases of the excavations.

5.2.2 SOIL ANALYTICAL RESULTS

The soil investigation analytical results (pre-remediation) are presented in the summary results tables in Appendix D, including the investigations as summarised in Table 5-1 above. Figures showing the sampling locations are presented in Appendix A.

Based on the consolidated dataset the site conditions for the Metro Box footprint prior to remediation were as follows:

- Hydrocarbons were primary contaminants of concern (COC) exceeding the assessment criteria with PAH impacts exceeding HIL-D, and TRH exceeding the management limits in some samples. Asbestos was detected in one sample (identification only);
- There were no other exceedances of the adopted criteria for metals, BTEX, pesticides, phenols and/or polychlorinated biphenyls in any soil samples;
- Outside the gasholder area, COCs exceeding the assessment criteria were non-volatile, consisting of heavy fraction TRH and PAH compounds; and
- The VPR also summarises investigations relevant to the gasworks area, based on the Gasworks RAP (AGJV, 2020b). A summary table of exceedances of screening criteria for soil samples was provided, showing TRH and BTEX exceeding HSL-D for vapour intrusion were the primary COCs. No significant PAH was reported. The impacts were primarily detected within the fill materials.

Based on the consolidated dataset the site conditions for the CWEE site conditions (prior to remediation activities) were as follows:

- Benzo(a)pyrene contamination was primarily reported within shallow fill material in the suburban platforms in exceedance of the human health criteria adopted. The contamination in this area of the Site was considered to present a potential health risk to Metro construction workers and future Metro maintenance works (via ingestion and direct contact);

- Soil samples collected during previous investigations were analysed for asbestos, metals, TRH, BTEX, PAHs, OCPs/OPP/PCBs and Phenols. With the exception of the benzo(a)pyrene exceedances in soil, no other exceedances of the adopted criteria were reported during previous investigations (according to VPR1);
- ACM was not encountered in fill material in the CWEE area however, it was noted that ACM was encountered in the nearby metro box and therefore there was potential for ACM to be present in the CWEE excavation area the VPR1 reported concluded; and
- Contaminants of potential concern (COPCs) identified in groundwater monitoring events undertaken included dissolved metals (chromium, copper, lead, mercury, nickel and zinc) and cyanide. It is noted that any potential risks to offsite recreational and/or ecological receptors associated with groundwater discharge to surface water from the Site during construction are managed as part of the Construction Groundwater Management Plan (CGWMP).

In summary, the pre-remediation site investigations reported concentrations of benzo(a)pyrene, TRH and PAH in fill materials within the MBW and CWEE above the human health screening levels for the proposed use, and subsequent to the remediation works a validation process was required demonstrate that no significant presence of contamination remains on the site which is likely to pose a risk to human health.

5.2.3 GROUNDWATER

Groundwater investigations prior to the commencement of construction did not identify contamination above human health investigations levels requiring remediation or further delineation. Groundwater monitoring was conducted subsequently to comply with the requirements of the conditions of approval for construction.

The construction works were anticipated to cause significant drawdown of groundwater levels due to the use of both piling methods and the boring and tunneling of both the track and access tunnels. The conditions of approval of the project included specific monitoring and assessment of groundwater impacts. Groundwater monitoring was undertaken by AGJV as part of the conditions of approval of the project, with a program of monitoring baseline conditions prior to the commencement of construction, routine monitoring during construction, and final monitoring at the completion of construction. Groundwater monitoring results were reported by AGJV in the final validation report for MBW (AGJV, 2023e) and CWEE (2023f) including assessment of the post-remediation groundwater conditions. Quarterly groundwater monitoring results were documented from September 2018 in a series of nine groundwater monitoring reports.

The initial rounds of groundwater monitoring included a broad suite of analysis to cover potential COPCs. The primary COPCs for groundwater monitoring included heavy metals, nutrients (ammonia, nitrate, sulfate), petroleum hydrocarbons (TRH, BTEXN) and PAHs. As the initial rounds did not report pesticides, chlorinated hydrocarbons, herbicides, PCBs or VOCs above the laboratory limit of reporting and no known sources were identified, these were not included in the final monitoring round.

The final groundwater monitoring report (AGJV, 2023c) presents the results of the final round of monitoring in November 2023 and February-March 2023 against the baseline conditions, as established using the 20th and 80th percentiles from the initial monitoring rounds, as summarised in Table 4-3 and below:

- Concentrations of copper and zinc were reported above the adopted ecological screening levels;
- Concentrations of total cyanide were reported above the adopted ecological screening levels;
- Concentration of ammonia as N was reported above the adopted ecological screening levels in the November 2022 round of monitoring but no further exceedances were reported in Feb-March 2023; and
- Dense non-aqueous phase liquids (DNAPLs) were not identified during any monitoring rounds.

Groundwater drawdown was within the acceptable range specified in the conditions of approval. AGJV noted that standing levels at the completion of construction had rebounded in response to completion of the excavation of the Metro Box, however will continue to remain lower than the pre-construction levels due to the ongoing influence of the sumps within the Metro Box.

TABLE 5-2 SUMMARY OF FINAL ROUND GROUNDWATER MONITORING (NOV 2022 & FEB/MARCH 2023, FROM AGJV 2023C)

Analyte	Maximum concentration	No. Samples analysed		No. Results > screening level	
		Nov 2022	Feb-March 2023	Nov 2022	Feb-March 2023
Cyanide (total)	0.0220 mg/L	10	3	6 locations > ecological SL	0
Ammonia as N	0.030 mg/L	10	10	1 location exceeded ecological SL	0
Sulfate	180 mg/L	10	10	0	0
Arsenic Cadmium Chromium (total) Lead Mercury Nickel	< or = LOR	10	10	0	0
Copper	0.0020 mg/L	10	10	1 location > ecological SL	1 location
Zinc	0.075 mg/L	10	10	7 locations >eco	6 locations >eco

Analyte	Maximum concentration	No. Samples analysed		No. Results > screening level	
		Nov 2022	Feb-March 2023	Nov 2022	Feb-March 2023
Benzene Toluene Ethylbenzene Xylene (total) Naphthalene Benzo(a)pyrene Phenols	<LOR	10	10	0	0
TRH C6-C10	30 mg/L With silica gel <LOR	10	10	0	0
TRH >C10-C16	50 mg/L With silica gel <LOR	10	10	0	0

5.2.4 AESTHETIC ISSUES AND ODOURS

There is potential for some minor aesthetic issues to be associated with fill materials remaining in-situ behind structures, particularly in the Suburban Platform Excavation – Escalators (Stage 2). However, these materials are located behind significant infrastructure and identified in accordance with the Sydney Trains Environmental Management System (EMS). The EMS references the WebGIS that is currently in the process of replacing the Hazardous Site Management Systems (HSMS) that includes the contaminated land data set.

The potential for odour issues was identified in relation to former gasworks impacts adjoining the Metro Box. The site specific risk assessment screened concentrations of COPCs and noted that all were below the applicable odour thresholds.

5.2.5 HAZARDOUS GROUND GAS

Issues associated with potential hazardous ground gases (including hydrocarbon vapours, other VOCS and methane) were identified and assessed in detail for the Metro Box as described in Section 7. No other potential sources of hazardous ground gas were identified in the investigations and the soil and groundwater results outside of this area do not indicate potential for generation of hazardous ground gases.

5.2.6 POTENTIAL FOR PFAS CONTAMINATION

The site investigations considered the potential for PFAS as a COPC in the contamination assessment reported by AGJV (2019c). Groundwater seepage samples collected during initial investigations in November 2017 were analysed for PFAS, with all results being less than the adopted criteria (the PFAS NEMP (January 2018) interim marine water quality guidelines for 95% level of protection).

On the basis that no potential sources of PFAS were identified within the Audit boundaries or the surrounding area, no further analysis was undertaken.

5.2.7 DELINEATION OF IMPACT

Given that the Audit Area is defined by the boundaries of the railway infrastructure that has been constructed, it was beyond the scope of this audit to consider what impacts extend outside of the audit boundary. It is known that former gasworks infrastructure extends to the north-west of the Metro Box (as this was assessed concurrently with the impacts that fall within the Metro Box boundary). AGJV (2023d) *Central Station Main Works Long term environmental management plan – remaining gasworks chamber*, dated 8 August 2023 details management requirements for residual impacts remaining outside of the audit area adjoining the Metro Box.

5.2.8 POTENTIAL FOR OFF-SITE MIGRATION

As the works involved the near-complete removal of fill material from within the MBW and CWEE footprints, there are no sources of contamination within the Audit boundary which may represent a significant risk of off-site migration of contamination. Groundwater monitoring was conducted throughout the Central Station Main Works construction process as part of the CGWMP. During construction, groundwater ingress into the construction areas was collected, treated and discharged under an EPL, and an operational treatment system has been installed in Marrickville to manage groundwater treatment and discharge across the Metro project.

5.2.9 AUDITOR'S ASSESSMENT – INVESTIGATION RESULTS

The Auditor considers that the soil sample results adequately represent the soils encountered and are sufficient to provide characterisation of the contaminant levels at the site prior to remediation, and provide sufficient background information to support the validation outcomes.

The program of validation post-remediation is described in Section 6.5 of this report.

The Auditor considers that the groundwater investigations were adequate to assess the baseline conditions and the potential for groundwater contamination associated with the residual contamination remaining outside the perimeter of the audit boundary.

The Auditor has reviewed the groundwater monitoring report prepared by AGJV (2023c) and considers that the final round of groundwater monitoring adequately documents the water quality is suitable for the intended use of the site as a future railway station (commercial/industrial use).

Whilst there were detections of copper, zinc, cyanide and ammonia in groundwater above the adopted ecological screening levels in the final monitoring round, the trend analysis by AGJV (2023c) demonstrated that groundwater quality was not impacted by the construction works, and conditions are generally consistent with the conditions in the surrounding aquifer.

The Auditor considers that all other matters requiring assessment have been adequately addressed as described within Sections 5.2.4 - 5.2.8 above.

5.3 SYSTEMATIC PLANNING FOR DATA COLLECTION

5.3.1 DATA QUALITY OBJECTIVE (DQO) PROCESS AND SAMPLING AND ANALYSIS QUALITY PLANS (SAQP)

The initial investigations for the assessment of contamination were conducted prior to the engagement of the Auditor, and as such, the Auditor can only provide comment on the adequacy of the investigations as reported. The Data Quality Objectives (DQO) process for the initial investigation program was not documented with sufficient details to meet the requirements of *ASC NEPM (2013) Schedule B2, Appendix B: Data quality objectives (DQO) process.* However, the investigation reports reviewed demonstrate that a systematic planning process was documented for each investigation, sufficient to achieve the project objectives, as supplemented by the subsequent validation assessment process.

The DQOs were established for the validation program for both MBW and CWEE in the Validation Work Plans (see Section 6.5.1 for further discussion) in the respective Remediation Action Plans (RAP) (AGJV 2019b, 2020b, 2020e) and reported in the VPRs (AGJV 2022a, 2020f, 2023a, 2023b) in general accordance with Appendix B of Schedule B2 of the NEPM including:

- A statement of pre-determined DQOs for field and laboratory procedures, including quantitative DQOs;
- A plan to achieve pre-determined DQOs is provided; and
- Procedures to be undertaken if the data does not meet the expected DQOs are provided.

A detailed discussion of the validation work plans and objectives is provided in Section 6.5.1 below.

5.3.2 AUDITOR'S ASSESSMENT – DQO AND SAQP

The Auditor's assessment of the adequacy of the DQO process and the Sampling Analysis and Quality Plan (SAQPs) from the investigations is provided in Table D8 of Appendix D. As the validation program provides sufficient evidence of the current condition of the Site, the limited discussion of DQO and SAQPs from the initial investigations is not considered to materially affect the outcomes of the remediation process.

The sampling plans and methodologies employed by each assessment are considered appropriate and largely in accordance with the information required by the ASC NEPM (2013) Schedule B2 and B3 recommendations and other relevant guidance. The Auditor considers that the departures from the guideline requirements (as identified in Table D8 and / or within individual interim audit advice detailed in Appendix B) are not likely to be significant enough to have altered the outcome of any of the assessments. It is noted that DQOs were not presented within the initial investigation reports, however this predated the Auditor's involvement in the project. The RAPs describe the elements of the Validation Work Plans that include the elements of Schedule B2 of the NEPM for sampling and analysis quality plans.

The Validation Progress Reports for both MBW and CWEE detail the DQO's and also the DQI's adopted for the validation phase of the project and the Auditor considers these appropriate in the context of the remediation and validation works completed and reported.

5.4 QUALITY ASSURANCE AND QUALITY CONTROL

The Auditor's assessment of the Data Quality Evaluation and Field and Laboratory QA/QC Assessment is presented in Tables D9 and D10 of Appendix D for the investigations. The original reports for the initial investigations were not available to the Auditor, and limited information was presented in AGJV (2019c) on the field procedures and laboratory certificates were not available. As further waste classification sampling and validation was reported, this is not considered to materially impact on the findings of the assessment.

In addition to the investigation reports, the in-situ waste classification and the Waste Analysis and Classification (WAC) Reports prepared by ADE were relied upon to verify that material remaining at depth was classified as VENM. Whilst not ideal, this process was the process that was put in place and there were other lines of evidence such as observations from initial investigations used to verify that this material was VENM (see discussion in Section 6.5).

There were more than 200 ADE WAC Reports which were provided for information purposes only (as listed in Appendix E). While the Auditor did not review all of these in detail prior to disposal of the waste, each of these WAC reports was prepared to a standard report template which included a detailed outline of the sampling plan, field and laboratory QA/QC and Data Quality Assessment. Of the selected WAC reports reviewed (including all of those relevant to and included within the various Validation Progress Reports), the assessment of the sampling plan, field and laboratory QA/QC and Data Quality Assessment was considered to be appropriate for the purposes of waste classification and / or confirmation that the residual bedrock was consistent with VENM.

5.4.1 AUDITOR'S ASSESSMENT OF QUALITY ASSURANCE AND QUALITY CONTROL

Based on the tabular summaries presented above and in considering that subsequent to remediation and construction, the vast majority of fill material has been removed from within the audit boundary and the final site condition validated, the Auditor concludes that:

- The data is likely to be representative of media at the locations investigated at the time of the assessments;
- The investigation data is largely complete and where deficiencies in earlier phases of assessment were noted, additional data has been gathered to address these adequately for the purpose of waste classification; and

- The analytical data used for validation is supplemented by other lines of evidence were used in the validation of the final site condition, including site diaries, photographs of soil and rock during construction, and surveyed levels (see detailed discussion in Section 6.5).

6. REMEDIATION AND SITE MANAGEMENT

6.1 OVERVIEW

The construction activities triggered the requirement for appropriate management and remediation of the soils beneath the Site. The remediation and validation activities have therefore been adapted to the construction activities. The construction of the MBW and CWEE involved the excavation of fill and underlying natural soils to depths greater than the identified extent of contamination. The remediation of the contaminated soil was therefore achieved by excavation and off-site disposal of soil from the excavation, with contamination removed to the extent practicable. There are physical and administrative mechanisms in place to address residual impacts in structures, as discussed below in Section 6.6.

6.2 REMEDIAL ACTION PLANS

6.2.1 METRO BOX

Prior to remediation commencing, a RAP was prepared by the Consultant AGJV (2019b) which outlined the remediation activities for the MBW footprint. The AGJV (2019b) RAP was reviewed by the Site Auditor at the time, [redacted] of ERM. The Site Auditor's review of the RAP was documented in the Interim Audit Advice #1 (IAA#1) Review of Remedial Action Plan for Construction of Metro Station Box Revision D 5 April 2019.

The conclusions provided in IAA#1 by the Site Auditor at the time ([redacted] of ERM) are summarised below:

- The Auditor considered that the RAP provided an adequate remedial strategy to address potential risks to human health and the environment resulting from soil and groundwater contamination at the site; and
- The RAP was considered substantially compliant with the applicable guidance made or approved under s105 of the Contaminated Land Management Act 1997 and with additional relevant guidelines from other jurisdictions.

During the excavation works by the lead contractor LOR a buried brick tank was uncovered in the south-western corner of the MBW footprint which was considered to be a former gasholder associated with the former gasworks. An addendum to the MBW RAP was prepared by AGJV (2020b) to set-out controls for the management of potential human health and environmental risks associated with the uncovered gasworks waste.

A change was made to the validation work plan subsequent to the RAP due to the construction methodology the requirements of the validation work plan could not be met, and a memorandum was issued by AGJV (2020c) which outlines the changes, which were reviewed by the Auditor.

6.2.2 CWEE

Prior to remediation works commencing, a RAP was prepared for the CWEE by AGJV (2020e) *Remedial Action Plan for Construction of the Central Walk - Design Report (SMCSWCSM-DJV-EW-00-REP-GE-000206),* dated 24 August 2020.

The RAP (AGJV, 2020e) was reviewed for the works by the Site Auditor at the time, [redacted] of ERM. The Site Auditor's review of the RAP was documented in the *Interim Audit Advice #3 (IAA#3) Review of Remedial Action Plan for Construction of the Central Walk Final Revision 1 24 August 2020*.

The conclusions provided in IAA#3 by the Site Auditor at the time ([redacted] of ERM) are summarised below:

- The Auditor considered that the CWEE RAP provided an adequate remedial strategy to address potential risks to human health and the environment resulting from soil and groundwater contamination at the site; and
- The RAP was considered substantially compliant with the applicable guidance made or approved under s105 of the Contaminated Land Management Act 1997 and with additional relevant guidelines from other jurisdictions.

6.3 AUDITOR'S ASSESSMENT – REMEDIATION AND SITE MANAGEMENT

The Auditor considered that the validation objectives and criteria presented in the RAPs and addenda were appropriate, and were in principle applied during the validation process as documented in the validation reports (see Section 6.5 below). The RAPs were also considered substantially compliant with the applicable guidance made or approved under s105 of the CLM Act 1997 and with additional relevant guidelines from other jurisdictions.

The Auditor considers that the remediation option selected was appropriate for the nature of the contamination, the development and proposed use of the Site. The Auditor notes that remediation and validation activities occurred during construction of the CWEE and construction is now complete. The construction activities triggered the requirement for appropriate management and remediation of the soils beneath the Site and should construction have not occurred, it is unlikely the requirement for remediation would have been triggered. The selection of alternative remediation options was therefore not relevant in this instance as the development needs determined the selection of remediation options.

6.4 SUMMARY OF REMEDIATION WORKS COMPLETED

6.4.1 METRO BOX

The remediation works comprised excavation and removal of contaminated materials as part of the excavation required to form the Metro Box which was completed over three main stages. The enabling works commenced on 17 October 2018, and were completed 13 December 2018. There were some minor works conducted prior to the enabling works, with entries on the waste tracking register includes disposal records from 9 June 2018, with disposal of excavated spoil apparently commencing 5 September 2018). Piling was undertaken between 10 December 2018 and 15 August 2019, and the main excavation commenced 11 February 2019, and was completed on 21 May 2021.

The remediation works completed included:

- Removal of waste fill, soils and rock and off-site disposal in accordance with waste classification (or as VENM); and
- Management of water from dewatering activities including off-site treatment and discharge under the terms of an EPL.

The gasworks remediation was undertaken as part of the excavation works. The wastes were disposed to landfill in accordance with their waste classification, including some being pre-classified as hazardous waste on the basis of tar content >1%.

The Final VPR (AGJV, 2023e) reports a total quantity of material excavated from the Metro Box estimate of 129,437m^3 between 11 February 2019 (when main excavation works commenced) and 21 May 2021.

Small quantities of construction fill were imported as part of the enabling works, but no significant importation of fill was necessary. The VPRs (AGJV 2020f, 2023a, 2023b, 2023e) include tracking registers for material import and waste disposal but excludes disposal dockets which have been provided to the Auditor separately by Laing O'Rourke.

The engineering design of the MBW wall was modified where the Metro box wall intersects the residual portion of the former gasholder (outside the Metro Box) to increase the durability of the structure, and mitigate risks associated with the residual gasworks waste, as assessed in the QRA (AGJV, 2021a). The construction works included:

- Construction of a partial cut-off structure by addition of a waterproof shotcrete mixture with steel fibres to control cracking which also increased the shotcrete liner from 150 mm thickness to 250 mm;
- Placement of a sika waterproof liner on the internal side of the shotcrete liner to reduce seepage;
- Installation of a groundwater drainage collection system:
    - Leachate in the former gasholder is collected at concourse level in slotted vertical drains which flow down and discharge directly to the track slab drainage;

- Groundwater elsewhere is collected within slotted vertical strip drains behind the shotcrete wall, which then drain into drainage panel (below concourse level), which also connects to the track drainage. The water flows down the panel and discharges into the track slab drainage system; and
- The track drain is an open channel that runs adjacent to the track for the full length of the Metro Box. Nine 900 mm pits are equally spaced along the length of the track drain where collected groundwater and leachate runs into. While the pits collect the water, the drain surface will be wet. This is the surface where vapour emission will occur from contaminants in collected water and thus formed the basis for the assumptions used in the vapour modelling component of the site specific risk assessment.

- Drainage water is collected in sumps and pumped to the Metro wide treatment plant in Marrickville for treatment and discharge under the Sydney Metro operational EPL.

6.4.2 CENTRAL WALK AND EASTERN ENTRANCE

The remediation works comprised excavation and removal of fill and natural materials as part of the excavation required to form the CWEE. Remediation works were undertaken over several stages between 14 June 2019 and 30 September 2022, as documented in two Validation Progress Reports by AGJV (2022a and 2023f) and included the following:

- Removal of excavated fill material and offsite disposal at various offsite disposal receiving facilities;
- Removal of excavated VENM (i.e. natural clay and sandstone bedrock) and offsite reuse at various receiving sites;
- Verification and validation activities to establish the nature of the material remaining (i.e. the walls and base of excavation extent) and any residual contamination remaining in-situ; and
- Groundwater monitoring pre, during and post remediation activities to document post-remediation groundwater conditions (the Auditor notes that the details related to groundwater conditions in the VPR1 and VPR2 is limited to a summary only and comprehensive details of the groundwater results are provided in separate groundwater monitoring reports for the Site).

No significant importation of fill was required during remediation works as the metro infrastructure was constructed within the voids. Based on the information provided in the VPR1 and VPR2 (AGJV, 2022a and 2023f), the total volume of material removed amounted to 32,626.13 m³. Both VPR1 and VPR2 (AGJV, 2022a and 2023f), include material tracking registers for material removed from Site, which provides evidence of the materials classification and receiving destination.

6.5 VALIDATION

6.5.1 VALIDATION OBJECTIVES AND CRITERIA

The objective of the validation works undertaken was to demonstrate that all fill material had been removed from the MBW and CWEE excavation to the extent practicable, and that any remaining fill material in the excavation walls does not pose a risk to future users of the MBW and CWEE infrastructure.

The Validation criteria for the MBW and the CWEE were defined in the RAPs and in summary included:

- Demonstrating the complete removal of all fill material from the MBW and CWEE excavation footprints to the extent practicable; **AND**
- Final condition observations which demonstrate no visual or olfactory signs of contamination (including ACM) within the residual fill contained within the walls of the excavation which could not be removed; **AND/OR**
- Concentrations of COPC are below the soil remediation criteria presented in the relevant RAP.

A weight of evidence approach was used to achieve the validation, as the construction methodology did not allow for excavation or remediation outside the project footprint of the Metro Box and Central Walk boundaries. Validation of the base of the excavation was not explicitly discussed, however in practice it was achieved by verifying that the natural material at the base of the excavation was classified VENM.

The validation screening criteria were appropriately summarised in tables within the RAP and the VPRs and included criteria for the required COPCs including TRH (F1 C6-C10 minus BTEX), PAHs (Sum total), Total PAHs as Benzo(a)pyrene and asbestos in soils. The validation screening criteria included the NEPM 2013 Heath Investigation Level and Health Screening Levels D for Commercial/Industrial land uses. Given the continued use of the MBW and CWEE as a railway station which aligns broadly with the ASC NEPM commercial/industrial land-use category, the Auditor considers the validation screening criteria suitable. The criteria for asbestos included ‘no visible fragments’ present, which the Auditor also considers to be suitable for this commercial/industrial scenario noting the management control systems in place at the Site (as described further below in Section 6.5.4.3).

Where residual soil contamination remains in the walls of the MBW excavation, a human health risk assessment was conducted to demonstrate that the contamination remaining in the excavation walls does not pose a risk to future users of the MBW and CWEE infrastructure, and the residual material remaining outside of the audit area is managed under an LTEMP (AGJV, 2023d).

A validation work plan was set out in the RAPs for the Metro Box and CWEE. The validation work plan provided for the use of multiple lines of evidence to validate removal of fill material and document the nature of the materials remaining adjacent to the excavation walls. Validation work plans included the following validation methodologies / lines of evidence to verify the validation criteria above had been met:

- Pre-existing investigation data summarised by AGJV (2018);
- ADE in-situ waste classification investigations;
- Laing O'Rourke daily site diaries and geotechnical inspections;
- Laing O'Rourke perimeter piling logs;
- Laing O'Rourke waste tracking register;
- Final surveyed extent and depth of the excavation;
- Photographs of excavation walls and base and of the remediation works executed; and
- Sampling of excavation walls (where deemed appropriate based on the validation work plan). It is noted that sampling of the base was not undertaken. The Auditor considers this appropriate considering the base of excavation was advanced beyond the depth of potentially contaminated material into the natural sandstone bedrock, and that this sandstone bedrock material was classified as VENM so conditions of the excavation base is well understood from previous data associated with the Site.

The Auditor considers the validation work plan was appropriate.

The validation work plan provided in the RAP was amended during the works in response to circumstances encountered, in particular the difficulties in obtaining samples from the excavation walls during construction. A memo (AGJV, 2020c, dated 24 Jul 2020) set out the revised procedure, which the Auditor reviewed and approved at the time.

The Gasworks RAP (AGJV, 2020b) provided a validation work plan specific to the gasworks area, which was applied with minor changes. The validation required by the Gasworks RAP (AGJV, 2020b) was:

- Daily visual inspections by Competent Personnel during excavation of contaminated material, with records including descriptions of impacts and photographs, to be included within a waste classification letter;
- Visual inspections during excavation of natural clays and rock following removal of the impacted material, using a 1m linear transect of the formed excavation void, and recorded using photographs and mud maps (the purpose being to confirm the removal of all impact);
- Validation sampling of the base of the excavation to confirm removal of all impact. The validation sampling was to be undertaken at a depth of at least 8m (13m AHD), due to observed impacts being present up to 7m below ground level;
- A survey of the base of the excavation following removal of the gasworks waste and contaminated material;

- Inspections of exposed materials in the excavation walls, between the perimeter piles to map the geology and record the presence of contamination. Six samples were required at locations not previously characterised; and
- In the event that gasworks contaminated materials were temporarily stockpiled, validation of the stockpile footprint was required, with a minimum of six samples, and 1 sample per 100m^2 of stockpile area thereafter.

6.5.2 VALIDATION PROGRESS REPORTS

Validation Progress Reports were prepared by AGJV to document the progressive validation of the remediation works, as summarized in Table 6-1 below. Three progress validation reports (VPR1, VPR2 and VPR3) were prepared by AGJV to document the progressive validation of the MBW remediation works, and a final validation progress report which documents the as-built structures. The validation of CWEE was reported in two documents (VPR1 and VPR2) as the construction progressed.

The VPRs were prepared to verify that all fill material, and contaminated natural material has been removed from the Metro Box and CWEE footprints and demonstrate that any residual contamination that remains behind the perimeter structures does not pose a risk to the health of future users of the Metro station infrastructure.

The on-site validation works were completed by LOR and ADE Consultancy Group (ADE), with the validation reports prepared by AGJV based on review of the ADE in-situ waste classification data and LOR site diaries and interpretation of the validation results against the screening criteria as presented in the VPRs.

TABLE 6-1 SUMMARY OF VALIDATION PROGRESS REPORTS

Validation Report	Stage of Construction	Report Reference
CWEE VPR1	Enabling works: the demolition platform structures and Bounce Hotel. Stage 1: Adit works Stage 3: Track level works	AGJV (2022a) Central Station Main Works, Central Walk and Eastern Entrance - Validation Progress Report; to September 2020, Revision 1, Ref: SMCSWCSM-DJV-EW-00-REP-GE-000523, Dated 25-July-2022
CWEE VPR2	Stage 2: Platform works Stage 4: CWEE Concourse works Eastern Entrance excavation	AGJV (2023f) Central Station Main Works, Central Walk and Eastern Entrance - Final Validation Report; 1 October 2020 to 15 September 2022, Revision 3, Ref: SMCSWCSM-DJV-NC-20-REP-EN-000015, Dated 22 September 2023
MBW VPR1	Excavation of fill and natural material up to June 2020.	AGJV (2020f) Central Station Main Works, Metro Station Box - Validation Progress Report; June 2020, Revision 1, Ref: SMCSWCSM-DJV-NC-20-REP-EN-000003, dated 17-December-2020

Validation Report	Stage of Construction	Report Reference
MBW VPR2	Excavation of fill and natural material up to 31 December 2020.	AGJV (2023a), Central Station Main Works; Metro Station Box – Validation Progress Report; December 2020. Document number: SMCSWCSM-DJV-NC-20-REP-EN-000014. Revision 1. Dated 9 March 2023.
MBW VPR3	Excavation of natural material within MBW between 1 January 2021 and 21 May 2021.	AGJV (2023b), Central Station Main Works, Metro Station Box - Validation Progress Report, ref: SMCSWCSM-DJV-NC-20-REP-EN-000016, Rev 3, dated 27 July 2023
MBW VPR Final	Documentation of as-built drawings and verification of construction completion to support the assumptions and findings of the QRA (AGJV, 2021a) for the residual gasworks contamination.	AGJV (2023e) Central Station Main Works, Metro Station Box – Final Validation Progress Report, ref: SMCSWCSM-DJV-NC-20-REP-EN-000017, Revision 1, dated 31 August 2023
Groundwater	Verification of groundwater condition at completion.	AGJV 2023c Central Station Main Works – Final Groundwater Monitoring Report (October 2022 to May 2023); Document number: SMCSWCSM-DJV-EW-00-REP-GE-000239, dated 07 August 2023.

Detailed comments were provided by the Auditor on each iteration of the relevant VPRs (excluding the Final Groundwater Monitoring Report (AGJV 2023c) which was provided for information purposes only) a full copy of all audit comments and the consultants responses is presented in Appendix B.

6.5.3 VALIDATION OF FILL REMOVAL

6.5.3.1 METRO BOX

The VPRs (AGJV 2020f, 2023a, 2023b, 2023e) considered and compared the soil descriptions and analytical results from the ADE in-situ waste classification reports with perimeter piling logs (which provide primary lithology changes and record fill depth) and observations by Laing O'Rourke in the daily site diaries.

The records were used to confirm that materials were consistent with expectations, and that the excavation had progressed beyond the maximum depth of the fill material. The deepest fill encountered was 14.6m RL in Grid 13 (southern end of Metro Box). The depth of the final excavation was at least 3.5 m below the base of the fill material, based on the reported final excavation depths in the final VPR (5.4m RL (AHD) at the northern end of the Metro Box, and 11.1m RL at the southern end, from perimeter piling logs).

Laing O'Rourke daily site diary records presented photographs showing natural materials exposed in the excavation across the majority of the area.

AGJV presents a table of observations of the natural materials beneath the fill, by grid number, to confirm the absence of contaminated soils. Evidence included soil descriptions from ADE borelogs, Laing O'Rourke site diary observations, excavation photographic evidence and waste classification. All grids were recorded as having progressed into material classified as VENM.

Further discussion on waste classification and disposal is provide in Section 8. The ADE in-situ waste classification reports did not identify any observations of visual or olfactory evidence of contamination in natural material.

The Auditor considers that the evidence provided sufficiently confirms the removal of fill material from the Metro Box footprint, and that the underlying natural material was free from visual or olfactory evidence of contamination (outside the gasworks area, see Section 6.5.4.2).

6.5.3.2 CWEE

The VPR1 and VPR2 reports (AGJV, 2020d and 2023f) considered and compared the soil descriptions encountered during excavation and analytical results from the ADE in-situ waste classification reports with site records (such as photographs, field records, piling logs, site diaries).

The records and information provided in the conclusions of VPR1 and VPR2 (AGJV, 2020d and 2023f confirm that materials were consistent with expectations including areas where contamination was encountered.

Fill material was removed from the excavation areas which was described as highly variable in composition, with a number of anthropogenic inclusions and indicators of contamination (which was expected based on the previous desktop study contamination assessment undertaken (AGJV, 2019)). Fill material classified as Hazardous waste, Restricted Waste and Special Waste – Asbestos was removed from the excavation areas and disposed offsite (refer to Section 8).

During the remediation works there were two reported instances in February 2020 of a single ACM fragment being detected during truck inspection at off-site disposal facilities, which were not identified during the excavation at the Site.

The Auditor considers that the evidence provided sufficiently confirms the removal of fill material from the CWEE footprint (with the exception of asbestos and B(a)P as discussed above) and that the underlying natural material was generally free from contaminants.

6.5.4 VALIDATION OF THE EXCAVATION

6.5.4.1 VALIDATION OF EXCAVATION WALLS - METRO BOX

The excavation walls were inaccessible to collect validation samples post-remediation due to the construction methodology (perimeter piles installed pre-excavation). The chemical characterisation of soils immediately outside the walls was therefore estimated by AGJV using existing investigation data and ADE in-situ waste classification data.

AGJV's approach was to consider all fill outside the gasworks area as essentially similar, and compare upper 95% confidence limit of the whole data set to the validation criteria. The data set used was all the data within the Metro Box footprint, excluding samples taken specifically for investigation of the gasworks area, and included 419 samples. This analysis concluded that the upper 95% confidence limit of the dataset fell below the validation criteria for all COCs. The Auditor notes that whilst this analysis provides a general indication of the fill quality, it does not in itself demonstrate that material adjacent to the excavation walls complies with the validation criteria.

AGJV then assessed the walls of each grid, using descriptions of the fill materials from ADE in-situ waste classification borelogs, piling logs and Laing O'Rourke daily site diaries. They also considered individual exceedances of validation criteria in ADE samples within the grid area, and previous investigation data proximal to the walls where available. Each wall of each grid was discussed, drawing together the lines of evidence to conclude on the likely quality of the fill material in the wall. Some grids did include data where validation criteria were exceeded. Outside the gasworks area, the exceedances were of HIL-D (PAH) and/or management limits (TRH), and two asbestos detections. The barrier provided by the perimeter piles and shotcrete walls was considered to prevent a direct exposure pathway to future users. Management limits are not risk based, but serve to indicate potential presence of NAPL, which was not recorded in any observation. AGJV presented a figure for each grid area, including the data assessed and relevant photographs of the walls.

The Auditor understands that the northern wall of the Metro Box connects to the existing station infrastructure, and at the shallow level where fill materials were present, the excavation has progressed through into an existing adjacent space. There is therefore no fill material adjacent to the northern wall of the Metro Box. The VPR provides a photograph showing that the excavation has progressed though into the existing station area.

The Auditor agrees with AGJV's conclusion and considers that the excavation walls are sufficiently characterised and validated.

6.5.4.2 VALIDATION OF THE GASWORKS AREA

The validation of the Gasworks area within Grid 13 was undertaken in the VPR as part of the validation works described above. The validation of the gasworks area did not complete all of the requirements for validation specified in the Gasworks RAP (AGJV, 2020b). However the Auditor is satisfied that the validation of removal of contaminated material from the Metro Box footprint has been sufficiently demonstrated. The assessment of risk to health of future Metro users and maintenance workforce from residual gasworks impacted fill was completed by the QRA (AGJV, 2021a), contingent on the construction of the additional engineering measures that were completed as documented in the final VPR for the MBW.

The final validation report (AGJV, 2023e) documents the construction of the engineering controls, as described in Section 6.4.1 of this report. On this basis, there is sufficient evidence to conclude that the risks to the health of future users have been adequately assessed.

Whilst it is not directly relevant to the Audit Area, as noted previously, a Long Term EMP (AGJV 2023) was prepared to manage potential risks associated with residual gasworks impacts remaining outside and to the north-west of the Metro Box beneath the adjoining rail infrastructure.

6.5.4.3 VALIDATION OF THE EXCAVATION WALLS - CWEE

Perimeter piles were installed pre-excavation which limited the accessibility of the soils remaining in the excavation walls for validation characterization sampling. AGJV documented the validation of the excavation walls using existing investigation data and ADE in-situ waste classification data where appropriate (rather than direct sampling of the excavation walls).

During review of the VPRs, the Auditor noted that there were some deficiencies in the site diary records regarding potential unexpected finds during excavation. To address these deficiencies, further clarification was sought from the LOR Environment Manager who confirmed that no unexpected finds had occurred subsequent to the identification of the former gasworks waste in the Metro Box excavation in early 2019 (refer email correspondence dated 31 August 2023 in Appendix B).

Validation sampling of the excavation walls was only completed for the Suburban Platform Excavation – Escalators (Stage 2). The results of the validation sampling are presented in Appendix D. The validation sampling of the excavation walls for the Suburban Platform Excavation – Escalators area (Stage 2) reported the following results above the validation criteria:

- Results from the ADE excavation wall validation sampling reported exceedances of the validation criteria for B(a)P TEQ at two validation sampling locations TP3 (0.15) and TP1 (0.15) at depths of 0.15m bgl. Concentrations of 46 mg/kg and 71.3mg/kg were reported at these locations, above the commercial/industrial screening criteria for B(a)P of 40 mg/kg.

It is important to note that the volume of fill material remaining in the small area between the walls of the excavation and the boundary of the CWEE site is likely to be negligible, particularly when considered relative to the volumes present in the surrounding areas that may exist outside of the CWEE footprint.

In addition to the above, given asbestos was identified in material removed from Platform 16/17 and Platform 18 /19, it is therefore plausible that asbestos may be present in the fill material in this area of the Site, although validation wall sampling for asbestos was undertaken in this area and did not identify any.

AGJV has noted in the VPRs that the as built drawings (drawing numbers SMCSWCSM-DJV-BD-30-DWG-ST-226001 and SMCSWCSM-DJV-BD-30-DWG-ST-927004) confirm that the residual fill materials in the platform areas around the escalator were contained behind 300 mm of concrete and a 'Sikaplan WP membrane' used for waterproofing. It is also noted that any future intrusive maintenance works will be undertaken in accordance with the Sydney Trains Environmental Management System (EMS) which references the WebGIS that is currently in the process of replacing the Hazardous Site Management Systems (HSMS) that includes the contaminated land data set. The residual contamination (as described above) has been added to this dataset to facilitate notification and require implementation of control measures during all future intrusive works in the defined areas of potential impact (refer to correspondence dated 29 August 2023).

The Auditor agrees with AGJV's conclusion and considers that the excavation walls are sufficiently characterised and validated, where validation sampling of fill material was undertaken. The Auditor notes that where natural material (soil or sandstone bedrock) was encountered, characterisation of these excavation walls was not required. The proposed approach for the future identification and management of residual contamination associated with stage 2 is considered appropriate given the relatively minor nature of the residual impacts, the fact that there is a negligible volume of fill remaining between the wall and the boundary of the audit area and the level of control maintained by Sydney Trains over works within the area.

6.6 AUDITOR'S ASSESSMENT - COMPLETION OF VALIDATION

6.6.1 OVERVIEW

The vast majority of the Metro Box and CWEE structures were excavated deep into the unimpacted sandstone and shale bedrock. At the conclusion of the development works, there remains some residual contaminated soil impact in certain areas adjoining the MBW and CWEE structures which is contained behind the engineered concrete structures which are fundamental to the structure of the Central Station precinct. A human health risk assessment was carried out to demonstrate the suitability of the residual soil impact to remain in-situ following completion of the Metro Box structure. The land is owned by the Transport Asset Holding Entity of New South Wales (the owner of the NSW Rail Network). As the network operator Sydney Trains will be responsible for managing the residual contamination through the Sydney Trains Environmental Management System (EMS).

The EMS provides a control mechanism to manage potential workforce exposure to remaining contaminants surrounding the Site. Any significant future development of the Central Station precinct would be subject to planning controls including consideration of disturbance of residual soil contamination. An LTEMP (AGJV, 2023d) is also in place for management of residual gasworks waste in off-site areas adjacent to the Metro Box.

6.6.2 METRO BOX

The validation reports (as listed in Table 6-1 and Section 1.9) are considered substantially compliant with the applicable guidance made or approved under s105 of the CLM Act 1997 and with additional relevant guidelines from other jurisdictions.

The Auditor considers that validation of the remediation of the Metro Box has been successfully achieved in terms of demonstrating that contaminated soils have been removed from the excavation, and that the nature of the soils outside the Metro Box are sufficiently understood.

The VPR has demonstrated that materials behind the Metro Box walls do not pose unacceptable risks to future users of Sydney Metro or to the Sydney Metro workforce in the Metro Box, with the exception of the gasworks area in the south west corner. The QRA (AGJV, 2021a) for the gasworks area concluded that no unacceptable risks from vapour intrusion in the vicinity of the gasworks area would exist, provided that engineering mitigation measures in the Metro Box walls and in the ventilation systems were implemented. The Final VPR (AGJV, 2023e) for the Metro Box provided validation of the final as-built infrastructure design including re-assessment against key QRA (AGJV, 2021a) assumptions. The Sydney Trains Environmental Management System (EMS) control mechanisms and LTEMP (AGJV, 2023d) remain in place to manage potential workforce exposure to remaining contaminants surrounding the Site.

The Auditor notes that the Gasworks RAP (AGJV, 2020b) included a requirement for validation of the stockpile footprints in Sydney Yard at the conclusion of excavation works, however as the scope of this Audit does not include Sydney Yard, the Auditor has not reviewed any information in relation to validation of the stockpile footprints within Sydney Yard.

6.6.3 CENTRAL WALK AND EASTERN ENTRANCE

The Auditor considers that validation of the remediation of the CWEE has been successfully achieved in terms of demonstrating that contaminated soils have been removed from the excavation in the areas where construction activities occurred. Removal / management of materials from Site was generally undertaken in accordance with the requirements of the RAP, and that the nature of the soils and groundwater conditions outside the CWEE are sufficiently understood in the context of the Site's ongoing usage as a metro station (aligned the ASC NEPM land-use category of commercial/industrial use).

The VPR1 and VPR2 reports for CWEE have demonstrated that materials behind the CWEE walls do not pose unacceptable risks to future users of Sydney Metro or to the Sydney Metro workforce, particularly given that the Sydney Trains Environmental Management System (EMS) control mechanisms are in place to manage potential intrusive worker exposure to residual contaminants at and surrounding the Site specifically, potential asbestos and B(a)P in fill materials.

6.6.4 GROUNDWATER VALIDATION

Though groundwater remediation was not part of the RAP scope, groundwater monitoring events were routinely undertaken pre, during and post remediation mainly to assess the excavation and construction activities influence on the condition of groundwater post remediation compared to pre-remediation baseline conditions. A summary of overall groundwater conditions throughout the monitoring period is provided in the validation reports. Details of each groundwater monitoring event undertaken are included in separate groundwater monitoring reports for the Site. The Auditor notes that based on the objectives of the RAP groundwater validation activities were not undertaken nor warranted given groundwater remediation was not undertaken during the remediation works, with the exception of a comparison of groundwater condition pre- and post remediation activities.

As noted previously in sections 5.2.9, the Auditor has reviewed the groundwater monitoring report prepared by AGJV (2023c) and considers that the final round of groundwater monitoring adequately documents the water quality is suitable for the intended use of the site as a future railway station (commercial/industrial use).

Whilst there were detections of copper, zinc, cyanide and ammonia in groundwater above the adopted ecological screening levels in the final monitoring round, the trend analysis by AGJV (2023c) demonstrated that groundwater quality was not impacted by the construction works, and conditions are generally consistent with the conditions in the surrounding aquifer. Groundwater collected in sumps and drains will be managed through discharge to a water treatment plant. The conditions of approval for the project require an operational environmental management plan (OEMP) for groundwater management, which will be prepared by the contractor operating the water treatment plant. Therefore, there are mechanisms in place for the ongoing monitoring and treatment (where required) of groundwater prior to discharge.

A site-specific risk assessment was prepared to addressed the residual gasworks impacts, and this includes calculations of the potential human health impacts associated with residual contaminants in groundwater. Further discussion is provided in Section 7 (below).

7. QUANTITATIVE RISK ASSESSMENT

The site specific Quantitative Risk Assessment (QRA) (AGJV, 2021a) was reviewed and the summary presented below in Table 7-1 was prepared by the Auditor with the input and support of Ken Kiefer, the Auditor's nominated expert support person in relation to human health and ecological risk assessment.

TABLE 7-1 RISK ASSESSMENT

Title	Adequately Addressed	Details and Auditor Comment
Hazard Identification - Appropriate sources of information regarding chemicals of potential concern been identified and assessed	Yes	The risk assessment was undertaken to evaluate the risks to human health that may be associated with the presence of residual contaminated soil and gasworks waste within the gasholder footprint. Data available up to September 2019, and provided by in the *Remedial Action Plan for Construction of Metro Station Box* (AGJV, 2019a) have been relied upon for this assessment. References to results of these assessments are provided in summary tables for various exposure pathways that compares reported concentrations to Tier 1 risk guidelines. Relevant figures and analytical data are also provided in an Appendix that demonstrates applicable data has been considered.
Justification has been given for the selection of the chemicals of potential concern	Yes	Based on the historical use of the site for Gasworks, the COPCs assessed were hydrocarbons (TRH and BTEXN) and PAHs, cyanide and nutrients including ammonia, sulfate and sulfide. These COPCs are consistent with the expected COPCs on Gasworks sites. Focusing on hydrocarbons in the Tier 2 assessment has been justified as the QRA focusses on the assessment of volatile and semi-volatile COPCs.
Toxicological Information - Critical toxic effects been identified	Yes	A summary of toxicity information from both Australian and international sources have been tabulated for BTEXN and aliphatic and aromatic TRH fractions.

Title	Adequately Addressed	Details and Auditor Comment
The effects on each body system (for example renal, hepatic, cardiovascular and developmental) and the types of effects (for example genotoxic and carcinogenic) been summarised	Yes – with qualifications	While the effect on each body system is not specifically documented in the report, reference documents where this is documented have referenced.
The dose–response relationship for chemicals of potential concern been discussed	Yes	Appropriate toxicity reference values (TRVs) based on the hierarchy of sources of toxicological information recommended in NEPM have been adopted and appropriately discussed.
All relevant toxicological data been considered and checked for accuracy	Yes	The toxicological information for COPCs is consistent with referenced sources.
The adequacy of the available toxicological database been commented on	Yes	The toxicological information for COPCs is consistent with referenced sources.
Relevant primary toxicological resources been considered	Yes	The toxicological information for COPCs is consistent with referenced sources.
Different toxicity data from different resources been assessed and discussed	Yes	The selection of toxicity criteria is based on the hierarchy of sources of toxicity information recommended in the NEPM.
Selected toxicity data been adequately justified	Yes	The selection of toxicity criteria is based on the hierarchy of sources of toxicity information recommended in the NEPM. Background intake values are appropriately justified.
Exposure Assessment - A comprehensive and appropriate conceptual site model (CSM) been presented that indicates all potential pathways and receptors	Yes	A suitable CSM has been summarised based on AGJV (2020b). The CSM outlines the primary source areas on site, transport pathways and receptors. An appropriate description of the pathways and receptors is presented.

Title	Adequately Addressed	Details and Auditor Comment
All potential receptors been identified	Yes	An assessment of potential receptors has been completed. Workers on-site during the construction of the metro primarily within the metro box perimeter, intrusive maintenance workers during construction and operation and future commuters have been suitably identified as receptors potentially exposed to impacted media. These impacted media include soil and groundwater.
The estimated or measured exposure concentrations for each exposure route and chemical of potential concern have been quantified	Yes	The concentrations of relevant COPCs are provided and justified for relevant exposure pathways.
Risk Characterisation - The acceptable risk level been identified and justified	Yes	A Hazard Index (HI) of 1 summed over all exposure pathways and an Incremental Lifetime Cancer Risk (ILCR) of $1e^{-5}$ has been adopted, consistent with NEPM requirements. The input parameters to the model calculations and approaches to risk characterisation are considered appropriate by the Auditor.
All potential receptors and pathways been considered	Yes	Hazard Quotient (HQ) and ILCR values have been calculated for each relevant exposure pathway and receptor (during construction and future use) for volatile and semi-volatile TRH and BTEXN.
The relative significance of each exposure pathway, based on the risk analysis, been discussed	Yes	Appropriate discussion is presented for potential cumulative exposure pathways and includes current and future worst-case exposure scenarios.
A sensitivity/uncertainty analysis been presented	Yes	The inherent uncertainties with the risk assessment have been discussed throughout the report. A sensitivity analysis has been included in risk calculations for: • Soil texture type, • Crack fraction of outer wall, • Crack fraction of inner wall, • Ventilation flow rates, and • Using benzene as a proxy for cyanide.

Title	Adequately Addressed	Details and Auditor Comment
Equations - All equations used in the risk assessment been presented in the report	Yes	Relevant equations used to derive site specific soil criteria and calculate risk estimates are presented in the report and supporting Appendices.
All equations consistent	Yes	Equations presented in the report body are consistent with those presented in supporting Appendices.
All parameters and values used in each equation been clearly defined	Yes	Parameters and input values are presented in conjunction with each equation.
The correct units been allocated to each parameter	Yes	Correct units have been applied to equations.
All equations dimensionally correct	Yes	Equations are dimensionally correct.
All unit conversion factors, where applicable, been included in the equations	Yes	Unit conversion factors have appropriately been applied to calculations.
All pertinent information been provided to enable calculations to be checked through in a step-wise process	Yes	Input parameters, equations and calculations are clearly and comprehensively presented in Appendices, allowing calculations to be checked.
Data Evaluation - The data collection objectives have been stated and are consistent with the requirements of the risk assessment	Yes	The data evaluation process included a review of data for the area assessed in previous reports (ADE 2019a, ADE 2019b, information documents: *ADE (2019) Preliminary Waste Analysis & Classification Report, Sydney Yard, Central Railway Station, Chippendale NSW, 14 March 2019, ADE (2019) Waste Analysis & Classification Report, Sydney Rail Yard, Chippendale NSW, AGJV (2019) Sydney Metro – Central Station Main Works Groundwater Baseline Monitoring (September 2018 to February 2019) Report, 6 June 2019, AGJV (2019)*

Title	Adequately Addressed	Details and Auditor Comment
		Central Station Main Works Ongoing Groundwater Monitoring (April to September 2019) Report, Revision A, 10 December 2019). The Auditor has reviewed the reports in question and considers that available data meets the requirements of the assessment.
The laboratories that did the chemical analyses been noted, and do they have NATA accreditation (or equivalent) to perform each chemical analysis	Yes	As above
Laboratory quality assurance/quality control (QA/QC) been reported and analysed	Yes	As above
Field QA/QC been reported and analysed	Yes	As above
Statements of the accuracy of the laboratory data for each contaminant been made and have these been considered in the risk assessment	Yes	As above
Assessment and Report Presentation - Information has been presented coherently and in an appropriate sequence to enable efficient appraisal of the report	Yes	The assessment is clear and comprehensive.
The objectives and scope been clearly stated	Yes	The objectives and scope of work presented in the introduction are acceptable.
Information from previous reports on the site been appropriately selected and incorporated into this report	Yes	Information provided in hydrogeology, groundwater monitoring, and soil investigation reports have been suitably considered in the report.
The analysis been based on up-to-date literature	Yes	The risk assessment analysis has been based on current literature.

Title	Adequately Addressed	Details and Auditor Comment
All assumptions and data been identified and justified	Yes	Assumptions used to derive criteria, and data adopted to assess the risk of all impacted media have been identified and sufficiently justified.
All tables and figures been referred to correctly in the text of the report	Yes	Laboratory results and figures are provided in a report Attachment and have been suitably referenced.
Adequate data been presented to support the conclusions	Yes	The Auditor is satisfied that adequate data has been provided to support the conclusion of the risk assessment.

7.1 AUDITOR'S ASSESSMENT – QRA

The Auditor is satisfied that the site specific QRA (AGJV, 2021a) has been undertaken in accordance with Schedules B4 – B7 of ASC NEPM. The station construction includes engineering controls designed to manage ingress of groundwater and ventilation systems designed for operation of these spaces as public places (noting that the ventilation requirement would exist regardless of the identified potential for residual contamination), as shown in Figure 14 and 15 of Appendix A. The elements of the construction including the ventilation system have been considered in the QRA (AGJV, 2021a) to appropriately characterise risks to the health of the future users of the new station.

Subsequent to the QRA (AGJV, 2021a), at the conclusion of the remediation works groundwater monitoring results indicated concentrations of COPCs higher than those used in the development of the QRA (AGJV, 2021a). The final validation report for the MBW (AGJV, 2023e) includes a re-calculation of the QRA findings incorporating the increased COPC concentrations in groundwater. Based on the previous QRA results (i.e. two orders of magnitude less than the HI of 1 and ILCR of $1e^{-5}$), the increase in groundwater concentrations are not considered significant and the conclusions would remain unchanged. The potential risk from exposures to vapours to future workers and commuters is therefore low and acceptable. The Auditor is satisfied that this approach is appropriate.

8. WASTE MANAGEMENT

8.1 WASTE CLASSIFICATION

ADE was engaged directly by LOR for the waste classification component of the remediation and validation works for both MBW and CWEE. Waste classification reports were prepared by ADE based on in-situ sampling prior to excavation. Ex-situ waste classification activities were also undertaken by ADE where excavated material was stockpiled for waste classification.

Based on the waste classification determined from both in-situ and ex-situ waste classification works, fill material encountered was disposed of offsite per the waste classification determined and the natural clays / sandstone was taken offsite as VENM. LOR maintained a central waste tracking register for the CSMW project. The Auditor conducted routine spot checks of the register over the course of the project, in addition to review of the summary of waste classification and disposal provided by AGJV in each of the VPRs.

8.1.1 AUDITOR'S ASSESSMENT – WASTE CLASSIFICATION

The Auditor's assessment of the waste classification with regards to Section 4.3.7 of the Site Auditor Guidelines is provided below in Table 7-3.

Both in-situ and ex-situ waste classification sampling of the material excavated from MBW and CWEE was undertaken by ADE.

The in-situ waste classification works undertaken by ADE included several in-situ waste classification assessments across various areas of the MBW and CWEE, which included preliminary desktop study components, review of previous investigations/data, visual site inspections, collection of soil samples and laboratory analysis and subsequent preparation of several in-situ waste classification assessment reports. The in-situ waste classification assessment reports were provided within the validation progress reports.

The Auditor reviewed a selection of the ADE waste analysis and classification (WAC) reports over the course of the audit.

At the start of the works, ADE classified in-situ soil / fill and stockpiled excavation spoil in various areas of the site as needed to progress the preliminary works, including demolition of the platforms. These investigations resulted in the identification of a layer of black, oily gravel fill that was visually readily identified, and which classified as hazardous waste. The platform demolition and removal of the majority of the shallow fill, including the hazardous waste, was completed before in-situ classification for the main excavation.

Prior to commencing excavation, additional site investigations were completed by ADE to provide waste classification by grid, using a rectangular grid of 50 m x 10 m within the Metro Box footprint, resulting in fifteen grid boxes (shown in Figure 3 of Appendix A). In each box, investigation was undertaken to provide a minimum of 10 samples of fill per grid, in accordance with the strategy specified by the RAP. In addition to the 10 samples of fill material, at least one sample of natural soils/rock was taken to confirm classification as either general solid waste (GSW) or VENM. Historic samples as reported by AGJV (2019c), and samples from plunge column installation and geotechnical bores were also used for waste classification. The VPR confirms that the required sampling density was achieved.

AGJV makes use of the waste classification data in the VPR as a line of evidence to support the validation of the excavation walls, and for confirmation of removal of fill materials.

Ex-situ waste classification activities were also undertaken. Excavated material was stockpiled either within the footprint of the CWEE after excavation then transported to the Sydney Yard Project Access Area (SYPAA) and stockpiled for waste classification. Based on the waste classification determined from both in-situ and ex-situ waste classification works, the material was disposed of offsite as General Solid Waste (GSW), Special Waste – Asbestos, Hazardous Waste or Restricted Solid Waste or taken to a receiving site as VENM.

8.1.2 WASTE DISPOSAL

The former Auditor implemented a process whereby regular spot checks of the waste tracking register were undertaken throughout the project, and the current Auditor also completed a final review of the waste register at the end of the project whilst compiling this SAR. The LOR waste tracking register documents the waste classification and the disposal of each load at the designated waste facility, and includes the truck registration numbers and waste docket details.

The Auditor has reviewed the final LOR waste tracking register which documents the volume and type of wastes disposed of over the course of the project, as summarized in Table 7-1.

The classification and disposal of waste was reported progressively for each of the validation reports for MBW (VPR1, VPR2, VPR3 and final validation report) and CWEE (VPR1 and VPR2), including a reconciliation of the total volume estimated from in-situ waste classification and design drawings against the total volume of waste disposed.

Table 7-2 below summarises the estimated spoil removed from the excavation, as reported in the validation reports calculated by AGJV based on in-situ volume, and the total spoil disposed of off-site.

TABLE 8-1 SUMMARY OF WASTE DISPOSAL RECORDS - TOTAL WASTE

Waste Classification at disposal	Sub-classification	Waste disposed (tonnes)	Waste Type (Spoil or other)
General Solid Waste (GSW)	Pre-Classified GSW (Non-Putrescible) - Virgin excavated natural material	326 650.785	Spoil
	Spoil - GSW	97 801.73	Spoil
	Total GSW	*424 452.515*	--
Pre-Classified Waste - GSW (Non-Putrescible)	Pre Classified GSW (Non-Putrescible) - Building and demolition waste Pre Classified GSW (Non-Putrescible) - Glass, plastic, rubber, plasterboard, ceramics, bricks, concrete or metal	11 047.06	Not spoil
Hazardous Waste	Lead paint waste Spoil - Hazardous Waste	2902.91	Spoil
	Pre-Classified Waste - Hazardous Waste (D220: lead and lead compounds)	28.52	Spoil

Waste Classification at disposal	Sub-classification	Waste disposed (tonnes)	Waste Type (Spoil or other)
Liquid Waste (non-hazardous)	--	12.16	Spoil
Restricted Solid Waste	--	2297.22	Spoil
Special Waste - Asbestos	--	972.74	Spoil
Total Waste Disposed		441 713.125	--
Total Spoil Disposed			430 666 t

Notes: Source of data in table above is the LOR Waste Tracking Register Dated 21/2/2022.

TABLE 8-2 RECONCILIATION OF EXCAVATION VOLUME WITH DISPOSAL RECORDS

	Excavation Records		Disposal Records
	Estimated Excavation Volume (m3)~	Estimated spoil excavated (converted to tonnes)	Total waste disposed (tonnes)
MBW Final VPR	146 654#	375 435#	358 930#
CWEE VPR1 & VPR2	21 582	55 250	52 502
Total	*168 237*	*430 686*	*411 432*
LOR Waste Tracking Register Total	--	--	430 666*
Estimated/actual tonnage	--	--	-0.01%

Notes: ~Total estimated in-situ volume. #MBW Final VPR Table 4 and 5 in Section 5.1.3. *Total waste disposed on waste register as GSW (excl glass, concrete, building/demo waste).

TABLE 8-3 WASTE CLASSIFICATION

Title	Adequately Addressed	Details and Auditor Comments
Consultant or waste generator (or their representative) has classified the waste in accordance with the Waste Guidelines.	✓	An in-situ waste classification of the platform material was prepared. Once the platforms had been removed, the Metro Box site area was divided into 15 grid areas and material within each grid was classified in-situ within separate reports. In addition to the in-situ waste classification, ERM were provided with 23 stockpile waste classification reports. These stockpiles had been placed in Sydney Yard sampled ex-situ. A total of 225 Waste Analysis and Classification (WAC) Reports were prepared by ADE. The Auditor reviewed a selection of the WAC reports for compliance and the below comments relate to those selected reports.
Chemical assessment		
Sampling density	✓	The total sampling density achieved is in accordance with the requirements of the relevant RAPs.
Sampling pattern and method used	✓	The sampling pattern and method was appropriate for the purpose.
Selection of contaminants of potential concern for laboratory analysis	✓	The analytical suite selected aligns with the COPCs identified for the source area and was appropriate for the purpose.
Leachate analysis using the toxicity characteristics leaching procedure	✓	In most instances the waste classification relied on the total concentration for classification. Leachate analysis (TCLP) was requested only when it was required to inform the classification where the total values were elevated.
Classification of the waste based on chemical assessment.	✓	Classification in the selected WAC against the Guidelines was largely performed accurately.

Title	Adequately Addressed	Details and Auditor Comments
Waste is subject to a chemical control order (CCO): • Aluminium smelter wastes • Dioxin-contaminated wastes • Organotin wastes • Polychlorinated biphenyls (PCBs) and PCB wastes • Scheduled chemical wastes (pertaining to certain chlorinated chemicals)	Not applicable	No wastes were identified subject to CCO.

TABLE 8-4 WASTE DISPOSAL AND RECYCLING

Title	Adequately Demonstrated	Details and Auditor Comments
Estimated volume of waste taken off site is provided	✓	A waste classification report (WAC report) was prepared for each classification of soil within each grid area of the Metro Box. These reports provide the estimated waste volume. As of 21 February 2022 the LOR waste tracking register documents trucking tonnage records for a total of 430,666 tonnes of spoil removed from the audit boundary and disposed of to waste facility or designated VENM for re-use at approved premises.
Receipts verifying the facility has received that volume and class of waste from the waste generator (or its representative).	✓	Soil material was trucked offsite by Lantrak, haulage contractors for LOR. Lantrak provided truck dockets (which record time in and out, and reference to the waste classification document associated with the load), and the weighbridge docket for the waste facility (which records time and weight, and facility information). This information was recorded in a register by Laing O'Rourke, and hard and soft copies of the truck and tip dockets are filed. The Auditor conducted routine checks during the Audit period of the receipts for waste against the waste tracking register documented by LOR. There were no significant discrepancies between the records checked and the receipts held by LOR.

Title	Adequately Demonstrated	Details and Auditor Comments
Reconciliation documents demonstrating the total volume of waste taken off site is consistent with the total volume of waste generated from the site.	✓	AGJV applied a bulking factor of 1.6, and a bulk density of 1.6 tonnes/m3 to convert the estimated volume to tonnes. The discrepancy between the recorded disposal and estimated tonnes excavated is approximately 0.01%, which is considered an acceptable level of accuracy, and sufficient evidence that the materials excavated and removed from site have been disposed of to facilities / sites that are licensed or otherwise lawfully permitted to accept them. On the basis of the estimated total volume of excavation and the recorded total tonnes disposed off-site (as shown below in Table 7-2), the waste reconciliation is considered to be appropriate.
• Waste generated from the site has been taken to a facility lawfully able to receive that waste • EPA licenced waste disposal facility's environment protection licence (EPL) shows it can lawfully receive waste received	✓	The Audit team conducted routine checks during the Audit period of the EPLs for waste facilities listed in the waste tracking register, and the waste classification reports and receipts for disposal. All of the waste facilities documented in the waste tracking register held an EPA license to lawfully receive the waste. Material classified as VENM is discussed in Table 7-6 below. The waste tracking register indicates material classified as GSW was taken to the Port Kembla Steelworks for disposal under the RRO. It was also noted that the VIC EPA licensed the two facilities receiving the material classified under NSW EPA Guidelines as Hazardous Waste. Viewed VIC EPA Licence 186685 for EPS facility in Altona and VIC EPA Licence 127068 for the Renex facility in Dandenong. Both facilities licensed to receive Category A, B and C. (Hazardous waste is equivalant to Category A). This was transported as N120 and disposed of as Category B Contaminated Soil. It appears that the maximum concentrations of some compounds exceed the Category B upper limits, which means that material being disposed of as Category B could be Category A. Statistical evaluation could have been done to classify material as category B, but no evidence of this has been seen. The Auditor concluded that effective compliance was achieved, although documents did not demonstrate compliance clearly.

Title	Adequately Demonstrated	Details and Auditor Comments
• Waste disposed at EPA licenced facility meets the "limit conditions" for the waste in the EPL	✓	Laboratory results were spot checked against facility's EPL limit conditions. All reports checked were in compliance with the limit conditions, with the exception of the below, identified in the Audit check in April 2020: The Breen EPL No. 4608 has stricter limits than typical GSW classification. WAC89 contains Total PAHs at 140 mg/kg which EXCEEDS Breens EPL of 80 mg/kg. Grid 14 WAC also EXCEEDS Breens EPL of 80 mg/kg with Total PAHs at 93 mg/kg. Review of WAC98 reveals a HSW classification based on Total PAHs, BaP and Lead concentrations. However, the results presented in the lab certificates are different from those presented in the letter. The letter reports Total PAHs 1100 mg/kg and Bap 48.5 mg/kg however COA presents a maximum or 272 mg/kg and 17 mg/kg respectively for sample TP4. The HSW classification is correct for lead, since a TCLP analysis was not carried out. The waste was disposed of to the EPS facility in Altona, Victoria which is licensed for Cat A and B soils, so compliance was achieved even though the classification was incorrect. Several loads of material classified under WAC 105 as GSW were sent to Brandown and rejected due to visible ACM presence. The loads were reclassified as Asbestos Waste GSW and directed to Dial A Dump in Eastern Creek which is licensed to accept asbestos waste. This also occurred for waste classified under WAC103, WAC106a. Receiving facilities for liquid waste loads reviewed met limit conditions for waste.
• If waste disposal facility is not licensed by the EPA, consent must be documented from the appropriate regulatory authority to receive that waste for its waste activities	✓	All of the waste facilities documented in the waste tracking register are licensed by the EPA.

Title	Adequately Demonstrated	Details and Auditor Comments
Documentation for the disposal of asbestos is provided	✓	The waste tracking register documents that all loads classified as asbestos special waste were disposed to EPA licensed facilities which hold EPL for asbestos waste disposal. Waste dockets were checked during spot checks.
The concentration of waste subject to CCO are permitted to be disposed of at landfill	Not applicable	No wastes were identified subject to CCO.

Protection of the Environment Operations (Waste) Regulation 2014

8.2 MATERIALS IMPORTED TO THE SITE

The construction works primarily involved the excavation of soil and rock material to create a void space for the construction of the station facilities, and there were limited volumes of fill material imported for the purpose of supporting the enabling works for the metro-box.

LOR inspected the material imported to Site, however no inspections of material were conducted by the Consultant and no validation of this material was provided by the Consultant.

The Auditor has reviewed the documentation provided by LOR, including the register of imported materials, and the documentation provided in Appendix I of the Metro-Box VPR1 (AGJV, 2020f) which includes laboratory testing and certificates of compliance with Resource Recovery Orders for recovered aggregate and Excavated Natural Materials.

LOR maintained a register of imported materials which included ballast (blue metal aggregate), stabilized sand, grout and concrete, road base (20 mm DGB and recycled DGB piling mat). A summary of the total imported fill material as recorded on the LOR imported material register is provided in Table 8-5, which includes the time period September 2018 to April 2020.

TABLE 8-5 SUMMARY OF IMPORTED MATERIALS

Material	Provider/Source	Total imported
Concrete, sand, slurry and grout	Holcim	122.5 m^3 (Net)
Ballast/DGB Natural Material Recovered Aggregate Exemption	Lantrak Quarry EX Bin & Tipping Lantrak Riverstone Ex Bin Dial A Dump, Eastern Creek Veljohn, Bringelly GLX Haulage, Mulgoa Sydney Trains: Ballast Recycling Depot, Worth St. Gate 1, Chullora, NSW Sydney Trains Bombo Southern Quarries: Ballast Recycling Depot, Worth St. Gate 1, Chullora, NSW Boral Quarries Pty Ltd: Maldontmn Metwest Engineering Pty Ltd Boral Resources (NSW) Pty Limited Materials in the raw 21 -29 Kellog Road, Rooty Hill Boral Recycling: 2 39 Delhi Road, North Ryde	15 425.11 tonnes
Natural Material	75mm-Sandstone - Railway Street, Emu Plains	177.64 tonnes

TABLE 8-6 RECEIPT OF FILL MATERIAL IMPORTED TO SITE

Title	Adequately Demonstrated	Details and Auditor Comments
The waste material meets the definition for that waste in the order and exemption	✓	The Auditor has reviewed the documentation provided by LOR, including the register of imported materials including laboratory testing and certificates of compliance with Resource Recovery Orders for recovered aggregate and Excavated Natural Materials.
The supplier of that waste has complied with the conditions of the order in relation to sampling, chemical and other attribute requirements, and the supply of a statement of compliance (where relevant)	✓	The Auditor has reviewed the documentation provided by LOR, including the register of imported materials including laboratory testing and certificates of compliance with Resource Recovery Orders for recovered aggregate and Excavated Natural Materials.
Consultant or waste generator (or their representative) has provided a VENM certificate	n/a	There were no materials imported to the Site which were classified as VENM.
Material meets the definition of VENM: 'natural material (such as clay, gravel, sand, soil or rock fines): (a) that has been excavated or quarried from areas that are not contaminated with manufactured chemicals, or with process residues, as a result of industrial, commercial, mining or agricultural activities and (b) that does not contain any sulfidic ores or soils or any other waste	n/a	There were no materials imported to the Site which were classified as VENM.

8.3 EXPORTING FILL MATERIAL

TABLE 8-7 EXPORT OF MATERIAL FROM THE SITE

Title	Adequately Demonstrated	Details and Auditor Comments
The waste material meets the definition for that waste in the order and exemption	×	Material was exported to the Port Kembla Steelworks under the *Port Kembla Steelworks Excavated Material Order 2018 (the RRO*) by LOR's contractors. The Auditors reviewed the waste tracking documentation and identified non-compliances and this is discussed further below in Section 8.3.1. It is also noted that ADE applied to and was granted by EPA a Resource Recovery Order and Resource Recovery Exemption under clause 93 of the issued by the Environment Protection Authority (EPA) under clause 93 of the Protection of the Environment Operations (Waste) Regulation 2014 (Waste Regulation), for sandstone and shale generated by the excavation of the Central Walk tunnel; *The Central Walk tunnel spoil order 2020 ('order') and The Central Walk tunnel spoil exemption 2020 ('exemption').* The order details the requirements of the order which allow for the supply of tunnel spoil for application to land as engineering fill or for use in earthworks. There were no records indicating that materials were exported from the Site under the *exemption.*
The supplier of that waste has complied with the conditions of the order in relation to sampling, chemical and other attribute requirements, and the supply of a statement of compliance (where relevant)	×	Material was exported to the Port Kembla Steelworks under the *Port Kembla Steelworks Excavated Material Order 2018 (the RRO*) by LOR's contractors. The Auditors reviewed the waste tracking documentation and identified non-compliances and this is discussed further below in Section 8.3.1.
Consultant or waste generator (or their representative) has generated a VENM certificate	✓	ADE issued WAC reports for all excavated materials including materials classified as VENM.

Title	Adequately Demonstrated	Details and Auditor Comments
Material meets the definition of VENM: 'natural material (such as clay, gravel, sand, soil or rock fines): (a) that has been excavated or quarried from areas that are not contaminated with manufactured chemicals, or with process residues, as a result of industrial, commercial, mining or agricultural activities and (b) that does not contain any sulfidic ores or soils or any other waste	✓	Material was classified as VENM in the WAC reports and confirmed as meeting the definition of VENM.

8.3.1 PORT KEMBLA STEELWORKS EXCAVATED MATERIAL ORDER 2018

[redacted] issued a Letter of Interim Advice No. 2 dated 11 July 2019 which describes the finding of the Auditor's review of waste classification records, where non-compliances with the *Port Kembla Steelworks Excavated Material Order 2018 (*the RRO), which applied to LOR's supply of excavated material to the Port Kembla Steelworks.

The non-compliance was reported to NSW EPA by [redacted] in correspondence dated 25 October 2019. LOR implemented strategies to mitigate the potential for future non-compliance to resolve the matter including directing Lantrak to cease disposal of material to the Port Kembla site and the Auditor understands from LOR that *Lantrak was issued a contract letter to reiterate that LOR are to be notified of disposal sites in advance so the compliance checks can be made*. A copy of the available correspondence relating to this matter is provided in *Appendix B*.

In compiling the SAR, the Auditor subsequently revisited the LOR waste tracking register, and additional loads of material were identified as being disposed of to the Port Kembla Steelworks under the *Port Kembla Steelworks Excavated Material Order 2018 (the RRO*) in February and March 2020, again some potential non-compliances were identified. This issue was discussed in detail with representatives of LOR and AGJV and was reported to NSW EPA via email on 2 April 2024 (refer to Appendix B) and whilst the issue had not been fully closed out at the time of completion of the SAR, this issue is not considered to impact upon the suitability of the Site or the conclusions of the Audit.

8.4 AUDITOR'S ASSESSMENT – WASTE MANAGEMENT

The works contractor, LOR, was responsible for managing waste classification and tracking independently, and provided copies of documentation including the ADE waste classification reports, waste tracking and import registers and disposal documentation directly to the Auditor for review. The progress validation reports prepared by AGJV provide a summary of waste classification, waste disposal records and material import.

The former Auditor agreed to the above process at the commencement of the project and the current Auditor concurs that it was suitable, because the very large volumes of materials excavated and disposed have resulted in many thousands of disposal dockets and hundreds of waste classification reports. The reasoning originally provided was that attempting to compile all these into a single validation report would be impractical and would not contribute to the assessment of the site's suitability for use. The Audit of the waste records was therefore completed progressively through inspection and review of waste documentation.

The Auditor considers that the documentation of waste classification and disposal as provided by the consultant ADE and the works contractor, LOR was largely adequate with potential non-conformances as documented above and reported to NSW EPA by both [redacted] and [redacted]. With the exception of those issues, from the data reviewed, waste materials appear to have been managed in accordance with the relevant NSW EPA guidelines and regulations.

9. COMPLIANCE WITH REGULATORY GUIDELINES

9.1 LIST OF APPLICABLE REGULATORY GUIDELINES

Guidelines made by NSW EPA under Section 105 of the CLM Act 1997 at the time of preparing this report, along with other reference documents, are presented in Section 12.

9.2 SIGNIFICANT NON-COMPLIANCE ASSESSMENT

The Auditor has referred to the above guidelines (refer to Section 12 for details) in the preparation of this report. Departures from the guidelines are discussed in the preceding sections.

The primary areas of non-compliance identified relate to some deficiencies in QA/QC processes (as described in Section 5.4) and issues relating to waste classification, tracking and disposal (which have been raised separately with NSW EPA) as discussed in Section 8.

The Auditor concludes that the departures noted above (and others discussed throughout the report) are not significant enough to compromise the conclusions made for the purposes of this audit with regards to the suitability of the Site for the proposed use.

10. AUDIT CONCLUSIONS

The purpose of this Statutory Site Audit was to independently and objectively, examine and review the accuracy and completeness of the investigations and assessments carried out by the Environmental Consultant and provide an independent opinion on whether the Site is Suitable for railway / public transport infrastructure use, consistent with the approved design and operational management controls.

10.1 ASSESSING URBAN REDEVELOPMENT SITES

When auditing an urban site proposed for redevelopment, NSW Site Auditors are required to follow the decision making process detailed in the flow chart provided in EPA (2017) Appendix A. This section details the Auditor's check against the specified decision-making criteria.

The land use proposed includes commercial and industrial use.

TABLE 10-1 DECISION-MAKING PROCESS CHECKLIST

Checklist criterion	Auditor's Assessment
All site assessment, remediation and validation reports reviewed follow applicable guidelines	Yes, the site assessment, remediation and validation works were generally conducted in compliance with the applicable guidelines, where deficiencies or non-conformances were identified these were addressed via either the subsequent remediation works and / or provision of additional lines of evidence.
Any aesthetic issues related to site soils have been adequately addressed	Yes, there is potential for some minor aesthetic issues to be associated with fill materials remaining in-situ behind structures, particularly surrounding the Suburban Platform escalators, however given these materials are located behind significant concrete infrastructure, and identified in the Sydney Trains WebGIS, this is considered to have been adequately addressed.
Soils have been assessed against relevant health-based investigation levels	Yes, commercial / industrial HILs and HSLs applied along with a site specific QRA.
Potential for migration of contamination from soils to groundwater has been considered.	Yes, vast majority of impacted soil removed during excavation and construction. Residual contamination associated with the former gasworks was assessed in a site specific QRA. Pre and post remediation groundwater monitoring showed no significant changes in conditions.
Groundwater has been assessed against relevant health-based investigation levels.	Yes, recreational and occupational exposure considered and site specific QRA undertaken.
Any potential impacts to buildings and structures from the presence of contaminants have been considered.	Yes, structural changes were made to the design of the Metro Box walls and drainage infrastructure to address potential residual contamination. Substitution of the specified cupro-nickel pipe was assessed and documented in the Final VPR and as part of the Durability Assessment Design Report.

Checklist criterion	Auditor's Assessment
Hazardous ground gases (where relevant) have been assessed against relevant health-based investigation levels and screening values	Issues associated with potential hazardous ground gases (including hydrocarbon vapours, other VOCS and methane were identified and assessed in detail for the Metro Box as described in Section 7. No other potential sources of hazardous ground gas were identified in the investigations and the soil and groundwater results outside of this area do not indicate potential for generation of hazardous ground gases.
Any issues relating to local area background soil concentrations that exceed relevant investigation levels have been adequately addressed in the site assessment report(s)	No issues related to background soil concentrations were identified.
The impacts of chemical mixtures have been assessed	Yes, the primary area of residual contamination was the former gasholder adjoining the Metro Box, impacts of chemical mixtures were assessed within the QRA.
Any potential ecological risks have been assessed	Yes, given the commercial / industrial site usage and coverage of the site in concrete the only potential ecological risks identified related to discharge of impacted water, potential ecological risks associated with this discharge were managed during construction (and will be managed during operations) under an EPL.
Any evidence of, or potential for, migration of contaminants from the site has been appropriately addressed, including potential risks to off-site receptors, and reported to the site owner or occupier	No identified evidence of potential for significant migration contaminants to off-site receptors.
The site management strategy (where relevant) is appropriate, including post-remediation environmental plans	Offsite impacts adjacent to the Metro Box are managed via a LTEMP (not subject of this audit). There is some potential for minor residual impacts to exist surrounding the escalators on the suburban platforms however the majority of this would fall outside the audit area. As a precautionary measure this has been added to the Sydney Trains WebGIS which forms part of the EMS. The Auditor is satisfied that this provides an appropriate mechanism for notification of potential intrusive workers of the potential for impacted fill to exist and is commensurate with the level of risk posed.
If the current or proposed land use is residential with a substantial vegetable garden (>10% of vegetables from home-grown source) and/or includes poultry raising, or is any other more sensitive use than covered by NEPM HIL assumptions:	
The consultant has undertaken a detailed site specific human health risk assessment that satisfies all the requirements of NEPM Schedule B4	Not Applicable

10.2 AUDITOR'S ASSESSMENT OF RISK

Based on the reasoning presented within Table 10-1 above, the Auditor considers the risk of significant human health, ecological or aesthetic impacts associated with residual contamination within the Site to be low and acceptable under a commercial / industrial land use exposure scenario consistent with railway / public transport infrastructure use, and the approved design and operational management controls.

10.3 AUDIT CONCLUSIONS

Overall, the assessment works undertaken by the Consultant were considered appropriate to validate the remediation of both the Metro Box and CWEE as described below:

10.3.1 METRO BOX

The Auditor considers that the Metro Box VPRs have provided sufficient information to validate the elements of the Metro Box remediation as follows:

- Validation of the complete removal of fill has been achieved;
- The walls of the excavation have been sufficiently characterised and demonstrated to pose no unacceptable risk to future users of the Metro Box, with the exception of the area in the southern part of the excavation that is subject to the Gasworks RAP (AGJV, 2020b);
- The area of the gasworks has been acceptably characterised, and contaminated materials inside the Metro Box removed;
- The QRA undertaken has shown that risks to health of future users will be acceptable, provided that the measures described by the QRA to mitigate risk are implemented; and
- The Auditor has also confirmed that the vapour mitigation measures have been implemented as described in the QRA, with any minor deviations suitably reassessed and confirmed as not altering the outcome of the QRA.

10.3.2 CWEE

The Auditor considers that the CWEE VPRs have provided sufficient information to validate the elements of the CWEE remediation as follows:

- Validation of the removal of fill has been achieved from the CWEE footprint during construction activities;
- The walls of the excavation have been sufficiently characterised and demonstrated to pose no unacceptable risk to future users of the CWEE under the current commercial / industrial land use scenario; and
- LOR has confirmed that areas of potential minor residual contamination, including those surrounding the escalators have been added to the Sydney Trains WebGIS which forms part of the Sydney Trains EMS and this will remain in place to notify the workforce of these issues should intrusive / construction activities occur at the Site in the future which would expose these materials.

10.4 OVERALL CONCLUSION

In accordance with the Conditions of Approval (Condition E67 and Condition E69 and E70), the Site Auditor considers that the contamination at the Site has been appropriately managed during construction and as such is unlikely to present an unacceptable risk to future users of the Site. The Site is considered suitable for railway / public transport infrastructure use, consistent with the approved design and operational management controls.

11. OTHER RELEVANT INFORMATION

The findings of this report are based on the scope of work outlined in the following sections of this report. ERM performed the services in a manner consistent with the normal level of care and expertise exercised by members of the environmental profession. No warranties, express or implied, are made.

Subject to the scope of work, ERM's assessment is limited strictly to identifying typical environmental conditions associated with the subject property and does not evaluate structural conditions of any buildings on the subject property, nor any other issues.

Although normal standards of professional practice have been applied, the absence of any identified hazardous or toxic materials on the subject property should not be interpreted as a guarantee that such materials do not exist on the site.

This assessment is based on site inspection conducted by ERM personnel, sampling and analyses described in the report, and information provided by the property owner or other people with knowledge of site conditions. All conclusions and recommendations made in the report are the professional opinions of the ERM personnel involved with the project and, while normal checking of the accuracy of data has been conducted, ERM assumes no responsibility or liability for errors in data obtained from regulatory agencies or any other external sources, nor from occurrences outside the scope of this project.

ERM is not engaged in environmental consulting and reporting for the purpose of advertising sales promoting, or endorsement of any client interests, including raising investment capital, recommending investment decisions, or other publicity purposes. The client acknowledges that this report is for the exclusive use of the client, its representatives and advisers. The client agrees that ERM's report or correspondences will not be, except as set forth herein, used or reproduced in full or in parts for such promotional purposes, and may not be used or relied upon in any prospectus or offering circular.

12. REFERENCES

12.1 APPLICABLE REGULATORY GUIDELINES

Guidelines made by NSW EPA under Section 105 of the CLM Act 1997 at the time of preparing this report were:

DEC (2007) Guidelines for the Assessment and Management of Groundwater Contamination, NSW Environment Protection Authority, Sydney

EPA (2020) *Assessment and management of hazardous ground gases Contaminated Land Guidelines,* NSW Environment Protection Authority, Sydney

EPA (2022) *Sampling Design Part 1 – application – Contaminated Land Guidelines*, NSW Environment Protection Authority, Sydney*

EPA (2022) *Sampling Design Part 2 – interpretation – Contaminated Land Guidelines*, NSW Environment Protection Authority, Sydney*

EPA (2015) *Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997,* NSW Environment Protection Authority, Sydney

EPA (2017) *Guidelines for the NSW Site Auditor Scheme* (3rd Edition), Environment Protection Authority, Sydney

NSW EPA (2020) *Contaminated Land Guidelines: Consultants Reporting on Contaminated Land,* Environment Protection Authority, Sydney*

Guidelines approved by NSW EPA under Section 105 of the CLM Act 1997 at the time of preparing this report were:

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

Enhealth (2012) Environmental Health Risk Assessment: Guidelines for assessing human health risks from environmental hazards, Department of Health and Ageing and EnHealth Council, Commonwealth of Australia (2012)

National Environment Protection Council (NEPC) (April 2013) National Environment Protection (Assessment of Site Contamination) Measure 1999, NEPC, Canberra

National Health and Medical research Council and Natural Resource Management Ministerial Council of Australia and New Zealand (NHMRC and NRMMC) (2011) Australian Drinking Water Guidelines Version 3.5 Updated August 2018 Paper 6 National Water Quality Management Strategy. NHMRC and NRMMC, Commonwealth of Australia, Canberra.

NHMRC, NRMMC (2011) Australian Drinking Water Guidelines Version 3.5 Updated August 2018 Paper 6 National Water Quality Management Strategy. National Health and Medical Research Council, National Resource Management Ministerial Council, Commonwealth of Australia, Canberra.

*Guidelines updated during the course of the project, works undertaken prior to these updates were assessed in line with the relevant equivalent guidance at the time.

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. PML009R

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: Environmental Resources Management Australia Pty Ltd (ERM)

Address: Level 4, 35 Terminal Ave. Plaza Offices East, Canberra Airport ACT

Postcode: 2609

Phone: [redacted]

Email: [redacted]

Site details

Address: Central Station, Haymarket, NSW (refer to Attachment 1)

Postcode 2000

Property description

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

Part of Lot 201 of DP1280430 (Central Station) and Lot 2 of DP1079279 (20-28 Chalmers Street). A portion of Central Walk is located subterranean between the above two Lots beneath Chalmers Street.

Local government area: City of Sydney

Area of site (include units, e.g. hectares): 11,750 m^2

Current zoning: Lot 201 of DP1280430 is zoned SP2 – Infrastructure: Railway

Lot 2 of DP1079279: MU1 - Mixed Use

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: Mr [redacted]

Company: Laing O'Rourke Australia Construction Pty Ltd

Address: Level 21, 100 Mount Street North Sydney NSW 2060

Postcode: 2060

Phone: [redacted]

Email: [redacted]

Contact details for contact person (if different from above)

Name: N/A

Phone: N/A

Email: N/A

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)

Conditions of Approval for the Critical State Significant Infrastructure Sydney Metro City & Southwest Chatswood to Sydenham SSI 15_7400 (dated 9 January 2017)

☐ ~~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 and associated public transport infrastructure.

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:

ADE Consulting (ADE), Aurecon Australia / GHD Joint Venture (AGJV)

Titles of reports reviewed:

- ADE (2019a) Gasworks Investigation Report, Sydney Yard, Central Railway Station, Chippendale, NSW, dated 22 May 2019;
- ADE (2019b) Additional Gasworks Investigation Report Central Station Main Works, dated 26 September 2019;

- ADE (2020a) Central Walk Validation Sampling – Platform 16/17, Southern End ref LOR-09-14544 VAL1.v2f dated 8 July 2020;
- ADE (2020b) Waste Analysis & Classification Report Eastern Entrance - Central Station Metro Works 20-28 Chalmers Street, Surry Hills NSW, ref LOR-09-16615 /WAC1/ v4f, dated 24 July 2020;
- ADE (2020c) Phase I Preliminary Site Investigation 20-28 Chalmers Street, Surry Hills NSW, ref LOR-09-16615 / PSI/v1f, dated 24 July 2020;
- AGJV (2019a) Sampling and analysis plan for investigation of unexpected find-uncovered former gasworks brick tank, memo to [redacted] Laing O'Rourke dated 13 March 2019;
- AGJV (2019b) Central Station Main Works Remedial Action Plan for Construction of Metro Station Box – Design Report, ref SMCSWCSM-DJV-EW-00-REP-GE-000205 Rev D Final 11 April 2019;
- AGJV (2019c) Central Station Main Works; Contamination Assessment – Design Report, document number SMCSWCSM-DJV-EW-00-REP-GE-000204. 5 June 2019;
- AGJV (2020a) Hydrogeological assessment of groundwater seepage from the former gasholder intersecting the central station Metro Box, ref SMCSWCSM-DJV-EW-00-REP-GE-000232, dated 6 March 2020;
- AGJV (2020b) Central Station Main Works, Remedial Action Plan for Uncovered Gasworks Waste – Design, ref SMCSWCSM-DJV-EW-00-REP-GE-000224, Rev 1 dated 1 July 2020;
- AGJV (2020c) Change to validation work plan – Remedial Action Plan for Construction of Metro Station Box, Design Report – Memorandum, document number SMCSWCSM-DJV-NC-20-MEM-EN-000002 memo to [redacted] from [redacted], dated 24 July 2020;
- AGJV (2020e Remedial Action Plan for Construction of the Central Walk - Design Report, ref SMCSWCSM-DJV-EW-00-REP-GE-000206, Rev 1 Final dated 24/08/2020;
- AGJV (2020f) Central Station Main Works, Metro Station Box - Validation Progress Report; June 2020, Revision 1, Ref: SMCSWCSM-DJV-NC-20-REP-EN-000003, dated 17-December-2020;
- AGJV (2021a), Quantitative Risk Assessment for Gasworks - Design Report, ref SMCSWCSM-DJV-EW-00-MEM-GE-000045, Rev 4 Final dated 7 July 2021;
- AGJV (2022a) Central Station Main Works, Central Walk and Eastern Entrance - Validation Progress Report; to September 2020, Revision 1, Ref: SMCSWCSM-DJV-EW-00-REP-GE-000523, Dated 25-July-2022;
- AGJV (2023a), Central Station Main Works; Metro Station Box – Validation Progress Report; December 2020. Document number: SMCSWCSM-DJV-NC-20-REP-EN-000014. Revision 1. Dated 9 March 2023;

- AGJV (2023b), Central Station Main Works, Metro Station Box - Validation Progress Report, ref: SMCSWCSM-DJV-NC-20-REP-EN-000016, Rev 3, dated 27 July 2023;
- AGJV (2023c) Central Station Main Works – Final Groundwater Monitoring Report (October 2022 to May 2023); Document number: SMCSWCSM-DJV-EW-00-REP-GE-000239, dated 07 August 2023;
- AGJV (2023d) Central Station Main Works Long term environmental management plan – remaining gasworks chamber, dated 8 August 2023;
- AGJV (2023e) Central Station Main Works, Metro Station Box – Final Validation Progress Report, ref: SMCSWCSM-DJV-NC-20-REP-EN-000017, Revision 1, dated 31 August 2023;
- AGJV (2023f) Central Station Main Works, Central Walk and Eastern Entrance - Final Validation Report; 1 October 2020 to 15 September 2022, Revision 3, Ref: SMCSWCSM-DJV-NC-20-REP-EN-000015, Dated 22 September 2023; and
- AGJV (2023g) Central Walk and Eastern Entrance (CWEE) – Addendum for Northern Platforms 16/17 and 18/19 Central Station Main Works, ref: SMCSWCSM-DJV-NC-20-REP-EN-000018

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

Refer to Attachment 2.

Site audit report details

Title: ERM (24 April 2024) Site Audit Report - Sydney Metro Central Station Main Works

Report no. 0490589SAR Date 24 April 2024

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 station and associated public transport infrastructure consistent with the approved design.

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 is considered suitable for railway / public transport infrastructure use, consistent with the approved design and operational management controls.

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. 1201

I certify that:

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

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

Signed: 

Date: 3 May 2024

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.

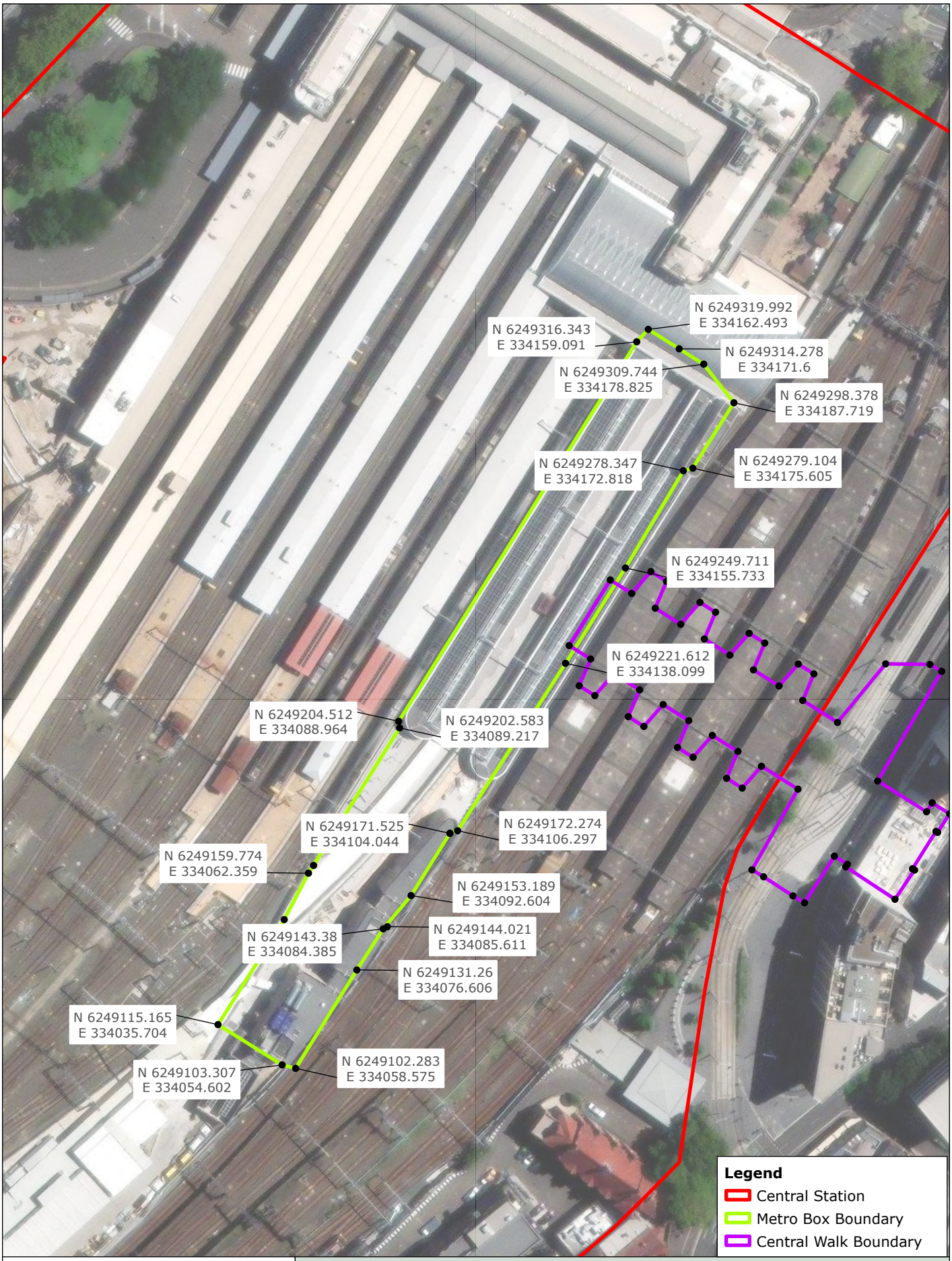
Where to send completed forms

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.

ATTACHMENT 1: SITE PLANS SHOWING AUDIT BOUNDARIES AND COORDINATES



Coordinate System:
GDA 1994 MGA Zone 56

Date: 11/04/2024

Created By: HD

Drawing Size: A4

0 25 50m

1:1,500

F1 - Metro Box Audit Boundary

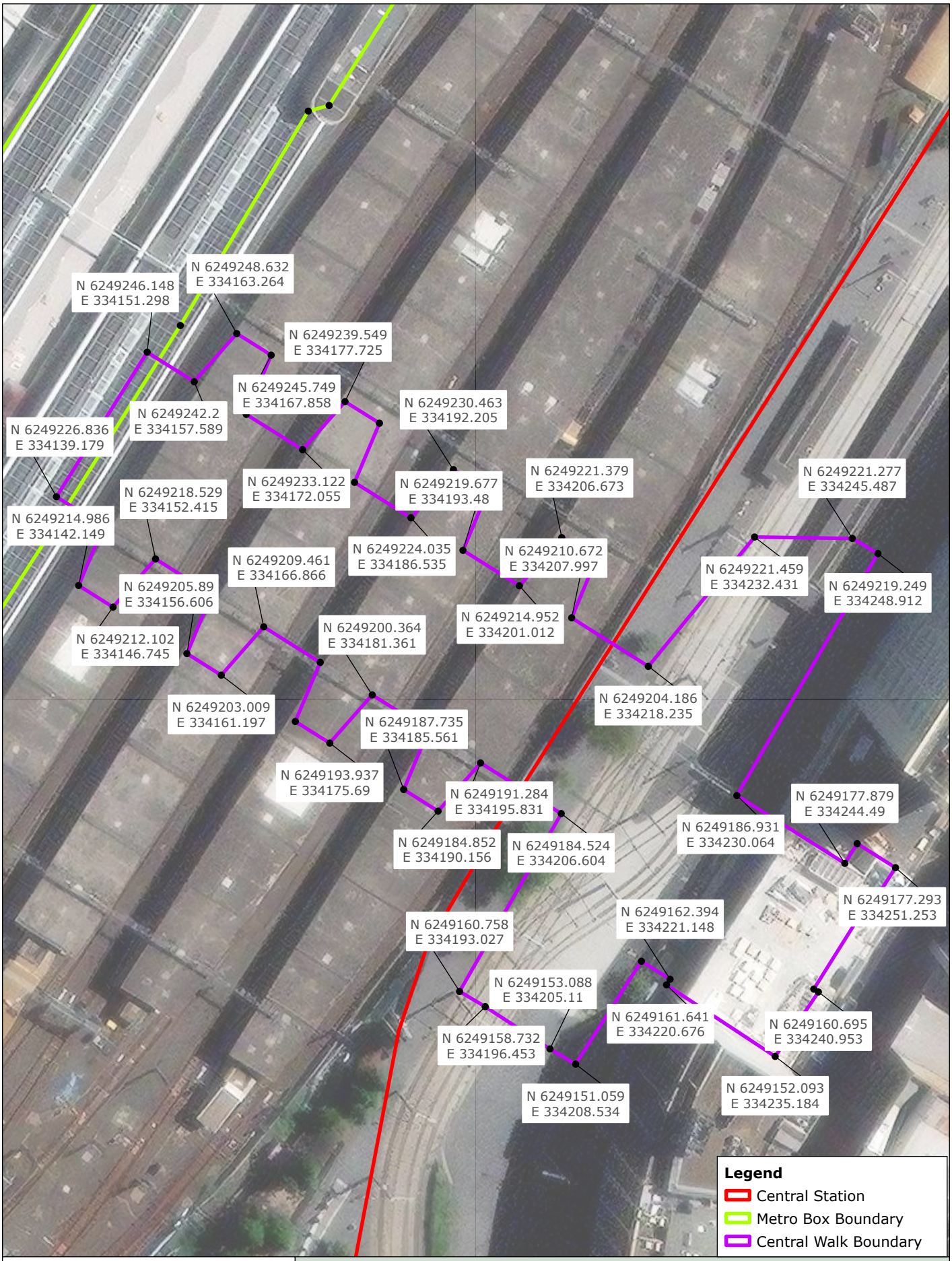
Sydney Metro Central Station

Laing O'Rourke

ERM

0490589_Figures.aprx

Source: AGJV (2024)



Coordinate System:
GDA 1994 MGA Zone 56

Date: 11/04/2024

Created By: HD

Drawing Size: A4

0 10 20m

1:680

F2 - Central Walk and Eastern Entrance Audit Boundary

Sydney Metro Central Station

Laing O'Rourke

ERM

0490589_Figures.aprx

Source: AGJV (2024)

ATTACHMENT 2: INFORMATION DOCUMENTS

The following documents were provided to the Auditor for information purposes only:

- GHD (2017) Sydney Metro City and Southwest, Central Station Contamination Assessment, ref: 21/25491, FINAL, 15 Dec 2017;
- AGJV 2019b, Groundwater Baseline Monitoring (Sept 2018 to Feb 2019) Letter (SMCSWCSM-DJVEW00-COR-GE-000001), dated 6 June 2019;
- AGJV (2018) Central Station Main Works Contamination Management Plan for Sydney Yard Project Access Area - Design Report, Revision A, Ref: SMCSWCSM-DJV-EW-00-REP-GE-000209, dated 21-December-2018;
- AGJV (2019) Central Station Main Works Metro Box Gasworks Impact Conceptual Model and Data Gaps Assessment, Revision A, Ref: SMCSWCSM-DJV-EW-00-PLN-GE-000002, dated 04-October-2019;
- AGJV (2020) Central Station Main Works, Hydrogeological Assessment of Groundwater Seepage from the Former Gasholder Intersecting the Central Station Metrobox, Revision B, Ref: SMCSWCSM-DJV-EW-00-REP-GE-000232 , dated 06-March-2020;
- AGJV (2020) Central Station Main Works, Ongoing Groundwater Monitoring (April to September 2019) Report, Revision B, Ref: SMCSWCSM-DJV-EW-00-PLN-GE-000003 , dated 07-January-2020;
- MEtech (2019) RE: The Port Kembla Steelworks Excavated Material Exemption 2018 - Material Assessment: Central Railway Station, Metro Box, Chippendale NSW, Ref: ep87_mv16, dated 29-May-2019;
- MEtech (2019) RE: The Port Kembla Steelworks Excavated Material Exemption 2018 - Material Validation: Consignment NO. PK-MC-0008t, Ref: ep87_mv08, dated 26-March-2019;
- MEtech (2019) RE: The Port Kembla Steelworks Excavated Material Exemption 2018 - Material Validation: Consignment NO. PK-MC-0011, Ref: ep87_mv11, dated 11-April-2019;
- MEtech (2019) RE: The Port Kembla Steelworks Excavated Material Exemption 2018 - Material Validation: Consignment NO. PK-MC-0012, Ref: ep87_mv12, dated 11-April-2019;
- MEtech (2019) RE: The Port Kembla Steelworks Excavated Material Order 2018 - Material Assessment, Ref: ep87_mc21, dated 30-May-2019;
- AGJV (2019) Sydney Metro - Central Station Main Works Groundwater Baseline Monitoring (September 2018 to Feburary 2019) Report, Ref: SMCSWCSM-DJV-EW-00-COR-GE-000001, dated 06-June-2019;
- Laing O'Rourke (2018) Sydney Metro City and Southwest - Central Station Main Works Construction Groundwater Management Plan (CGWMP), Revision 6, Ref: SMCSWCSM-LOR-SMC-EM-PLN-103060, dated 20-November-2018;
- Laing O'Rourke (2018) Sydney Metro City and Southwest Central Station Main Works Construction Soil and Water Management Plan, Ref: SMCSWCSM-LORSMC-EM-PLN-103000, dated 18-July-2018;

- Laing O'Rourke (2018) Central Station Main Works Project Waste Management and Recycling Plan, Ref: SMCSWSMC-LOR-SMC-SU-PLN-000003;
- Artefact (2019) Sydney Metro: Central Station - Central Walk, Archaeological Method Statement, dated 06-September-2019; and
- Artefact (2018) Sydney Metro: Central Station Main Works - Station Box and Sydney Yard Archaeological Method Statement, dated 16-August-2018

The following Waste Analysis and Classification (WAC) Reports were prepared by ADE:

Report Reference	Date Issued
ADE (2018) Waste Analysis and Classification Report, Central Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC1/ v1f	10-August-2018
ADE (2018) Waste Analysis and Classification Report, Central Railway Station, Chippendale NSW, Ref: LOR-09-14544 / WAC2 / v1f	24-August-2018
ADE (2018) Waste Analysis and Classification Report, Central Railway Station, Chippendale NSW, Ref: LOR-09-14544 / WAC6 / v1f	03-September-2018
ADE (2018) Waste Analysis and Classification Report, Central Railway Station, Chippendale NSW, Ref: LOR-09-14544 / WAC7 / v1f	03-September-2018
ADE (2018) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC3/ v1f	11-September-2018
ADE (2018) Waste Analysis and Classification Report, Central Railway Station, Chippendale NSW, Ref: LOR-09-14544 / WAC8/ v1f	04-October-2018
ADE (2018) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC10/ v1f	11-October-2018
ADE (2018) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC9/ v1f	11-October-2018
ADE (2018) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC11/ v1f	16-October-2018
ADE (2018) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC12/ v1f	16-October-2018
ADE (2018) Preliminary Waste Analysis & Classification Report, Central Railway Station, Chippendale NSW, Ref: LOR-09-14544 / PWAC1 / v1f	19-October-2018
ADE (2018) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC16/ v1f	20-October-2018
ADE (2018) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC13/ v1f	23-October-2018
ADE (2018) Waste Analysis and Classification Report, Central Railway Station, Chippendale NSW, Ref: LOR-09-14544 / WAC4 / v2f	25-October-2018
ADE (2018) Preliminary Waste Analysis & Classification Report, Railway Institute Driveway, Chippendale NSW, Ref: LOR-09-14544 / PWAC2 / v1f	27-October-2018
ADE (2018) Waste Analysis and Classification Report, Central Railway Station, Platform 20 / 21, Chippendale NSW, Ref: LOR-09-14544 / WAC14 / v1f	30-October-2018
ADE (2018) Waste Analysis and Classification Report, Central Railway Station, Platform 22 / 23, Chippendale NSW, Ref: LOR-09-14544 / WAC15 / v1f	30-October-2018

Report Reference	Date Issued
ADE (2018) Waste Analysis and Classification Report, Central Railway Station, Platform 20 / 21, Chippendale NSW, Ref: LOR-09-14544 / WAC19 / v1f	07-November-2018
ADE (2018) Waste Analysis and Classification Report, Central Railway Station, Platform 14-15, Chippendale NSW, Ref: LOR-09-14544 / WAC17/ v1f	09-November-2018
ADE (2018) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC20/ v1f	09-November-2018
ADE (2018) Waste Analysis and Classification Report, Central Railway Station, Chippendale NSW, Ref: LOR-09-14544 / WAC26 / v1f	12-November-2018
ADE (2018) Waste Analysis and Classification Report, Central Railway Station, Platform 14-15, Chippendale NSW, Ref: LOR-09-14544 / WAC18 / v1f	12-November-2018
ADE (2018) Waste Analysis and Classification Report, Central Railway Station, Platform 20 - 21, Chippendale NSW, Ref: LOR-09-14544 / WAC21 / v1f	16-November-2018
ADE (2018) Waste Analysis and Classification Report, Central Railway Station, Platform 22 - 23, Chippendale NSW, Ref: LOR-09-14544 / WAC23 / v1f	16-November-2018
ADE (2018) Waste Analysis and Classification Report, Central Railway Station, Platform 22 - 23, Chippendale NSW, Ref: LOR-09-14544 / WAC22 / v1f	19-November-2018
ADE (2018) Preliminary Waste Analysis & Classification Report, Platform 16, Central Railway Station, Chippendale NSW, Ref: LOR-09-14544 / PWAC3 / v1f	23-November-2018
ADE (2018) Preliminary Waste Analysis & Classification Report, Platform 17, Central Railway Station, Chippendale NSW, Ref: LOR-09-14544 / PWAC4 / v1f	23-November-2018
ADE (2018) Waste Analysis and Classification Report, Central Railway Station, Platform 12-13, Chippendale NSW, Ref: LOR-09-14544 / WAC24 / v1f	23-November-2018
ADE (2018) Waste Analysis and Classification Report, Sydney Yard, Central Station, Chippendale NSW, Ref: LOR-09-14544 / WAC5/ v1f	24-November-2018
ADE (2018) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC25/ v1f	28-November-2018
ADE (2018) Preliminary Waste Analysis & Classification Report, Platform 16, Central Railway Station, Chippendale NSW, Ref: LOR-09-14544 / PWAC6 / v1f	30-November-2018
ADE (2018) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC27/ v1f	13-December-2018
ADE (2018) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC27/ v1f	13-December-2018
ADE (2018) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC28/ v1f	17-December-2018
ADE (2018) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC28/ v1f	17-December-2018
ADE (2018) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC29/ v1f	20-December-2018
ADE (2018) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC30/ v1f	21-December-2018
ADE (2019) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC31/ v1f	09-January-2019

Report Reference	Date Issued
ADE (2019) Waste Analysis and Classification Report, Central Railway Station, Metro Box, Chippendale NSW, Ref: LOR-09-14544 / Grid 1 WAC a / v1f	15-January-2019
ADE (2019) Waste Analysis and Classification Report, Central Railway Station, Metro Box, Chippendale NSW, Ref: LOR-09-14544 / Grid 10 WAC b / v1f	15-January-2019
ADE (2019) Waste Analysis and Classification Report, Central Railway Station, Metro Box, Chippendale NSW, Ref: LOR-09-14544 / Grid 2 WAC b / v1f	15-January-2019
ADE (2019) Waste Analysis and Classification Report, Central Railway Station, Metro Box, Chippendale NSW, Ref: LOR-09-14544 / Grid 3 WAC a / v1f	15-January-2019
ADE (2019) Waste Analysis and Classification Report, Central Railway Station, Metro Box, Chippendale NSW, Ref: LOR-09-14544 / Grid 3 WAC b / v1f	15-January-2019
ADE (2019) Waste Analysis and Classification Report, Central Railway Station, Metro Box, Chippendale NSW, Ref: LOR-09-14544 / Grid 3 WAC b / v1f	15-January-2019
ADE (2019) Waste Analysis and Classification Report, Central Railway Station, Metro Box, Chippendale NSW, Ref: LOR-09-14544 / Grid 4 WAC a / v1f	15-January-2019
ADE (2019) Waste Analysis and Classification Report, Central Railway Station, Metro Box, Chippendale NSW, Ref: LOR-09-14544 / Grid 4 WAC b / v1f	15-January-2019
ADE (2019) Waste Analysis and Classification Report, Central Railway Station, Metro Box, Chippendale NSW, Ref: LOR-09-14544 / Grid 5 WAC a / v1f	15-January-2019
ADE (2019) Waste Analysis and Classification Report, Central Railway Station, Metro Box, Chippendale NSW, Ref: LOR-09-14544 / Grid 5 WAC b / v1f	15-January-2019
ADE (2019) Waste Analysis and Classification Report, Central Railway Station, Metro Box, Chippendale NSW, Ref: LOR-09-14544 / Grid 8 WAC a / v1f	15-January-2019
ADE (2019) Waste Analysis and Classification Report, Central Railway Station, Metro Box, Chippendale NSW, Ref: LOR-09-14544 / Grid 8 WAC b / v1f	15-January-2019
ADE (2019) Waste Analysis and Classification Report, Central Railway Station, Metro Box, Chippendale NSW, Ref: LOR-09-14544 / Grid 9 WAC a / v1f	15-January-2019
ADE (2019) Waste Analysis and Classification Report, Central Railway Station, Metro Box, Chippendale NSW, Ref: LOR-09-14544 / Grid 9 WAC b / v1f	15-January-2019
ADE (2019) Waste Analysis and Classification Report, Central Railway Station, Metro Box, Chippendale NSW, Ref: LOR-09-14544 / Grid 6 WAC a / v1f	16-January-2019
ADE (2019) Waste Analysis and Classification Report, Central Railway Station, Metro Box, Chippendale NSW, Ref: LOR-09-14544 / Grid 6 WAC b / v1f	16-January-2019
ADE (2019) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC33/ v1f	16-January-2019
ADE (2019) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC34/ v1f	18-January-2019
ADE (2019) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC34/ v1f	18-January-2019
ADE (2019) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC35/ v1f	24-January-2019
ADE (2019) Waste Analysis and Classification Report, Central Railway Station, Metro Box, Chippendale NSW, Ref: LOR-09-14544 / Grid 10 WAC b / v1f	30-January-2019

Report Reference	Date Issued
ADE (2019) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC36/ v1f	01-February-2019
ADE (2019) Waste Analysis and Classification Report, Central Railway Station, Metro Box, Chippendale NSW, Ref: LOR-09-14544 / Grid 11 WAC a / v1f	08-February-2019
ADE (2019) Waste Analysis and Classification Report, Central Railway Station, Metro Box, Chippendale NSW, Ref: LOR-09-14544 / Grid 11 WAC b / v1f	08-February-2019
ADE (2019) Waste Analysis and Classification Report, Central Railway Station, Metro Box, Chippendale NSW, Ref: LOR-09-14544 / Grid 12 WAC a / v1f	08-February-2019
ADE (2019) Waste Analysis and Classification Report, Central Railway Station, Metro Box, Chippendale NSW, Ref: LOR-09-14544 / Grid 12 WAC b / v1f	08-February-2019
ADE (2019) Waste Analysis and Classification Report, Central Railway Station, Metro Box, Chippendale NSW, Ref: LOR-09-14544 / Grid 7 WAC a / v1f	08-February-2019
ADE (2019) Waste Analysis and Classification Report, Central Railway Station, Metro Box, Chippendale NSW, Ref: LOR-09-14544 / Grid 7 WAC b / v1f	08-February-2019
ADE (2019) Waste Analysis and Classification Report, Central Railway Station, Metro Box, Chippendale NSW, Ref: LOR-09-14544 / Grid 13 WAC a / v1f	12-February-2019
ADE (2019) Waste Analysis and Classification Report, Central Railway Station, Metro Box, Chippendale NSW, Ref: LOR-09-14544 / Grid 13 WAC b / v1f	12-February-2019
ADE (2019) Waste Analysis and Classification Report, Central Railway Station, Metro Box, Chippendale NSW, Ref: LOR-09-14544 / Grid 14 WAC a / v1f	12-February-2019
ADE (2019) Waste Analysis and Classification Report, Central Railway Station, Metro Box, Chippendale NSW, Ref: LOR-09-14544 / Grid 14 WAC b / v1f	12-February-2019
ADE (2019) Waste Analysis and Classification Report, Central Railway Station, Metro Box, Chippendale NSW, Ref: LOR-09-14544 / Grid 15 WAC a / v1f	12-February-2019
ADE (2019) Waste Analysis and Classification Report, Central Railway Station, Metro Box, Chippendale NSW, Ref: LOR-09-14544 / Grid 15 WAC b / v1f	12-February-2019
ADE (2019) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC38/ v1f	13-February-2019
ADE (2019) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC39/ v1f	15-February-2019
ADE (2019) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC40/ v1f	18-February-2019
ADE (2019) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC41/ v1f	21-February-2019
ADE (2019) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC42/ v1f	26-February-2019
ADE (2019) Preliminary Waste Analysis & Classification Report - Sydney Yard, Central Railway Station, Chippendale NSW, Ref: LOR-09-14554 / PWAC8 / v1f	14-March-2019
ADE (2019) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC44/ v1f	14-March-2019
ADE (2019) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC45/ v1f	14-March-2019

Report Reference	Date Issued
ADE (2019) Waste Analysis & Classification Report - Sydney Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC43/ v2f	20-March-2019
ADE (2019) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC43/ v2f	20-March-2019
ADE (2019) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC46/ v1f	03-April-2019
ADE (2019) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC45/ v1f	10-April-2019
ADE (2019) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC48/ v1f	12-April-2019
ADE (2019) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC49/ v1f	17-April-2019
ADE (2019) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC50/ v1f	01-May-2019
ADE (2019) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC51/ v1f	15-May-2019
ADE (2019) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC52/ v1f	22-May-2019
ADE (2019) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC52/ v1f	22-May-2019
ADE (2019) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC53/ v1f	30-May-2019
ADE (2019) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC54/ v1f	04-June-2019
ADE (2019) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC55/ v1f	11-July-2019
ADE (2019) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC56/ v1f	12-July-2019
ADE (2019) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC57/ v1f	15-July-2019
ADE (2019) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC58/ v1f	26-July-2019
ADE (2019) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC59/ v1f	09-August-2019
ADE (2019) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC60/ v1f	09-August-2019
ADE (2019) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC61/ v1f	13-August-2019
ADE (2019) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC62/ v1f	15-August-2019
ADE (2019) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC63/ v1f	21-August-2019

Report Reference	Date Issued
ADE (2019) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC64/ v1f	26-August-2019
ADE (2019) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC67/ v1f	02-September-2019
ADE (2019) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC68/ v1f	10-September-2019
ADE (2019) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC69/ v1f	11-September-2019
ADE (2019) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC70/ v1f	19-September-2019
ADE (2019) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC71/ v1f	24-September-2019
ADE (2019) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC72/ v1f	01-October-2019
ADE (2019) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC74/ v1f	01-October-2019
ADE (2019) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC73/ v1f	02-October-2019
ADE (2019) Waste Analysis and Classification Report, Eastern Entrance - Central Station Metro Works, 20-28 Chalmers Street, Surry Hills, Ref: LOR-09-16615 / v3f	03-October-2019
ADE (2019) Preliminary Waste Analysis & Classification Report, Northern Concourse, Central Railway Station, Chippendale NSW, Ref: LOR-09-14544 / PWAC9 / v1f	10-October-2019
ADE (2019) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC75/ v1f	10-October-2019
ADE (2019) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC76/ v1f	10-October-2019
ADE (2019) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC77/ v1f	11-October-2019
ADE (2019) Virgin Excavated Natural Material Assessment Report, Central Railway Station, Metro Box, Chippendale NSW, Ref: LOR-09-14544 / VENM2 / v1f	12-October-2019
ADE (2019) Waste Analysis and Classification Report, Central Railway Station, Metro Box, Chippendale NSW, Ref: LOR-09-14544 / Grid 7 WAC a / v2f	16-October-2019
ADE (2019) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC78/ v1f	21-October-2019
ADE (2019) Virgin Excavated Natural Material Assessment Report, Central Railway Station, Metro Box, Chippendale NSW, Ref: LOR-09-14544 / VENM1 / v1f	23-October-2019
ADE (2019) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC79/ v1f	04-November-2019
ADE (2019) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC80/ v2f	06-November-2019

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ADE (2019) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC81/ v1f	06-November-2019
ADE (2019) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC82/ v1f	13-November-2019
ADE (2019) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC83/ v2f	20-November-2019
ADE (2019) Virgin Excavated Natural Material Assessment Report, Central Railway Station, Metro Box, Chippendale NSW, Ref: LOR-09-14544 / VENM3 / v1f	21-November-2019
ADE (2019) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC84/ v1f	21-November-2019
ADE (2019) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC85/ v1f	27-November-2019
ADE (2019) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC86/ v1f	04-December-2019
ADE (2019) Waste Analysis and Classification Report, Central Railway Station, Northern Concourse, Chippendale NSW, Ref: LOR-09-14544 / WAC87 / v1f	11-December-2019
ADE (2019) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC88/ v1f	12-December-2019
ADE (2019) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC89/ v1f	12-December-2019
ADE (2019) Waste Analysis and Classification Report, Eastern Entrance - Central Station Metro Works, Chippendale NSW, Ref: LOR-09-16615 / WAC2 / v2f	17-December-2019
ADE (2019) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC90/ v1f	18-December-2019
ADE (2019) Waste Analysis and Classification Report, Sydney Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC91/ v1f	19-December-2019
ADE (2020) Waste Analysis and Classification Report, 2/101 Chalmers Street, Chippendale, Ref: LOR-09-14544 / WAC94/ v4f	07-January-2020
ADE (2020) Waste Analysis and Classification Report, Central Station Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC92 / v1f	07-January-2020
ADE (2020) Waste Analysis and Classification Report, Central Station, Metro Box, Chippendale NSW, Ref: LOR-09-14544 / WAC93 / v1f	07-January-2020
ADE (2020) Waste Analysis and Classification Report, Central Station, Metro Box / Platform 16 & 17, Chippendale NSW, Ref: LOR-09-14544 / WAC95 / v2f	09-January-2020
ADE (2020) Analytical Assessment, Ref: LOR-09-14544 / LTR8 / v2f	12-January-2020
ADE (2020) Waste Analysis and Classification Report, Eastern Entrance - Central Station Metro Works, 20-28 Chalmers Street, Surry Hills, Ref: LOR-09-16615/ WAC1/ v4f	16-January-2020
ADE (2020) Waste Analysis and Classification Report, Central Station Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC96 / v1f	22-January-2020

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ADE (2020) Waste Analysis and Classification Report, Central Station, Metro Box / Platform 18 & 19, Chippendale NSW, Ref: LOR-09-14544 / WAC97 / v1f	31-January-2020
ADE (2020) Waste Analysis and Classification Report, Central Station, Metro Box and Platform 20 / 21, Chippendale NSW, Ref: LOR-09-14544 / WAC98 / v1f	18-February-2020
ADE (2020) Waste Analysis and Classification Report, Central Station, Metro Box and Platform 20 / 21, Chippendale NSW, Ref: LOR-09-14544 / WAC98 / v2f	19-February-2020
ADE (2020) Waste Analysis and Classification Report, Central Railway Station, Metro Box, Mole Hole 5, Chippendale NSW, Ref: LOR-09-14544 / WAC99/ v1f	21-February-2020
ADE (2020) Waste Analysis and Classification Report, Central Station, Metro Box, Mole Hole 5, Chippendale NSW, Ref: LOR-09-14544 / WAC100 / v1f	21-February-2020
ADE (2020) Waste Analysis and Classification Report, Central Station, Metro Box, Mole Hole 2, Chippendale NSW, Ref: LOR-09-14544 / WAC101 / v1f	24-February-2020
ADE (2020) Waste Analysis and Classification Report, Central Station, Platform 20 / 21, Chippendale NSW, Ref: LOR-09-14544 / WAC102 / v1f	24-February-2020
ADE (2020) Waste Analysis and Classification Report, Central Railway Station, Platform 16 & 17, Chippendale NSW, Ref: LOR-09-14544 / WAC103 / v1f	26-February-2020
ADE (2020) Waste Analysis and Classification Report, Central Station, Mole Hole 3 and Metro Box, Chippendale NSW, Ref: LOR-09-14544 / WAC104/ v1f	26-February-2020
ADE (2020) Waste Analysis and Classification Report, Central Station, Morturary Station, Chippendale NSW, Ref: LOR-09-14544 / WAC105/ v1f	27-February-2020
ADE (2020) Waste Analysis and Classification Report, Central Station Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC106 / v1f	28-February-2020
ADE (2020) Waste Analysis and Classification Report, Central Railway Station, Metro Box, Mole Hole 5, Chippendale NSW, Ref: LOR-09-14544 / WAC99/ v3f	04-March-2020
ADE (2020) Waste Analysis and Classification Report, Central Railway Station, Track 16, Chippendale NSW, Ref: LOR-09-14544 / WAC107 / v1f	04-March-2020
ADE (2020) Waste Analysis and Classification Report, Central Railway Station, Track 17 & 18, Chippendale NSW, Ref: LOR-09-14544 / WAC108 / v1f	04-March-2020
ADE (2020) Waste Analysis and Classification Report, Central Railway Station, Track 19 & 20, Chippendale NSW, Ref: LOR-09-14544 / WAC110 / v1f	10-March-2020
ADE (2020) Waste Analysis and Classification Report, Central Station, Platform 22-23 and Adit, Chippendale NSW, Ref: LOR-09-14544 / WAC112 / v1f	10-March-2020
ADE (2020) Waste Analysis and Classification Report, Central Railway Station, Track 21 & 22, Chippendale NSW, Ref: LOR-09-14544 / WAC113 / v1f	11-March-2020
ADE (2020) Waste Analysis and Classification Report, Central Railway Station, Platform 16 & 17, Chippendale NSW, Ref: LOR-09-14544 / WAC111 / v1f	20-March-2020
ADE (2020) Waste Analysis and Classification Report, Central Railway Station, Platform 16 & 17, Chippendale NSW, Ref: LOR-09-14544 / WAC114 / v1f	20-March-2020
ADE (2020) Waste Analysis and Classification Report, Central Railway Station, Track 19 & 20, Chippendale NSW, Ref: LOR-09-14544 / WAC110 / v2f	24-March-2020

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ADE (2020) Waste Analysis and Classification Report, Central Station, Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC116/ v1f	24-March-2020
ADE (2020) Waste Analysis and Classification Report, Central Railway Station, Platform 18 & 19, Chippendale NSW, Ref: LOR-09-14544 / WAC117 / v1f	25-March-2020
ADE (2020) Waste Analysis and Classification Report, Central Station, Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC115/ v1f	25-March-2020
ADE (2020) Waste Analysis and Classification Report, Central Station Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC106 / v2f	27-March-2020
ADE (2020) Waste Analysis and Classification Report, Central Station, Rail Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC118/ v1f	01-April-2020
ADE (2020) Waste Analysis and Classification Report, Central Railway Station, Platform 18 & 19, Chippendale NSW, Ref: LOR-09-14544 / WAC119 / v1f	17-April-2020
ADE (2020) Waste Analysis and Classification Report, Central Railway Station, Platform 20 & 21, Chippendale NSW, Ref: LOR-09-14544 / WAC120 / v1f	17-April-2020
ADE (2020) Waste Analysis and Classification Report, Central Railway Station, Platform 22 & 23, Chippendale NSW, Ref: LOR-09-14544 / WAC121 / v1f	17-April-2020
ADE (2020) Waste Analysis and Classification Report, Central Station, Rail Yard, Chippendale, Ref: LOR-09-14544 / WAC122/ v1f	06-May-2020
ADE (2020) Waste Analysis and Classification Report, Central Station, Rail Yard, Chippendale, Ref: LOR-09-14544 / WAC124/ v1f	14-May-2020
ADE (2020) Waste Analysis and Classification Report, Central Railyway Station, Northern Concourse, Haymarket NSW, Ref: LOR-09-14544 / WAC124/ v1f	09-June-2020
ADE (2020) Waste Analysis and Classification Report, Central Station, Rail Yard, Chippendale, Ref: LOR-09-14544 / WAC127/ v1f	12-June-2020
ADE (2020) Re: Soil Assessment of the in-situ soils located at the Central Walk, Central Railway Station, Sydney New South Wales (NSW), Ref: LOR-09-14544.LTR1.v1f	18-June-2020
ADE (2020) Re: Waste Analysis & Classification of stockpiled soils sourced from the Central Walk, Central Railway Station, Sydney New South Wales (NSW), Ref: LOR-09-14544.LTR2.v1f	19-June-2020
ADE (2020) Waste Analysis and Classification Report, Central Station, Rail Yard, Chippendale, Ref: LOR-09-14544 / WAC126/ v1f	03-July-2020
ADE (2020) Waste Analysis and Classification Report, Morturary Station, Chippendale NSW, Ref: LOR-09-14544 / WAC130/ v1f	03-July-2020
ADE (2020) Waste Analysis and Classification Report, Morturary Station, Chippendale NSW, Ref: LOR-09-14544 / WAC131/ v1f	03-July-2020
ADE (2020) Waste Analysis and Classification Report, Central Railway Station, Chippendale NSW, Ref: LOR-09-14544 / WAC133/ v1f	07-July-2020
ADE (2020) Waste Analysis and Classification Report, Central Railway Station, The Central Walk, Sydney NSW, Ref: LOR-09-14544 / WAC128/ v2f	16-July-2020
ADE (2020) Waste Analysis and Classification Report, Central Railway Station, Chippendale NSW, Ref: LOR-09-14544 / WAC133/ v1f	22-July-2020

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ADE (2020) Waste Analysis and Classification Report, Central Station, Rail Yard, Chippendale, Ref: LOR-09-14544 / WAC135/ v1f	22-July-2020
ADE (2020) Waste Analysis and Classification Report, Eastern Centrance - Central Station Metro Works, 20-28 Chalmers Street, Surry Hills NSW, Ref: LOR-09-16615 /WAC1/ v6f	24-July-2020
ADE (2020) Waste Analysis and Classification Report, Central Station, Rail Yard, Chippendale, Ref: LOR-09-14544 / WAC136/ v1f	29-July-2020
ADE (2020) Waste Analysis and Classification Report, Central Station, Adit, Chippendale NSW, Ref: LOR-09-14544 / WAC138/ v1f	31-July-2020
ADE (2020) Waste Analysis and Classification Report, Central Station, Metro Box, Chippendale NSW, Ref: LOR-09-14544 / WAC139/ v2f	07-August-2020
ADE (2020) Waste Analysis and Classification Report, Central Railway Station, Platform 16 & 17, Chippendale NSW, Ref: LOR-09-14544 / WAC137 / v1f	11-August-2020
ADE (2020) Re: Soil Assessment of the in-situ soils located at the Central Walk, Central Railway Station, Sydney New South Wales (NSW), Ref: LOR-09-14544.LTR3.v1f	12-August-2020
ADE (2020) Waste Analysis and Classification Report, Central Station, Sydney Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC140/ v1f	14-August-2020
ADE (2020) Waste Analysis and Classification Report, Central Railway Station, The Central Walk, Chippendale NSW, Ref: LOR-09-14544 / WAC141/ v1f	18-August-2020
ADE (2020) Waste Analysis and Classification Report, Central Station, Adit, Chippendale NSW, Ref: LOR-09-14544 / WAC142/ v1f	21-August-2020
ADE (2020) Waste Analysis and Classification Report, Central Railway Station, The Central Walk, Chippendale NSW, Ref: LOR-09-14544 / WAC143/ v1f	26-August-2020
ADE (2020) Waste Analysis and Classification Report, Central Railway Station, Platform 22 & 23, Chippendale NSW, Ref: LOR-09-14544 / WAC144 / v1f	28-August-2020
ADE (2020) Waste Analysis and Classification Report, Central Railway Station, Northern Concourse, Chippendale NSW, Ref: LOR-09-14544 / WAC145	04-September-2020
ADE (2020) Waste Analysis and Classification Report, Central Station, Sydney Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC146/ v1f	08-September-2020
ADE (2020) Waste Analysis and Classification Report, Central Railway Station, The Central Walk, Sydney NSW, Ref: LOR-09-14544 / WAC147/ v1f	21-September-2020
ADE (2020) Waste Analysis and Classification Report, Central Railway Station, Platform 22 & 23, Chippendale NSW, Ref: LOR-09-14544 / WAC148 / v1f	23-September-2020
ADE (2020) Waste Analysis and Classification Report, Central Station, Below Platform 18 / 19, Chippendale NSW, Ref: LOR-09-14544 / WAC149 / v1f	09-October-2020
ADE (2020) Waste Analysis and Classification Report, Central Railway Station, Platform 20 / 21, Chippendale NSW, Ref: LOR-09-14544 / WAC151 / v1f	14-October-2020
ADE (2020) Waste Analysis and Classification Report, Central Railway Station, Platform 20 / 21, Chippendale NSW, Ref: LOR-09-14544 / WAC150 / v2f	15-October-2020
ADE (2020) Waste Analysis and Classification Report, Central Station, Sydney Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC151 / v1f	21-October-2020

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ADE (2020) Waste Analysis and Classification Report, Central Station, Sydney Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC154 / v1f	23-October-2020
ADE (2020) Waste Analysis and Classification Report, Central Railway Station, The Central Walk, Chippendale NSW, Ref: LOR-09-14544 / WAC153/ v1f	26-October-2020
ADE (2020) Waste Analysis and Classification Report, Central Station, Metro Box, Chippendale NSW, Ref: LOR-09-14544 / WAC155 / v1f	28-October-2020
ADE (2020) Waste Analysis and Classification Report, Central Station, Sydney Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC157 / v1f	18-November-2020
ADE (2020) Waste Analysis and Classification Report, Central Railway Station, The Central Walk, Chippendale NSW, Ref: LOR-09-14544 / WAC159/ v1f	02-December-2020
ADE (2020) Waste Analysis and Classification Report, Central Station, Sydney Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC158 / v2f	07-December-2020
ADE (2020) Waste Analysis and Classification Report, Central Railway Station, The Central Walk, Chippendale NSW, Ref: LOR-09-14544 / WAC163/ v1f	21-December-2020
ADE (2020) Waste Analysis and Classification Report, Central Station, Platform 18 / 19, Chippendale NSW, Ref: LOR-09-14544 / WAC162 / v1f	21-December-2020
PRM (2021) Waste Classification, Central Station - Eddy Avenue, Sydney, NSW 2000. Ref: P034945.001	08-January-2021
ADE (2021) Waste Analysis and Classification Report, Central Railway Station, Chippendale NSW, Ref: LOR-09-14544 / WAC165/ v1f	28-January-2021
ADE (2021) Waste Analysis and Classification Report, Central Railway Station, Stockpile Yard, Chippendale NSW, Ref: LOR-09-14544 / WAC166/ v1f	28-January-2021
ADE (2021) Waste Analysis and Classification Report, Central Station, Below Platform 18 / 19, Chippendale NSW, Ref: LOR-09-14544 / WAC168 / v1f	01-February-2021
ADE (2021) Waste Analysis and Classification Report, Central Railway Station, Chippendale NSW, Ref: LOR-09-14544 / WAC167/ v1f	02-February-2021
ADE (2021) Waste Analysis and Classification Report, Central Railway Station, Chippendale NSW, Ref: LOR-09-14544 / WAC169/ v1f	05-February-2021
ADE (2021) Waste Analysis and Classification Report, Central Railway Station, Chippendale NSW, Ref: LOR-09-14544 / WAC170/ v1f	08-February-2021
ADE (2021) Waste Analysis and Classification Report, Central Railway Station, Chippendale NSW, Ref: LOR-09-14544 / WAC171/ v1f	08-February-2021
ADE (2021) Waste Analysis and Classification Report, Central Railway Station, Platform 16 / 17, Sydney NSW, Ref: LOR-09-14544 / WAC173/ v1f	16-February-2021
ADE (2021) Waste Analysis and Classification Report, Central Railway Station, The Central Walk, Chippendale NSW, Ref: LOR-09-14544 / WAC174/ v1f	18-February-2021
ADE (2021) Re: Soil Assessment of the in-situ soils located at the Central Walk, Central Railway Station, Sydney New South Wales (NSW), Ref: LOR-09-14544.LTR10.v1f	09-March-2021
ADE (2021) Re: Soil Assessment of the in-situ soils located at the Central Walk, Central Railway Station, Sydney New South Wales (NSW), Ref: LOR-09-14544.LTR9.v1f	09-March-2021

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ADE (2021) Waste Analysis and Classification Report, Central Railway Station, The Central Walk, Chippendale NSW, Ref: LOR-09-14544 / WAC176/ v1f	16-March-2021
ADE (2021) Waste Analysis and Classification Report, Central Railway Station, Platform 23, Sydney NSW, Ref: LOR-09-14544 / WAC177/ v1f	01-April-2021
ADE (2021) Waste Analysis and Classification Report, Central Railway Station, The Central Walk, Chippendale NSW, Ref: LOR-09-14544 / WAC178/ v1f	13-April-2021
ADE (2021) Waste Analysis and Classification Report, Central Station, Below Platform 18 / 19, Sydney NSW, Ref: LOR-09-14544 / WAC179 / v1f	27-April-2021
ADE (2021) Waste Analysis and Classification Report, Central Station, Below Platform 20 / 21, Sydney NSW, Ref: LOR-09-14544 / WAC180 / v1f	27-April-2021
ADE (2021) Waste Analysis and Classification Report, Central Station, Below Platform 22 / 23, Sydney NSW, Ref: LOR-09-14544 / WAC181 / v1f	27-April-2021
ADE (2021) Waste Analysis and Classification Report, Central Station, Adit, Sydney NSW, Ref: LOR-09-14544 / WAC183 / v1f	28-May-2021
ADE (2021) Waste Analysis and Classification Report, Central Station, Sydney Yard, Sydney NSW, Ref: LOR-09-14544 / WAC184 / v1f	02-June-2021
ADE (2021) Waste Analysis and Classification Report, Central Railway Station, The Central Walk, Sydney NSW, Ref: LOR-09-14544 / WAC147/ v1f	03-June-2021
ADE (2021) Waste Analysis and Classification Report, Central Railway Station, Platform 8/9, Sydney NSW, Ref: LOR-09-14544 / WAC172/ v3f	11-June-2021
ADE (2021) Waste Analysis and Classification Report, Central Railway Station, The Central Walk, Sydney NSW, Ref: LOR-09-14544 / WAC186/ v1f	16-June-2021
ADE (2021) Waste Analysis and Classification Report, Central Railway Station, The Central Walk, Sydney NSW, Ref: LOR-09-14544 / WAC187/ v1f	17-June-2021
ADE (2021) Waste Analysis and Classification Report, Central Railway Station, The Central Walk, Sydney NSW, Ref: LOR-09-14544 / WAC189/ v1f	21-June-2021
ADE (2021) Waste Analysis and Classification Report, Central Railway Station, The Central Walk, Sydney NSW, Ref: LOR-09-14544 / WAC191/ v1f	25-June-2021
ADE (2021) Waste Analysis and Classification Report, Central Railway Station, Track 11 & 12, Sydney NSW, Ref: LOR-09-14544 / WAC190/ v1f	01-July-2021
ADE (2021) Waste Analysis and Classification Report, Central Railway Station, Platform 16 / 17, Sydney NSW, Ref: LOR-09-14544.WAC192.v1f	09-July-2021
ADE (2021) Re: Soil Assessment of stockpiled material located at the Railway Institute Building, Central Railway Station, Sydney New South Wales (NSW). Ref: 21.0214.LTR11.v1f	16-August-2021
ADE (2021) Waste Analysis and Classification Report, Central Railway Station, Chippendale NSW, Ref: 21.0214.WAC195.v1f	13-September-2021
ADE (2021) Waste Analysis and Classification Report, Central Railway Station, Platform 16 / 17, Sydney NSW, Ref: 21.0214.WAC196.v1f	12-October-2021
ADE (2021) Waste Analysis and Classification Report, Central Railway Station, Platform 18 / 19, Sydney NSW, Ref: 21.0214.WAC197.v1f	12-October-2021
ADE (2021) Waste Analysis and Classification Report, Central Railway Station, Platform 16 / 17, Sydney NSW, Ref: 21.0214.WAC196A.v1f	04-November-2021

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ADE (2021) Waste Analysis and Classification Report, Central Railway Station, Platform 18 / 19, Sydney NSW, Ref: 21.0214.WAC197A.v1f	04-November-2021
ADE (2021) Ballast Characterisation and Waste Analysis & Classification Report, Adjacent Rail Corridor, Central Railway Station, Chippendale NSW, Ref: 21.0214 / WAC198 / v1f	10-November-2021
ADE (2021) Waste Analysis and Classification Report, Adjacent Rail Corridor, Central Railway Station, Sydney NSW, Ref: 21.0214.WAC199.v1f	10-November-2021
ADE (2022) Waste Analysis and Classification Report, Central Railway Station, Sydney NSW, Ref: 21.0214.WAC200.v1f	19-January-2022