Bringelly

CPB Contracting and Ghella Joint Venture

Validation Report

JBS&G 63723 | 154,941 (Rev 0)

2 December 2024

We acknowledge the Traditional Custodians of Country throughout Australia and their connections to land, sea and community.

We pay respect to Elders past and present and in the spirit of reconciliation, we commit to working together for our shared future.

Caring for Country The Journey of JBS&G
Artist: Patrick Caruso, Eastern Arrernte

Table of Contents

©JBS&G Australia Pty Ltd

List of Tables

List of Figures

Appendices

©JBS&G Australia Pty Ltd

Abbreviations

Term	Definition
ACM	Asbestos Containing Material
AEC	Area of Environmental Concern
AHD	Australian Height Datum
BGS	Below Ground Surface
BTEX	Benzene, Toluene, Ethylbenzene, and Xylene
CLM Act	Contaminated Land Management Act 1997
COC	Chain of Custody
COPC	Contaminants of Potential Concern
CPBG-JV	CPB Contracting and Ghella Joint Venture
DP	Deposited Plan
DQI	Data Quality Indicators
DQO	Data Quality Objectives
DSI	Detailed Site Investigation
EIL	Ecological Investigation Level
ENM	Excavated Natural Material
EPA	NSW Environment Protection Authority
ESL	Ecological Screening Level
HIL	Health Investigation Level
HSL	Health Screening Level
IEMP	Interim Environmental Management Plan
LOR	Limit of Reporting
NATA	National Association of Testing Authorities
NEPC	National Environment Protection Council
NEMP	PFAS National Environmental Management Plan
NEPM	National Environment Protection Measure
NSW	New South Wales
OCP	Organochlorine Pesticide
OPP	Organophosphate Pesticide
PAH	Polycyclic Aromatic Hydrocarbons
PARCCS	Precision, Accuracy, Representativeness, Consistency, Completeness, Sensitivity
PCB	Polychlorinated Biphenyl
POEO Act	Protection of the Environment Operations Act 1997
PFAS	Per- and Polyfluoroalkyl Substances
PSI	Preliminary Site Investigation
QA/QC	Quality Assurance / Quality Control
RPD	Relative Percent Difference
TRH	Total Recoverable Hydrocarbons
TTMP	Tetra Tech Major Projects Pty Ltd

Term	Definition
UFP	Unexpected Finds Protocol
VENM	Virgin Excavated Natural Material

Executive Summary

JBS&G Australia Pty Ltd (JBS&G) was engaged by CPB Contracting and Ghella Joint Venture (CPBG-JV, the client) to undertake environmental consultancy services associated with the validation for the Bringelly portion of the station boxes and tunnelling works (SBT Works) package of the Sydney Metro Western Sydney Airport (the Project). The airport refers to the Western Sydney International (WSI) Airport. This report refers to the property identified as Lot 2502 in Deposited Plan (DP) 1282956 (the site), as shown in **Figures 1** and **2**.

The site has an approximate area of 3.99 hectares and is bound by Derwent Road to the east, rural residential/farmland to the south, rural residential/farmland, commercial land (earthmoving equipment hire) to the west/south-west, and rural residential/farmland and commercial land (landscape supplies) to the north.

The Project forms part of the broader Sydney Metro network and involves the construction and operation of a new 23 km metro rail line from the existing Sydney Trains suburban T1 Western Line (at St Marys) in the north and the Aerotropolis (at Bringelly) in the south. The alignment includes tunnels and civil structures, including a viaduct, bridges, and surface and open-cut troughs between the two tunnel sections.

Historical aerial imagery shows the site was semi-cleared in 1955 for rural land uses. A house is shown on the property in 1984 and three sheds were added in the late 1980s. The site remained in this configuration (low density residential land use) to late 2021 / February 2022 when the house and sheds on the property were removed.

A detailed site investigation (DSI) has been completed at the site and issued as *Bringelly Services Facility Detailed Site Investigation Sydney Metro Western Sydney Airport Station Boxes and Tunnelling Works rev A01*, 2nd August 2022, Tetra Tech Major Projects Pty Ltd (TTMP 2022a[1]). Site contamination consisting of an isolated location of asbestos impact was reported in TTMP (2022a). TTMP (2022a) noted the likelihood for additional asbestos contamination to be present.

Tetra Tech Major Projects Pty Ltd (TTMP) prepared a Remedial Action Plan (RAP) *(*TTMP 2022b[2]*)* instructing the remediation and validation works required for the Bringelly site. The RAP referred to previous investigations for the Bringelly site including Contamination Assessment Report (Cardno 2021a[3]), Contamination Assessment Report – Phase D/E (Cardno (2021b[4]), Preliminary Site Investigation (PSI) (Golder & DP 2021[5]), Asbestos Management Plan (AMP) (CPBG 2022a[6]), Construction Environment Management Plan (CEMP) (CPBG 2022b[7]), Soil and Water Management Sub Plan (SWMSP) (CPBG 2022c[8]).

---

[1] Bringelly Services Facility, Detailed Site Investigation, Sydney Metro Western Sydney Airport Station Boxes and Tunneling Works, Rev C01, 7 September 2022, SMWSASBT-CPG-SWD-SW000-GE-RPT-040512, CPB Ghella Joint Venture. Tetra Tech Major Projects Pty Ltd (LTTMP 2022a).

[2] Bringelly Services Facility, Remediation Action Plan, Sydney Metro Western Sydney Airport Station Boxes and Tunneling Works, Rev A.04, 21 October 2022, SMWSASBT-CPBG-SWD-SW000-GE-RPT-040520, CPB Ghella Joint Venture. Tetra Tech Major Projects Pty Ltd (TTMP 2022b).

[3] Contamination Assessment Report – Contamination Assessment Report, Sydney Metro Western Sydney Airport, Ref: 80021888, dated 5 May 2021, Cardno (Cardno 2021a).

[4] Contamination Assessment Report – Phase D/E, Sydney Metro Western Sydney Airport, Ref: 80021888, Rev B, dated 22 November 2021, Cardno (Cardno 2021b).

[5] Factual Contamination Report – Preliminary Site Investigation, Ref: 19122621-003-R-Rev3, Rev3, 19 February 2021, Golder & DP (Golder & DP 2021)

[6] Asbestos Management Plan (AMP), Sydney Metro Western Sydney Airport Station Boxes and Tunnelling Works, Rev A – 2 February 2022, CPBG (CPBG 2022a)

[7] Construction Environment Management Plan (CEMP), Sydney Metro Western Sydney Airport Station Boxes and Tunneling Works, Preparatory Works, Rev 2, 13 April 2022, CPBG (CPBG 2022b)

[8] NSW (Off-Airport) Soil and Water Management Sub Plan (SWMP), Sydney Metro Western Sydney Airport Station Boxes and Tunneling Works, Rev A, 19 May 2022, CPBG (CPBG 2022c)

The RAP informed that the site is not contaminated to a degree that has triggered the need to implement remediation at the site, and management during the development works was limited to the following aspects:

- Fill within the 'Asbestos Source Zone' required management to prevent the potential cross contamination of other materials that do not contain asbestos;
- Sediment and erosion controls were required to prevent sediment-laden runoff entering the dam located to the west of the construction site, or to the southwest further offsite; and
- Surplus spoil from the proposed development required classification to enable beneficial reuse, or disposal offsite to a licensed landfill. Topsoil or fill materials were to be stockpiled separately from natural soils to optimise the beneficial use of material.

Validation of the Asbestos Source Zone and building footprints was generally completed in accordance with the RAP (TTMP 2022b). Due to the ongoing site works, multiple building footprints were inaccessible for inspection at the time of the field works in September 2023. CPBG-JV advised the site was initially cut to natural soils prior to placement of approximately 0.4 m thick DGB. Following the removal of topsoil/fill CPBG completed an inspection, with no observations of contamination or asbestos containing material. Where available, inspections of adjacent swales were completed by JBS&G confirming the presence of natural materials adjacent to or intersecting some building footprints.

Based on the findings of the previous investigations and this validation assessment, and subject to the limitations in **Section 13**, it is considered that the development works were completed in general accordance with the RAP (TTMP, 2022b). Notwithstanding minor data gaps due to inaccessible localised areas of building footprints, there is considered to be sufficient information to conclude there is a low potential for risk to site users from contamination. The site is considered suitable for the intended commercial / industrial land use.

©JBS&G Australia Pty Ltd

1. Introduction

1.1 Background

JBS&G Australia Pty Ltd (JBS&G) was engaged by CPB Contracting and Ghella Joint Venture (CPBG-JV, the client) to undertake environmental consultancy services associated with the validation for the Bringelly portion of the station boxes and tunnelling works (SBT Works) package of the Sydney Metro Western Sydney Airport (the Project). The airport refers to the Western Sydney International (WSI) Airport. This report refers to the property identified as Lot 2502 in Deposited Plan (DP) 1282956 (the site), as shown in **Figures 1** and **2**.

The site has an approximate area of 3.99 hectares and is bound by Derwent Road to the east, rural residential/farmland to the south, rural residential/farmland, commercial land (earthmoving equipment hire) to the west/south-west, and rural residential/farmland and commercial land (landscape supplies) to the north.

The Project forms part of the broader Sydney Metro network and involves the construction and operation of a new 23 km metro rail line from the existing Sydney Trains suburban T1 Western Line (at St Marys) in the north and the Aerotropolis (at Bringelly) in the south. The alignment includes tunnels and civil structures, including a viaduct, bridges, and surface and open-cut troughs between the two tunnel sections.

Historical aerial imagery shows the site was semi-cleared in 1955 for rural land uses. A house is shown on the property in 1984 and three sheds were added in the late 1980s. The site remained in this configuration (low density residential land use) to late 2021 / February 2022 when the house and sheds on the property were removed.

A detailed site investigation (DSI) has been completed at the site and issued as *Bringelly Services Facility Detailed Site Investigation Sydney Metro Western Sydney Airport Station Boxes and Tunnelling Works rev A01*, 2nd August 2022, Tetra Tech Major Projects Pty Ltd (TTMP 2022a[9]). Site contamination consisting of an isolated location of asbestos impact was reported in TTMP (2022a). TTMP (2022a) noted the likelihood for additional asbestos contamination to be present.

Tetra Tech Major Projects Pty Ltd (TTMP) prepared a Remedial Action Plan (RAP) *(*TTMP 2022b[10]*)* instructing the remediation and validation works required for the Bringelly site. The RAP referred to previous investigations for the Bringelly site including Contamination Assessment Report (Cardno 2021a[11]), Contamination Assessment Report – Phase D/E (Cardno (2021b[12]), Preliminary Site Investigation (PSI) (Golder

[9] Bringelly Services Facility, Detailed Site Investigation, Sydney Metro Western Sydney Airport Station Boxes and Tunneling Works, Rev C01, 7 September 2022, SMWSASBT-CPG-SWD-SW000-GE-RPT-040512, CPB Ghella Joint Venture. Tetra Tech Major Projects Pty Ltd (LTTMP 2022a).

[10] Bringelly Services Facility, Remediation Action Plan, Sydney Metro Western Sydney Airport Station Boxes and Tunneling Works, Rev A.04, 21 October 2022, SMWSASBT-CPBG-SWD-SW000-GE-RPT-040520, CPB Ghella Joint Venture. Tetra Tech Major Projects Pty Ltd (TTMP 2022b).

[11] Contamination Assessment Report – Contamination Assessment Report, Sydney Metro Western Sydney Airport, Ref: 80021888, dated 5 May 2021, Cardno (Cardno 2021a).

[12] Contamination Assessment Report – Phase D/E, Sydney Metro Western Sydney Airport, Ref: 80021888, Rev B, dated 22 November 2021, Cardno (Cardno 2021b).

& DP 2021[13]), Asbestos Management Plan (AMP) (CPBG 2022a[14]), Construction Environment Management Plan (CEMP) (CPBG 2022b[15]), Soil and Water Management Sub Plan (SWMSP) (CPBG 2022c[16]).

The RAP informed that the site is not contaminated to a degree that has triggered the need to implement remediation at the site, and management during the development works was limited to the following aspects:

- Fill within the 'Asbestos Source Zone' required management to prevent the potential cross contamination of other materials that do not contain asbestos;
- Sediment and erosion controls were required to prevent sediment-laden runoff entering the dam located to the west of the construction site, or to the southwest further offsite; and
- Surplus spoil from the proposed development required classification to enable beneficial reuse, or disposal offsite to a licensed landfill. Topsoil or fill materials were to be stockpiled separately from natural soils to optimise the beneficial use of material.

The RAP required fill within the 'Asbestos Source Zone' to be disposed off site as a waste and all works to be conducted in accordance with the AMP (CPBG 2022a).

It is noted that the RAP was prepared specifically for the construction footprint, as shown on **Figure 2** (located within the eastern half of the site). However, the Validation Report has been prepared for the whole site. This was completed considering there was a minimal extent of remediation identified within the construction footprint, which warranted a RAP, no remediation was identified outside of this, and a formal RAP was not required for areas outside of this. Noting that waste has been generated on the project and materials moved / relocated, the Validation Report has been prepared as specific to the whole site to ensure the Site Auditor opportunity to confirm waste compliance across the extent of the project.

The proposed future use of the Bringelly site is commercial / industrial. This validation report has been prepared in accordance with the requirements of the NSW Environmental Protection Authority (EPA) published and endorsed guidelines.

1.2 Objectives

The objectives of the validation assessment were to:

- Document the contamination status of the site prior to commencement of earthworks;
- Document the remediation / management of materials identified in the RAP;
- Assess and document the management any unexpected finds as encountered during the earthworks;
- Review the material tracking documentation associated with the movement of earth based material within site, imported to the site and disposed from the site during the works;
- Validate any remedial works in accordance with the relevant NSW EPA guidelines and requirements of the RAP prepared for the project; and
- Document the validation process carried out to demonstrate the suitability of the site for the proposed commercial / industrial land use.

---

[13] Factual Contamination Report – Preliminary Site Investigation, Ref: 19122621-003-R-Rev3, Rev3, 19 February 2021, Golder & DP (Golder & DP 2021)
[14] Asbestos Management Plan (AMP), Sydney Metro Western Sydney Airport Station Boxes and Tunnelling Works, Rev A – 2 February 2022, CPBG (CPBG 2022a)
[15] Construction Environment Management Plan (CEMP), Sydney Metro Western Sydney Airport Station Boxes and Tunneling Works, Preparatory Works, Rev 2, 13 April 2022, CPBG (CPBG 2022b)
[16] NSW (Off-Airport) Soil and Water Management Sub Plan (SWMP), Sydney Metro Western Sydney Airport Station Boxes and Tunneling Works, Rev A, 19 May 2022, CPBG (CPBG 2022c)

1.3 Construction Activities

The SBT Works construction activities scope includes construction of a shaft which has a diameter of 27 m in the centre of the site. Construction of the shaft required a top-down excavation to approximately 30 m bgs (below ground surface) / approximately 42.5 m Australia Height Datum (AHD) and generated approximately 22,200 m^3 of spoil (as in-situ volume), which required off-site disposal. The shaft was to be undrained (tanked) and constructed using secant piles and top-down excavation methods.

There are three stages involve in the construction of the Bringelly Shaft Facilities:

- Site Establishment;
- Shaft excavation and Temporary Support; and
- Permanent Lining & Base Slab.

Construction activities during the site establishment stage includes:

- Site Investigations for the purposes of a Detailed Site Investigation (DSI) and Geotechnical Investigation (GI);
- Site perimeter fencing;
- Erosion and sediment (ERSED) controls;
- Sediment pond, drainage and storm water pipe;
- Clearing of vegetation and top soil;
- Site establishment earthworks;
- Construction of site haul roads, pile pad, crane pad, laydowns, hardstands;
- Piling;
- Capping beam;
- Installation of site facilities and amenities (offices and car parks);
- Water treatment plant; and
- Substation.

Construction activities during the Shaft excavation and Temporary support stage includes:

- Shaft excavation;
- Ground support installation;
- Construction of upper and lower Ring Beam; and
- Sump excavation.

Detailed activities include survey control, instrumentation monitoring, geotechnical inspection and mapping, rock bolting, installation of strip drain and mesh, shotcrete, fibre reinforced plastic for Ring Beam 1 and 2.

Construction activities during permanent lining and base slab involves:

- Temporary drains installation on the Invert;
- Temporary sump construction;
- Temporary sump construction;
- Blinding layer on the invert;

©JBS&G Australia Pty Ltd

- Waterproofing system installation;
- Earthing installation;
- Construction of the concrete slab with Sumps; and
- Construction of walls.

Construction activities completed at the Bringelly site to date and current site condition is summarised as follows:

- All site establishment works were complete on 24/11/2022;
- All Shaft excavation and Temporary Support activities were completed on 16/09/2023; and
- All activities of the Permanent Structure, Invert and sump were completed on 19/10/2023.

1.4 Regulatory Requirements

1.4.1 Development Conditions

The compliance of the validation of the site with the conditions of consent is detailed in **Table 1.1**.

Table 1.1: Summary of Development Consent Requirements

Condition	Description	Compliance
E92	Before commencement of any construction that would result in the disturbance of medium to high risk contaminated sites as identified in the documents identified in Condition A1, Detailed Site Investigations (for contamination) must be conducted to determine the full nature and extent of the contamination. The Detailed Site Investigation Report(s) and the subsequent report(s), must be prepared, or reviewed and approved, by consultants certified under either the Environment Institute of Australia and New Zealand's Certified Environmental Practitioner (Site Contamination) scheme (CEnvP(SC)) or the Soil Science Australia Certified Professional Soil Scientist Contaminated Site Assessment and Management (CPSS CSAM) scheme. The Detailed Site Investigations must be undertaken in accordance with guidelines made or approved under section 105 of Contaminated Land Management Act 1997 (NSW). Note: Nothing in this condition prevents the Proponent from preparing individual Detailed Site Investigation Reports (for contamination) for separate sites.	DSI completed by others as TTMP (2022a).
E93	Should remediation be required to make land suitable for the final intended land use, a Remedial Action Plan must be prepared, or reviewed and approved, by consultants certified under either the Environment Institute of Australia and New Zealand's Certified Environmental Practitioner (Site Contamination) scheme (CEnvP(SC)) or the Soil Science Australia Certified Professional Soil Scientist Contaminated Site Assessment and Management (CPSS CSAM) scheme. The Remedial Action Plan must be prepared in accordance with relevant guidelines made or approved by the EPA under section 105 of the Contaminated Land Management Act 1997 (NSW) and must include measures to remediate the contamination at the site to ensure the site will be suitable for the proposed use when the Remedial Action Plan is implemented. Note: Nothing in this condition prevents the Proponent from preparing individual Remedial Action Plans for separate sites.	Not applicable. TTMP (2022a) did not identify sources of contamination that pose a significant risk to potential receptors at the site. TTMP (2022a) considers that where assessed, the soil within the site poses a low risk of contamination to the project. Remediation has not been identified as required to make the site suitable.
E94	Before commencing remediation, a Section B Site Audit Statement(s) must be prepared by an NSW EPA-accredited Site Auditor that certifies that the Remedial Action Plan(s) is/are appropriate and that the site can be made suitable for the proposed use. The Remedial Action Plan(s) must be implemented and any changes to the Remedial Action Plan(s) must be approved in writing by the NSW EPA-accredited Site Auditor. Note: Nothing in this condition prevents the Proponent from engaging an NSW EPA-accredited Site Auditor to prepare individual Site Audit Statements for Remedial Action Plans for separate sites.	Not applicable.

Condition	Description	Compliance
E95	Validation Report(s) must be prepared in accordance with Consultants Reporting on Contaminated Land: Contaminated Land Guidelines (EPA, 2020) and relevant guidelines made or approved under section 105 of the Contaminated Land Management Act 1997 (NSW). Note: Nothing in this condition prevents the Proponent from preparing individual Validation Reports for separate sites.	Presented here for the Bringelly site.
E96	A Section A1 or Section A2 Site Audit Statement (accompanied by an Environmental Management Plan) and its accompanying Site Audit Report, which state that the contaminated land disturbed by the work has been made suitable for the intended land use, must be submitted to the Planning Secretary and the Relevant Council(s) after remediation and before the commencement of operation of the CSSI. Note: Nothing in this condition prevents the Proponent from obtaining Section A Site Audit Statements for individual parcels of remediated land.	To be prepared on the basis of this Validation Report.
E97	A copy of Detailed Site Investigation Report(s), Remedial Action Plan(s), Validation Report(s), Site Audit Report(s) and Site Audit Statement(s) must be submitted to the Planning Secretary and the Relevant Council(s) for information	Audit pending, all other requirements met.
E98	An Unexpected Contaminated Land and Asbestos Finds Procedure must be prepared before the commencement of construction and must be followed should unexpected contaminated land or asbestos (or suspected contaminated land or asbestos) be excavated or otherwise discovered during construction.	Procedures outlined in the AMP (CPBG 2022a) and CEMP (CPBG 2022b).
E99	The Unexpected Contaminated Land and Asbestos Finds Procedure must be implemented throughout construction.	Ongoing.

1.4.2 Contractual Conditions

An assessment of relevant requirements of the SBT Design and Construction Deed is provided in **Table 1.2**.

Table 1.2: Summary of Contractual Requirements for Remedial Action Plans

Condition	Description	Compliance
12.20(a)	The SBT Contractor must prepare and submit to the Principal's Representative and the Independent Certifier a Remediation Action Plan in respect of each Detailed Site Investigation performed in accordance with clause 12.19 prior to commencing any excavation activities (except in relation to Preliminary Works).	RAP (TTMP 2022b).
12.20(b)	Except in relation to the Remediation Action Plan in respect of Orchard Hills East Station, the SBT Contractor may not submit a Remediation Action Plan under this clause unless and until the Detailed Site Investigation report for the relevant area has been submitted to the Principal's Representative and has not been the subject of a notice under clause 12.19(f)(ii) within the time period specified in clause 12.19(f)(ii) (or clause 12.19(g)) as applicable.	Refer DSI (TTMP 2022a).
12.20(c)(i)	Each Remediation Action Plan must: Describe the nature and extent of Contamination based on the Detailed Site Investigation, the Information Documents and any other relevant information which is necessary to characterise the risk to the construction, operation and maintenance of Sydney Metro – Western Sydney Airport;	RAP (TTMP 2022b).
12.20(c)(ii)	Describe the manner in which the SBT Contractor will Remediate Contamination within the proposed areas of excavation and/or disturbance;	RAP (TTMP 2022b).
12.20(c)(iii)	Include a detailed risk assessment to determine and describe the requirements for Remediation of Contamination of land (including soil, groundwater, ground gas and vapour) within the Construction Site or Extra Land surrounding the area of proposed excavation or disturbance with respect to potential exposure scenarios, including but not limited to migration of Contamination via groundwater, ground gas and odour into the areas of excavation or disturbance;	Not required based on limited extent of contamination identified in TTMP (2022a) and high certainty remedial approach adopted
12.20(c)(iv)	Present a preferred Remediation option based on: (A) Whole-of-life costs; (B) To the extent practicable, maintaining the Overall D&C Program	RAP (TTMP 2022b).

Condition	Description	Compliance
	(C) Benefits (as far as is practicable based on available infrastructure design information); and (D) Compliance with this deed;	
12.20(c)(v)	Define what will constitute Remediation Practical Completion of the Remediation;	RAP (TTMP 2022b).
12.20(c)(vi)	Be prepared in accordance with Law, Approvals, applicable Codes and Standards, the lawful requirement of any Authority, Good Industry Practice, all guidelines made or approved by the EPA, the National Remediation Framework, the Human Health and Environment Risk Assessment and any other requirements of this deed;	RAP (TTMP 2022b) prepared in accordance with EPA published or endorsed guidelines.
12.20(c)(vii)	Be reviewed and approved by a Certified Contaminated Land Consultant;	RAP (TTMP 2022b) report signatory is a Certified Contaminated Land Consultant.
12.20(c)(viii)	Be reviewed and endorsed by an Accredited Site Auditor;	Completed.
12.20(c)(ix)	Be accompanied by an Interim Site Audit Advice prepared by the Accredited Site Auditor when submitted to the Principle's Representative and the Independent Certifier in accordance with clause 12.20(a);	Completed.
12.20(c)(x)	Include details of any Remediation completed during the performance of any Preliminary Works; and	None provided / completed. Very limited extent of contamination on-site.
12.20(c)(xi)	Consider and plan to mitigate the migration of Contamination from the Construction Site.	RAP (TTMP 2022b).
12.20(d)(i)(A)	In addition to the requirements set out in clause 12.20(c) and without limiting clause 12.20(j), each Remediation Action Plan must contain sufficient detail and justification to enable the determination of any Agreed Remediation Scope, including: An ACC Classification and Excavation Map, being a detailed map or maps, drawn to a practical scale of the relevant area the subject of a Remediation Action Plan that accurately identifies: The location of any samples that have been taken by and/or made available to the SBT Contractor, including the Detailed Site Investigation samples or any relevant information provided to the SBT Contractor in the Information Documents; and	The contractual requirement to prepare an ACC Classification and Excavation Map was not triggered for Bringelly.
12.20(d)(i)(B)	A detailed mapping of remaining Solid Waste and its respective waste classification in accordance with the Waste Classification Guidelines and the relevant provisions of the POEO Act including resources recovery exemptions and orders across the relevant area the subject of the Remediation Action Plan, based on the relevant Detailed Site Investigations and clearly detailing the extent of lateral and vertical classification of Waste within each area the subject of a Remediation Action Plan;	The contractual requirement to prepare an ACC Classification and Excavation Map was not triggered for Bringelly.
12.20(d)(ii)	A detailed excavation plan that is consistent with the ACC Classification and Excavation Map prepared under clause 12.20(d)(i) describing the quantities in tonnes and cubic meters of each material, including a register in estimated tonnes and cubic meters of each waste classification of Solid Waste, proposed to be excavated and to be reused and/or disposed offsite (ACC Excavation Quantity Register);	The contractual requirement to prepare an ACC Classification and Excavation Map was not triggered for Bringelly.
12.20(d)(iii)	Details of any other elements of Remediation that are required to mitigate risks to the construction, operation and maintenance of Sydney Metro – Western Sydney Airport including, but not limited to infrastructure design requirements, treatment of Contamination, capping and containment; and	RAP (TTMP 2022b).
12.20(d)(iv)	Precise details of how the validation of Remediation will be achieved and demonstrated.	RAP (TTMP 2022b).

2. Site Condition and Surrounding Environment

Site details are provided in the following sections. More extensive site descriptions are available in the DSI and RAP (TTMP 2022a, 2022b).

2.1 Site location and Identification

The location of the site is shown on **Figure 1** and the site layout is shown on **Figure 2**. The site details are summarised in **Table 2.1**, with the site described in detail in the following sections.

Table 2.1: Site Identification Details

Lot/DP	Lot 2502 DP1282956
Address	40 Derwent Road, Bringelly (proposed Bradfield)
Local Government Authority	Liverpool City Council
Site Zoning	Part ENT: Enterprise
Approximate Coordinates of Centre of Site Areas (GDA 94, MGA 56)	289498.323m E; 6245807.295 m N
Previous Use	Predominantly rural residential, light commercial (i.e. market gardens, stables, grazing etc.), agricultural (cropping and pastoral land)
Proposed Use	Bringelly Services Facility
Site Area	Approximately 3.99 ha. The construction footprint is approximately 2 ha.

2.2 Site Description

During DSI works (TTMP 2022a) and prior to construction activities, the site was observed to comprise a vacant plot of land and a former dwelling and shed structures had been recently demolished in the south-eastern portion of the site. Bare soil was present within the footprint of these former structures where fibre cement debris, suspecting of containing asbestos containing material (ACM) was observed at multiple locations.

The remainder of the site was covered by dense weed / grass. The large dam present in the central portion of the site was fenced off at the time of the DSI (TTMP 2022a) site walkover. While some general refuse (cardboard and scrap wood) was noted around the site, TTMP (2022a) did not observe stored chemicals, or stained/malodourous soils (where was observed).

JBS&G completed a site inspection on 22 October 2024. At the time of the inspection the site was an active construction site with the following notable features:

- Access to the site was via a driveway from Derwent Road on the eastern boundary of site.
- The site is split into two areas (east and west) with a dam present between the two and an access road along the southern boundary of site connecting the two areas.
- The eastern portion of the site consisted of a site shed and car park, the shaft excavation, workshops, storage areas, stockpile areas, a sediment pond and a water treatment plant.
- The western portion of site consisted of a storage / laydown area and a large stockpile covered in geofabric.

2.3 Surrounding Land Use

Surrounding land-uses include:

- North: Rural residential/farmland and some commercial land (landscape supplies);
- East: Derwent Road and rural farmland, beyond commercial land;
- South: Rural residential/farmland; and
- West: Rural residential/farmland and some commercial land (earthmoving equipment hire).

2.4 Site History

TTMP (2022a) reports that the history of the site is described in *Sydney Metro - Western Sydney Airport Technical Paper 8 Contamination* (M2A, 2020) ("the EIS Technical Paper") which is a supporting document to the *Sydney Metro – Western Sydney Airport Environmental Impact Statement* (Sydney Metro, 2020). The EIS Technical Paper provides a PSI of the Project footprint.

Historical aerial imagery shows the site was semi-cleared in 1955 for rural land uses. A house is shown on the property in 1984 and three sheds were added in the late 1980s. The site remained in this configuration (low density residential land use) to late 2021 / February 2022 when the house and sheds on the property were removed.

Recent site inspections completed by TTMP (2022a) reported that former structures, inclusive of a residential house and sheds had been removed; the footprint of these former structures and surrounding areas were characterised by bare soil. Fibre cement debris, suspected of containing ACM were identified in multiple locations within and surrounding the footprint of former structures. The fibre cement sheet debris was presumably associated with improper demolition practices and had been cleared with the recent appropriate completion of the same demolition works.

2.5 Topography

TTMP (2022a) reports that the site is situated at elevations ranging between 72 m and 74 m AHD and generally slopes north towards Badgery's Creek which is located approximately 400 m north of the site.

2.6 Geology

TTMP (2022a) report that the site is underlain by Bringelly Shale of the Wianamatta Group which was deposited in a deep marine environment of the Middle Triassic. The Bringelly shale is described as shale, carbonaceous claystone, laminite, lithic sandstone, with rare coal.

Based on observations made in TTMP (2022a), the local geology comprised fill material (approximately 0.2 m thick) and underlain by residual soils comprising silty clay to clayey silt to approximately 3 m bgs and underlain by the Bringelly Shale.

TTMP (2022a) stated that the site is located in an area with extremely low probability of occurrence of acid sulfate soil (ASS).

2.7 Surface Water

TTMP (2022a) report that a large dam was located on-site in about the centre of the site. Based on observations made during the DSI site walkover, the appeared to not being used for active irrigation or supply of water to surrounding residential properties.

Two dams were located off-site to the south and south-west and were positioned at a slightly higher elevation. Several other dams were also located off-site further to the north, east and south. Offsite dams were assumed to support the various surrounding agricultural and commercial operations, and possibly potable water for residential dwellings in the surrounding area.

2.8 Hydrogeology

TTMP (2022a) report that groundwater at the site was measured at approximately 67 to 69 m AHD (approximately 5 m bgs). Groundwater was expected to flow in a north-westerly direction towards Badgery's Creek.

The nearest registered groundwater bore (GW112649) was located approximately 1,000 m north-east of the site. The bore was installed as a monitoring well to 30 m bgs.

©JBS&G Australia Pty Ltd

3. Previous Investigations

The following previous reports were referred to in preparation of the RAP (TTMP 2022b):

- Preliminary Site Investigation (Golder & DP 2021);
- Contamination Assessment Report (Cardno 2021a);
- Contamination Assessment Report - Phase D/E (Cardno 2021b);
- Detailed Site Investigation (TTMP 2022a);
- Remediation Action Plan (TTMP 2022b);
- Asbestos Management Plan (CPBG 2022a);
- Construction Environment Management Plan (CPBG 2022b); and
- NSW (Off-Airport) Soil and Water Management Sub Plan (CPBG 2022c).

Additionally, works have been completed to detail the remediation and validation of the site and provided to JBS&G, these reports include:

- Interim Audit Advice Letter No.4 – Review of Detailed Site Investigation, Proposed Sydney Metro Western Sydney Airport Bringelly Services Facility, Bringelly NSW. Reference 318001447-006, Audit Number: TO-095. 15 September 2022. Ramboll Australia Pty Ltd (Ramboll 2022a);
- Material Classification Assessment: Bringelly Services Facility Shaft. Report reference: SMWSASBT-CPG-SWD-SWD000-GE-RPT-040531. 21 October 2022. Tetra Tech Major Projects (TTMP 2022c);
- Interim Audit Advice Letter No.12 – Review of Remediation Action Plan, Sydney Metro Western Sydney Airport Bringelly Services Facility, Bringelly NSW. Reference 318001447-006, Audit Number: TO-095. 27 October 2022. Ramboll Australia Pty Ltd (Ramboll 2022b);
- Material Classification Assessment for Importation to FS01 Site: Bringelly Services Facility Shaft. Report reference: SMWSASBT-CPG-SWD-SW000-GE-RPT-040542. 27 February 2023. Tetra Tech Major Projects (TTMP 2023c);
- Material Classification Assessment: Bringelly Services Facility Shaft: Addendum 01: Confirmatory Sampling between 12 to 13 m below ground surface. Report reference: SMWSASBT-CPG-SWD-SWD000-GE-RPT-040531: Addendum 01. 24 March 2023. Tetra Tech Major Projects (TTMP 2023d);
- Material Classification Assessment: Bringelly Services Facility Shaft: Addendum 02: Confirmatory Sampling between 14 to 18 m below ground surface. Report reference: SMWSASBT-CPG-SWD-SWD000-GE-RPT-040531: Addendum 02. 6 April 2023. Tetra Tech Major Projects (TTMP 2023e);
- Materials Analysis & Classification Report, 40 Derwent Road, Bringelly, NSW, 2556. Project reference A101022.0967.04. Report reference: MAC18.v1f. Version V1f. 24 April 2023. ADE Consulting Group (ADE 2023a);
- Materials Analysis & Classification Report, 40 Derwent Road, Bringelly, NSW, 2556. Project reference A101022.0967.04. Report reference: MAC19.v1f. Version V1f. 24 April 2023. ADE Consulting Group (ADE 2023b);
- Material Classification Assessment: Bringelly Services Facility Shaft 19 to 20 m bgs. Report reference: SMWSASBT-CPG-SWD-SWD000-GE-RPT-040531: Addendum 03 with AER Criteria. 28 June 2023. Tetra Tech Major Projects (TTMP 2023f); and
- Waste Classification 40 Derwent Street, Bringelly. Prepared for: Mann Group NSW PtyLtd. Project No. 64696. Date: 11/09/22. Airsafe (Airsafe, 2022a).

4. Summary of Potential for Contamination

All contaminant levels were generally consistent with background levels and were not considered indicative of potential contamination, except for bonded ACM identified in topsoil/fill within the footprint of a former dwelling. The location of this impact is shown on **Figure 4**. TTMP (2022a) noted the likelihood for additional asbestos contamination to be present within footprints of former structures on site.

Key conclusions as summarised in the RAP are provided as **Section 4.1** and **4.2**.

4.1 Contamination

The RAP (TTMP 2022b) reports soil within the site poses a low risk of contamination to the project given that no gross contamination was identified within the site, however there is the potential for ACM in topsoil / fill material, likely limited to footprints of former structures.

4.2 Material / Waste Classification

The RAP (TTMP 2022b) reports the fill soils would be preliminary classified as General Solid Waste (non-putrescible). Asbestos finds suggested that fill excavated in the footprint of the former structures should be managed as Special Waste (Asbestos Waste).

Natural soil would be provisionally classified as General Solid Waste (non-putrescible). The RAP (TTMP 2022b) identified trace concentrations of hydrocarbon and heavy metal concentrations in natural soils at varying depths, which would preclude the classification of such materials as VENM. The RAP (TTMP 2022b) reports that soils would be suitable for reuse at the FS01 site, provided they do not contain ACM.

4.3 Groundwater Condition

An assessment of the groundwater was completed as part of the DSI (TTMP 2022a). The RAP provided a summary of the groundwater investigations completed as part of the DSI as well as results from previous investigations. Based on review of the investigations, the RAP noted the following:

- Groundwater levels ranged between 3.168 m below top of casing (mBTOC) at SBT-GW-4020 and 6.622 mBTOC at SBT-GW-4022.
- Field data suggests that the groundwater likely flows toward the north-northwest towards Badgerys Creek.
- The laboratory results from the DSI (TTMP, 2022c) indicate that the results were within the investigation levels with the exception of minor metal exceedances, nutrients and PFAS.
- Detectable concentrations of nutrients including Ammonia, Nitrate and Phosphorous were reported in all groundwater samples, with concentrations of Ammonia and Nitrate exceeding the ecological investigation level in samples SBT-GW-4003 and SBT-BH-4005, respectively.
- PFOS was detected in groundwater samples collected from SBT-BH-4005 (0.0058 µg/L) and SBTBH-4002 (0.0006 µg/L) which exceeded the HEPA (2020) PFAS NEMP 99% protection level of 0.00023 µg/L. It is noted that other PFAS compounds were detected at levels below the assessment criteria or LOR in all samples tested.
- On review of available data, no discrete potential source of heavy metals has been identified within the site. Given there is no consistent trend showing that these COPC increase along the inferred groundwater flow direction, suggests that these COPC derive from diffuse sources within the surrounding environment.
- Whilst the landscaping business to the north of the site was identified as a potential source of nutrients in groundwater, given the inferred northerly / north-westerly groundwater flow direction, it is

considered questionable that this operation is the source of the elevated Ammonia at the northern boundary. Notwithstanding this, given there is approximately 400 m between the site and Badgerys Creek (i.e., the nearest surface water receptor along the inferred groundwater flow path), it was assessed that Ammonia in groundwater would attenuate sufficiently to levels that would not pose unacceptable risks to aquatic receptors in this watercourse. Similarly, Nitrate appears to attenuate across the site with concentrations reported at the northern (down hydraulic gradient) boundary to concentrations at, or close to the Limit of Reporting.

- Indicator PFAS compounds including PFOA and PFOA were reported at higher concentrations in monitoring well SBT-GW-4005 installed along the southern boundary of the site, relative to concentrations reported in monitoring wells along the northern site boundary. There was no perceptible source of PFAS in land immediately up hydraulic gradient (south) of the site. The available dataset shows the PFAS compounds appear to attenuate as groundwater passes through the site, indicating these compounds are unlikely to pose unacceptable risks to aquatic receptors in Badgerys Creek.
- Dewatering of tunnel shaft excavations will temporarily alter the groundwater gradient, drawing in groundwater into the excavation that contains these dissolved COPC. It is assessed that the COPC at the concentrations reported in groundwater will not pose unacceptable risks to human health in a generic commercial / industrial setting. Nevertheless, monitoring groundwater quality during construction is required to reassess such risks, and future management of water within the shaft.

Six-monthly groundwater monitoring as completed for the site with results discussed in **Section 8.5**.

5. Site Management Strategy

5.1 Aspects Requiring Management during Development

To ensure upon completion of the development works conclusions could defensibly be drawn with regard to suitability of the site for the proposed use, the RAP recommends a number of management measures.

The following aspects of the proposed development within the site required management:

- Fill within the Asbestos Source Zone (**Figure 4**) required management to prevent the potential cross contamination of other materials that do not contain asbestos;
- Sediment and erosion controls were required to prevent sediment-laden runoff entering the dam located to the west of the construction site, or to the southwest further offsite; and
- Surplus spoil from the proposed development required classification to enable beneficial reuse, or disposal offsite to a licensed landfill. Topsoil or fill materials were required to be stockpiled separately from natural soils to optimise the beneficial use of material.

5.2 Management of Spoil Excavated from Asbestos Source Zone

The following management procedures, in addition to those outlined in the SWMSP (CPBG 2022c), were required during excavation of the Asbestos Source Zone:

- CPBG to demark the Asbestos Source Zone using temporary fencing which aimed to restrict plant and vehicles within the area;
- The fenced area shall be of sufficient size to enable temporary stockpiling of fill for assessment and load-out. The temporary stockpiling area shall be provided with controls to minimise the cross contamination of soils beneath/surrounding the Asbestos Source Zone;
- The excavator shall work in a systematic manner to remove fill from the Asbestos Source Zone and store temporarily within the designated stockpiling area for assessment. CPBG shall engage a person competent in the identification of ACM (competent person) to inspect the gradual removal of fill materials from the Asbestos Source Zone, monitor for signs of potential contamination of potential ACM, and guide the segregation of fill as required;
- The excavation shall progress vertically until natural soils are encountered, as indicated by the Competent Person[17]. TTMP recommend that CPBG record the lateral and vertical extent of the excavation completed within the Asbestos Source Zone on a survey and record the fate of spoil removed from this area of the site;
- Fill material from the Asbestos Source Zone must not be mixed with natural soil. The excavation of natural soil from the Asbestos Source Zone shall not commence until fill material has been removed from the Asbestos Source Zone;
- If evidence of other indications of potential contamination are noted during the excavation of fill from the Asbestos Source Zone (e.g. stained or odorous soils, buried wastes, etc.) work should cease pending further investigation of this material by the Competent Person. Unexpected finds of contamination shall be managed in accordance with the procedure outlined within Section 7.9 of the SWMSP (CPBG 2022c); and

[17] The Competent Person must be experienced in the undertaking of excavation/remediation works and have the necessary experience to identify ACM and unexpected contamination. The Competent Person must have a working knowledge of the SWMSP and the Unexpected Finds Procedure.

- Plant and vehicles shall be subject to decontamination prior to leaving the Asbestos Source Zone to prevent unintentionally tracking soil onto other parts of the site. Decontamination shall comprise washing down vehicle tyres and excavator tracks with a hose in a 'wash bay' to remove soil. Tyres and tracks shall be inspected by a competent person from CPBG prior to allowing the vehicle to leave the Asbestos Source Zone.

All works within the Asbestos Source Zone shall be conducted in accordance with the Asbestos Management Plan developed by CPBG (CPBG 2022a).

5.3 Waste Minimisation Strategy

Significant excavations were required within the shaft footprint in the central portion of the site and surplus spoil generated from development within the site were assessed to determine its suitability for beneficial reuse as fill within other stages of the Project (e.g. FS01). CPBG was required to confirm that movement of spoil from the Bringelly site to other stages of the Project could occur lawfully in accordance with the relevant regulatory requirements set out within the *Protection of the Environment Operations (Waste) Regulation 2014* and *Protection of the Environment Operations Act 1997*. Where spoil was deemed surplus and could not beneficially be reused, such spoil required to be classified in accordance with the procedures set out within the Waste Classification Guidelines (NSW EPA, 2014).

To maximise the volume of material to be classified as VENM, a waste minimisation strategy has been developed as documented in *Material Classification Assessment: Bringelly Services Shaft* (TTMP 2022c). The objective of TTMP (2022c) was to provide an in-situ classification of material to be excavated during the construction of the shaft at the Bringelly Service Facility in accordance with the Western Sydney Airport Corporation (WSA Co) WSA Import Material Approval Form, WSA70-WSA-08000-EN-FRM-100003 ("IMAF"). In addition to completing 5 borehole locations within the footprint and in close proximity to the shaft, the TTMP (2022c) investigation also incorporated findings from previous investigations at the site (Cardno 2021a; Cardno 2021b; Golder & Douglas 2021).

Ground conditions encountered generally comprised between 0.2 m and 0.25 m of clay, gravelly clay and silty sand fill material (reworked natural ground) with rootlets. Underlying these materials were natural residual clay (weathered rock) to approximately 5 to 5.5 m bgs, followed by the Bringelly Shale comprising interlaminated siltstone and sandstone.

TTMP (2022c) results suggested that rock materials within the immediate vicinity of sample location SBT-BH-4206 at 17.9 – 18.0 m bgs did not meet the definition of VENM, based on the positive detection of PFAS in the sample from this location/depth (**Figure 3**).

Following excavation, confirmatory sampling was proposed to assess whether the material from the shaft could be classified as VENM (further details provided in **Section 8.2**).

5.4 Imported Material Strategy

As per the RAP, material imported fill to site needs to be documented including, details of the source, classification and suitability of all materials imported to site, where insufficient documentation is provided by the material supplier any imported fill requires sampling and validation.

Materials imported to the site will need to be lawful and suitable for the site with respect to contamination. Materials imported to the site must be adequately assessed as being appropriate for the final use of the site.

Prior to importing material to site, the Environmental Consultant will review documentation (e.g., VENM certificates and ENM classification reports) provided by material supplier, to confirm suitability prior to importing the material to site.

Where the documentation provided is not adequate to confirm the material is suitable for use, the Environmental Consultant will undertake:

- Detailed inspection of material at the receiving site by appropriately qualified Environmental Consultant confirming consistency of the material from the source site (source must be exposed); and
- Collection and laboratory analysis of samples in accordance with relevant NSW EPA guidelines and/or Resource Recovery Exemption / Order requirements. The scope of laboratory analysis shall be determined by the Environmental Consultant undertaking the assessment, based on the characteristics of the material and current/historic use of the source site.

The Environmental Consultant must collate the field and laboratory records and prepare a standalone material classification report which concludes whether the material can be imported to site, and whether it is suitable for its intended use. Material classification reports prepared by the Environmental Consultant shall be appended to the Validation Report prepared for this site.

On arrival, each truck load of imported material will be visually checked by CPBG to assess its consistency with the material classification assessments. A record of these checks should be maintained as part of the material tracking system implemented for the project. Suspicious materials or materials different to the approved materials must be rejected.

The source site, volume, associated chemical test certificates and placement locations of the imported fill material will be tracked by CPBG or their nominated Contractor. These records shall be provided to the Environmental Consultant for inclusion in the Validation Report.

©JBS&G Australia Pty Ltd

6. Validation Plan

6.1 Data Quality Objectives

Data quality objectives (DQOs) were developed for the validation assessment, as discussed in the following sections.

6.1.1 State the Problem

The site is proposed to be developed into Bringelly Station Box as part of the SBT Works package of the Sydney Metro Western Sydney Airport.

The site has historically been used as rural residential land, characterised by a residential dwelling and several sheds. Given the nature of the historical uses, and whilst previous investigations had not identified the presence of widespread contamination issues, there remained the possibility that various smaller scale conditions of contamination concern may be encountered during the site clearing program. In addition, it was required to ensure that material imported and exported from the site was appropriately documented to demonstrate compliance with NSW legislation and EPA guidance.

As such, a validation assessment was required to evaluate the implementation of the RAP and thereby demonstrate that compliance with the RAP has enabled drawing of conclusions confirming the suitability of the site for the proposed land uses.

6.1.2 Identify the Decision

The following decisions are required to be made during the validation works:

- Have any identified remediation areas at the site not been appropriately managed in accordance with the RAP?
- Have any unexpected finds encountered at the site not been appropriately managed in accordance with the RAP?
- Are there any materials removed from the site that have not been appropriately characterised and disposed of during the development works?
- Has any imported material not been appropriately characterised to demonstrate it does not present an unacceptable risk in relation to the future site use?
- Have development works at the site been completed not in accordance with the requirements of the RAP?
- Are contaminants concentration in soil remaining on site above the adopted validation criteria?
- Is the site suitable for the proposed use?

6.1.3 Identify Inputs to the Decision

The following inputs were required in order to make the stated decisions:

- Physical observations, including visual and olfactory results during site activities;
- Documentation to verify appropriate removal and disposal of waste;
- Documentation to verify suitability of material imported to the site;
- Soil analytical data from validation sampling completed;
- The site soil validation acceptance criteria adopted for contaminants of concern with regard to the proposed land uses; and

- Confirmation that data generated by sampling and analysis are of an acceptable quality to allow reliable comparison by assessment of quality assurance / quality control as per the data quality indicators established in **Section 6.1.6**.

6.1.4 Site Boundaries

The boundary for the site is shown on **Figure 2** and is defined as the Bringelly site on the survey included as **Appendix A.** The site is formally identified as Lot 2502 DP1282956.

The vertical extent of the works was limited to surfaces (no validation samples taken) following site excavation/formation works.

As a result of the project objectives, the temporal study boundaries were limited to the period of assessment works completed at the site between the 1 August 2022 and 8 November 2024. Due to the nature of the potential contamination identified, seasonality is not considered to be significant with respect to assessing risks to future site receptors.

6.1.5 Decision Rule

Soil analytical data were assessed against EPA published / endorsed criteria for constituents:

- *National Environment Protection (Assessment of Site Contamination) Measure 1999 as amended 2013*, National Environment Protection Council, 2013 (NEPC 2013);
- Contaminated Land Management Guidelines for the NSW Site Auditor Scheme 3rd Edition, October 2017 (NSW EPA 2017); and
- Waste Classification Guidelines. Part 1: Classifying Waste, NSW EPA, November 2014 (EPA 2014).

6.1.6 Summarise Decision Rules

The decision rules adopted to answer the decisions identified in **Section 6.1.2** are summarised in **Table 6.1**.

Table 6.1: Summary Decision Rules

Decision Required to be made	Decision Rule
1. Have any identified remediation areas at the site not been appropriately managed in accordance with the RAP?	Comparison of the RAP requirements with the scope of works completed to manage identified remediation areas was undertaken on a qualitative basis. If the works completed were consistent with the RAP requirements, the answer to the decision was No. In the event works were not completed in accordance with the requirements, evaluation of the completed works in accordance with the objectives of the RAP was completed. If the works were completed in accordance with the RAP objectives, the answer was also No. Otherwise, the answer to the decision was Yes.
2. Have any unexpected finds encountered at the site not been appropriately managed in accordance with the RAP?	Comparison of the RAP requirements with the scope of works completed to manage unexpected finds encountered on the site was undertaken on a qualitative basis. If the works completed were consistent with the RAP requirements, the answer to the decision was No. In the event works were not completed in accordance with the requirements, evaluation of the completed works in accordance with the objectives of the RAP was completed. If the works were completed in accordance with the RAP objectives, the answer was also No. Otherwise, the answer to the decision was Yes.
3. Are there any materials removed from the site that have not been appropriately characterised and	A qualitative assessment of material disposal records was completed following the completion of development works with respect to the waste classification.

Decision Required to be made	Decision Rule
disposed of during the development works?	If the documentation was completed and appropriate, the answer to the decision was No. Otherwise, the answer to the decision was Yes.
4. Has imported material been appropriately characterised to demonstrate it does not present an unacceptable risk in relation to the future site use?	Documentation was be reviewed against requirements in the RAP in addition to comparison of soil analytical data against EPA endorsed criteria (where required). If concentrations were all less than the relevant adopted criterion, the answer to the decision was No. If the concentrations exceeded the adopted criterion for one or more analytes, the answer to the decision was Yes.
5. Have development works at the site been completed in accordance with the requirements of the RAP?	Comparison of the RAP requirements with the completed scope of works was undertaken on a qualitative basis. If the works completed were consistent with the RAP requirements, the answer to the decision was No. In the event that works were not completed in accordance with the requirements, evaluation of the completed works in accordance with the objectives of the RAP was completed. If the works were completed in accordance with the RAP objectives, the answer to the decision was also No. Otherwise the answer to the decision was Yes.
6. Are contaminant concentration in soil remaining on site above the adopted validation criteria?	Soil analytical data was compared against EPA endorsed criteria as established in **Section 6.4** as validation criteria. For each validation data set, samples collected from consistent horizons, stratigraphy or material type with sufficient sample numbers were subject to statistical analysis in accordance with relevant guidance documents, as appropriate, to facilitate the decisions. The following statistical criteria were adopted with respect to each sample set: Either: the reported concentrations were all be below the site criteria; Or: the average site concentration for each analyte was below the adopted site criterion; no single analyte concentration exceeded 250% of the adopted site criterion; and the standard deviation of the results was less than 50% of the site criterion. And: the 95% upper confidence limit (UCL) of the average concentration for each analyte was below the site criterion. If the statistical criteria stated above were satisfied, the answer to the decision was No. If the statistical criteria were not satisfied, the answer to the decision was Yes.
7. Is the site considered suitable for the proposed use?	Was the answer to any of the above decisions Yes? If yes, a site management strategy may be required. If no, a site management strategy was not required and the site is considered suitable for the proposed land uses.

6.1.7 Specify Limits of Decision Error

Specific limits for this project have been adopted in accordance with the appropriate guidance from the NSW EPA, NEPC (2013) appropriate indicators of data quality (Data Quality Indicators (DQIs) used to assess quality assurance / quality control) and standard JBS&G procedures for field sampling and handling.

To assess the usability of the data prior to making decisions, the data will be assessed against pre-determined DQIs for completeness, comparability, representativeness, precision and accuracy. The acceptable limit on decision error is 95% compliance with DQIs.

The pre-determined DQIs established for the project are discussed below in relation to precision, accuracy, representativeness, comparability, completeness and sensitivity (PARCCS parameters), and are shown in **Table 6.2**.

- **Precision** – measures the reproducibility of measurements under a given set of conditions. The precision of the laboratory data and sampling techniques is assessed by calculating the Relative Percent Difference (RPD) of duplicate samples for chemical COPCs. For asbestos precision is assessed by whether the identification results for duplicate samples were in agreement with the original sample.
- **Accuracy** – measures the bias in a measurement system. The accuracy of the laboratory data that are generated during this study is a measure of the closeness of the analytical results obtained by a method to the 'true' value. Accuracy is assessed by reference to the analytical results of laboratory control samples, laboratory spikes and analyses against reference standards. Note only applied to chemical COPC.
- **Representativeness** – expresses the degree which sample data accurately and precisely represent a characteristic of a population or an environmental condition. Representativeness is achieved by collecting samples on a representative basis across the Site, and by using an adequate number of sample locations to characterise the Site to the required accuracy.
- **Comparability** – expresses the confidence with which one data set can be compared with another. This is achieved through maintaining a level of consistency in techniques used to collect samples; and ensuring analysing laboratories use consistent analysis techniques; and reporting methods.
- **Completeness** – is defined as the percentage of measurements made which are judged to be valid measurements. The completeness goal is set at there being sufficient valid data generated during the study.
- **Sensitivity** – expresses the appropriateness of the chosen laboratory methods, including the limits of reporting, in producing reliable data in relation to the adopted Site assessment criteria.

Table 6.2: Summary of the Data Quality Objectives for Soil Validation Program

Data Quality Indicator	Frequency	Data Quality Criteria[1]
Precision		
Blind duplicates (intra laboratory) Chemical analysis	1 / 20 samples	<50% RPD, Asbestos samples in agreement
Blind duplicates (inter laboratory) Chemical analysis	1 / 20 samples	
Laboratory Duplicates	1 / 20 samples	<50% RPD
Accuracy		
Laboratory control samples	1 per lab batch	< limit of reporting (LOR)
Surrogate spikes	All organic samples	70-130%
Matrix spikes	1 per lab batch	70-130%
Representativeness		
Sampling appropriate for media and analytes	All samples	All samples
Samples extracted and analysed within holding times	All samples	All samples
Rinsate	1 per sample batch	<LOR
Trip spike	1 per sample batch	70-130%
Trip blank	1 per sample batch	<LOR
Comparability		
Standard operating procedures for sample collection & handling	All Samples	All samples
Standard analytical methods used for all analyses	All Samples	All samples
Consistent field conditions, sampling staff and laboratory analysis	All Samples	All samples
Limits of reporting appropriate and consistent	All Samples	All samples
Completeness		
Soil description and COCs completed and appropriate	All Samples	All samples
Appropriate documentation	All Samples	All samples
Satisfactory frequency and result for QC samples	All QA/QC samples	-
Data from critical samples is considered valid	-	Critical samples valid
Sensitivity		
Analytical methods and limits of recovery appropriate for media and adopted Site assessment criteria	All samples	LOR<= Site assessment criteria

(1) If the RPD between duplicates is greater than the pre-determined data quality criteria, a judgment will be made as to whether the excess is critical in relation to the validation of the data set or unacceptable sampling error is occurring in the field.

6.2 Optimise the Design for Obtaining Data

The purpose of this step was to identify a resource-effective field investigation sampling design that generated data that were expected to satisfy the Site Manager's decision performance criteria, as specified in the preceding steps of the DQO Process. The output of this step was the sampling design that guided development of the field sampling and analysis plan. This step provided a general description of the activities necessary to generate and select data collection designs that satisfied decision performance criteria.

The assessment and subsequent laboratory analysis program as outlined in the following sections was implemented during site validation activities to demonstrate successful completion of works in compliance with the RAP (TTMP 2022b) goals and requirements.

6.2.1 Validation Methodology – Asbestos Source Zone and Building Footprints

The following approach was completed to validate the removal of fill from the Asbestos Source Zone and the remaining building footprints:

1. Following demolition of the buildings, CPBG-JV excavated the surface soils to a nominal depth of 300 mm, or to the depth of natural material (whichever was shallowest).
2. At the time of the excavation, the surface was inspected by CPBG-JV's representative to confirm that fill soils/topsoil had been removed to the depth of natural soil.
3. The excavated soils were stockpiled and were then assessed for ongoing management (see **Section 8.3**). It is noted the soils were originally planned to be disposed offsite as documented in the RAP (TTMP, 2022b), however following excavation and stockpiling, CPBG-JV requested the assessment of these materials for onsite reuse.

Following the CPBG-JV inspection, the majority of the site was filled with an engineering material (understood to be a combination of sandstone and DGB) to create a stable surface for the future works.

JBS&G completed an inspection and sampling program detailed as follows:

1. Visual inspection of the building footprint to confirm excavation to natural soils.
2. Where the inspection of an area was unable to be completed due to presence of imported soils to create a stable surface or other, JBS&G queried CPBG-JV on the methodology of the removal of topsoil and completed an inspection of the surrounding areas (if possible).

6.3 Asbestos Source Zone Stockpile Soil Sampling Methodology

It is noted the Asbestos Source Zone was identified in the RAP based on the identification of one ACM fragment in the vicinity of HA01. The consultant completed laboratory assessment on the fragment which confirmed the presence of asbestos and also indicated the fragment was removed at the time of the assessment. Based on the identification of the ACM fragment the RAP was conservatively developed to classify all surficial materials in the vicinity of the dwelling and shed as the Asbestos Source Zone requiring remediation.

Following excavation CPBG-JV requested the stockpiled soils to be assessed for suitability to be retained onsite. Considering the estimated stockpile volume of 2000 m^3, in accordance with the Table 4 of *NSW Sampling design part 1 – application* guidelines for assessment of asbestos in stockpiled soil a total of 80 samples are required (at a rate of 1 sample per 25 m^3). Samples were collected from 40 test pit locations advanced by excavator across the top of the stockpile to the total depth of the stockpile (1.5 m below the top of the stockpile). At each location two samples were collected one for the first metre depth (0 – 1 m) and one for the second metre depth (1 – 1.5 m).

Samples were collected by appropriately trained and experienced environmental scientists by gloved-hand at required densities to meet the project DQIs presented in **Section 6.1**.

During the collection of soil samples, features such as seepage, discolouration, staining, odours and other indicators of contamination were noted on the field documentation.

6.3.1 Asbestos Quantification

Consistent with NEPC (2013) guidance, where bulk soil samples (minimum 10 L) were collected at each sampling location requiring validation for asbestos. Collected bulk sample were sieved in the field (≤7 mm passing) and separated fragments retained and weighed, or spread out on contrasting plastic. The asbestos concentration as ACM in soil was then calculated in accordance with NEPC (2013) and based on the weight of collected fragment/s (assuming 15 % asbestos content) divided by the weight of the collected 10 L soil sample, providing a w/w %.

6.3.2 Sample Handling

Collected samples were immediately transferred to sample containers of appropriate composition (plastic bags for asbestos) Sample labels recorded; job number; sample identification number; and date of sampling.

Sample containers were transferred to a chilled ice box for sample preservation prior to and during shipment to the testing laboratory. A chain-of-custody form was completed and forwarded with the samples to the testing laboratory.

6.3.3 Soil Duplicate and Triplicate Sample Preparation and QA/QC Requirements

Field duplicate and triplicate samples were obtained during sampling using the procedures outlined above at a frequency of 1 in 20 primary samples for both intra-laboratory duplicates and field inter-laboratory triplicates. The samples were divided laterally into 3 samples and placed plastic bags.

6.3.4 Laboratory Analyses

All laboratories were National Associated Testing Authorities (NATA) registered for the relevant analyses. In addition, the laboratories met the QA/QC requirements consistent **Table 6.2**.

6.4 Validation Criteria

6.4.1 Soil Criteria

As discussed in the RAP (TTMP, 2022b), the site is intended to be developed for commercial / industrial land use. As such, health-based criteria for commercial / industrial land use were adopted for site characterisation/validation.

Soil analytical results have been compared against published levels as presented in **Table 6.3**. The validation criteria are based on guidelines provided in NEPC (2013[18]):

- NEPM 2013 Health investigations levels (HIL);
- NEPM 2013 Health screening levels (HSL) Vapour Intrusion 0 to <1 m, sand;
- NEPM 2013 Ecological Investigation Levels (EIL);
- NEPM 2013 Ecological Screening Levels (ESL); and
- Concentrations of PFAS compounds in soil are to be compared against the health commercial industrial for PFAS compounds provided in NEMP 2.0[19].

---

[18] National Environmental Protection (Assessment of Site Contamination) Measure 1999, ('ASC NEPM') NEPC (2013)

[19] *PFAS National Environmental Management Plan Version 2.0, January 2020*. National Chemicals Working Group of the Heads of EPAs Australia and New Zealand (NEMP 2.0)

Where positive detection of an analyte has been reported that does not have published health-based assessment criteria from the above documents, alternative guidelines from other, authoritative sources were referred to including but not limited to the US EPA Regional Screening Levels.

Where sufficient data sets were available, statistical criteria as nominated following were applied:

Either:

- All contaminant concentrations were less than the adopted site assessment criteria,

Or:

- The upper 95% confidence limit on the average concentration each analyte (calculated for samples collected from consistent soil horizons, stratigraphy or material types) was below the adopted criterion;
- No single analyte concentration exceeded 250% of the adopted criterion; and
- The standard deviation of the results was less than 50% of the criterion.

In addition, consideration was given to the presence of odorous or discoloured soils (caused by contamination), and other aesthetic issues.

Table 6.3: Adopted Site Criteria

	Limit of Reporting	Laboratory Method	Health Investigation/ Screening Levels Commercial / Industrial (HIL-D)
METALS			
Arsenic	2.0	ICP-AES (USEPA 200.7)	3000
Cadmium	0.4	ICP-AES (USEPA 200.7)	900
Chromium	5.0	ICP-AES (USEPA 200.7)	3600[1]
Copper	5.0	ICP-AES (USEPA 200.7)	240000
Nickel	5.0	ICP-AES (USEPA 200.7)	6000
Lead	5.0	ICP-AES (USEPA 200.7)	1500
Zinc	5.0	ICP-AES (USEPA 200.7)	40000
Mercury (inorganic)	0.1	Cold Vapour ASS (USEPA 7471A)	730[2]
POLYCYCLIC AROMATIC HYDROCARBONS			
Carcinogenic PAHs (as B(a)P TPE)[3]	0.5	GCMS (USEPA8270)	40
Naphthalene	0.5	Purge Trap-GCMS (USEPA8260)	NL
Total PAHs[4]	0.5	GCMS (USEPA8270)	4000
BTEX			
Benzene	1.0	Purge Trap-GCMS (USEPA8260)	3[5]
Toluene	1.0	Purge Trap-GCMS (USEPA8260)	NL[7]
Ethylbenzene	1.0	Purge Trap-GCMS (USEPA8260)	NL[7]
Total Xylenes	3.0	Purge Trap-GCMS (USEPA8260)	230
TOTAL RECOVERABLE HYDROCARBONS			
F1 C_6-C_{10}	10	TRH Purge Trap-GCMS (USEPA8260)	230[6,]
F2 >C_{10}-C_{16}	50	TRH Purge Trap-GCMS (USEPA8260)	NL[7]

	Limit of Reporting	Laboratory Method	Health Investigation/ Screening Levels Commercial / Industrial (HIL-D)
F3 >C_{16}-C_{34}	100	Purge Trap-GCFID (USEPA8000)	-
F4 >C_{34}-C_{40}	100	Purge Trap-GCFID (USEPA8000)	-
ORGANOCHLORINE PESTICIDES			
DDT + DDD + DDE	0.3	GCECD (USEPA8140,8080)	3600
Aldrin + Dieldrin	0.2	GCECD (USEPA8140,8080)	45
Chlordane	0.1	GCECD (USEPA8140,8080)	530
Endrin	0.1	GCECD (USEPA8140,8080)	100
Heptachlor	0.1	GCECD (USEPA8140,8080)	50
HCB	0.1	GCECD (USEPA8140,8080)	80
Methoxychlor	0.1	GCECD (USEPA8140,8080)	2500
PFAS			
Perfluorooctanoic acid (PFOA)	0.005	LTM-ORG-2100 PFAS	50
Perfluorohexanesulfonic acid (PFHxS)	0.005	LTM-ORG-2100 PFAS	20
Perfluorooctanesulfonic acid (PFOS)	0.005	LTM-ORG-2100 PFAS	20
Sum of PFHxS and PFOS	0.005	LTM-ORG-2100 PFAS	20
OTHER			
Bonded Asbestos	Presence	PLM / Dispersion Staining	0.05%
AF/FA	Presence	PLM / Dispersion Staining	0.001%
All forms of asbestos	Presence	PLM / Dispersion Staining	No visible ACM for surface soil (0 – 0.1 m bgs).

1. Guideline values presented are for Chromium (VI) in absence of total Chromium values. Where total Chromium results are elevated, representative samples will be analysed for Chromium (VI).
2. Guideline values are for inorganic mercury. Where elevated mercury concentrations are encountered and/or site information suggests the potential presence of elemental mercury and/or methyl mercury, consideration of applicability would be needed.
3. Carcinogenic PAHs calculated as per Benzo(a)pyrene Toxicity Equivalent Factor requirements presented in NEPC (2013)
4. Total PAHs calculated as per requirements presented in NEPC (2013).
5. Soil Health Screening Levels for Vapour Intrusion: Sandy Soils. Values presented are those for 0 to <1 m bgs as the most conservative level.
6. Values for F1 C6-C9 are obtained by subtracting BTEX (Sum) from laboratory result for C6-C9 TRH.
7. NL = Non Limiting

The ecological criteria adopted for the site are shown in **Table 6.4**. For the subject site, the commercial / industrial EILs/ESLs were adopted. The ecological criteria are based on site-specific soil properties derived in the DSI (TTMP 2022a), consistent with NEPC (2013) guidelines.

Concentrations of PFAS compounds in soil are to be compared against the ecological indirect and direct screening levels for PFAS compounds provided in NEMP 2.0.

Table 6.4: Ecological Based Criteria

Metals	Limit of Reporting	Laboratory Method	EIL / ESLs Commercial / Industrial
Arsenic	4.0	ICP-AES (USEPA 200.7)	160
Cadmium	0.4	ICP-AES (USEPA 200.7)	-
Chromium	1.0	ICP-AES (USEPA 200.7)	1100[2]
Chromium (VI)	1.0	Alkali leach colorimetric (APHA3500-Cr/USEAP3060A)	-
Copper	1.0	ICP-AES (USEPA 200.7)	320
Nickel	1.0	ICP-AES (USEPA 200.7)	440
Lead	1.0	ICP-AES (USEPA 200.7)	1800
Zinc	1.0	ICP-AES (USEPA 200.7)	1100
Mercury (inorganic)	0.1	Cold Vapour ASS (USEPA 7471A)	-
PAHs			
Benzo(a)pyrene	0.5	GCMS (USEPA8270)	1.4
Naphthalene	0.1	GCMS (USEPA8270)	370
BTEX			
Benzene	1.0	Purge Trap-GCMS (USEPA8260)	95
Toluene	1.0	Purge Trap-GCMS (USEPA8260)	135
Ethylbenzene	1.0	Purge Trap-GCMS (USEPA8260)	185
Total Xylenes	3.0	Purge Trap-GCMS (USEPA8260)	95
TRH			
F1 C_6-C_{10}	10	TRH Purge Trap-GCMS (USEPA8260)	215[1]
F2 >C_{10}-C_{16}	50	TRH Purge Trap-GCMS (USEPA8260)	170
F3 >C_{16}-C_{34}	100	Purge Trap-GCFID (USEPA8000)	2500
F4 >C_{34}-C_{40}	100	Purge Trap-GCFID (USEPA8000)	6600
OCPs			
DDT	0.1	GCECD (USEPA8140,8080)	640
PFAS			
Perfluorooctanoic acid (PFOA)	0.005	LTM-ORG-2100 PFAS	10
Perfluorooctanesulfonic acid (PFOS)	0.005	LTM-ORG-2100 PFAS	0.01

1. Values for F1 C6-C9 are obtained by subtracting BTEX (Sum) from laboratory result for C6-C9 TRH.
2. Value for Chromium (III) adopted for evaluation of total Chromium in the absence of known Chromium (VI) source.

6.4.2 Application of Soil Criteria

For soil to be considered as validated (i.e. not posing an unacceptable risk), all reported concentrations must be below the applicable site validation criteria. Where results were found to be above the adopted criteria, then statistical analyses of the data in accordance with relevant guidance documents was undertaken, if appropriate. If the statistical results were below the site criteria, then the results were considered acceptable.

In addition, consideration was also given to the presence of odorous or discoloured soils (caused by contamination), and other aesthetic issues.

6.4.3 Offsite Disposal Criteria

Contaminated soils requiring disposal off-site were assessed in accordance with:

- NSW EPA (2014) *Waste Classification Guidelines Part 1: Classifying Waste* and NSW EPA (2016) *Addendum to the Waste Classification Guidelines (2014) – Part 1: classifying waste.*
- Resource Recovery Order under Part 9, Clause 93 of the Protection of the Environment Operations (Waste) Regulation 2014 – The excavated natural material order 2014, NSW Environment Protection Authority (EPA 2014).
- Virgin Excavated Natural Material (VENM) as defined in *Protection of Environment and Operations (POEO) Act 1997.*
- Soil criteria provided in *Airports (Environment Protection) Regulations 1997* for beneficial reuse as fill within the Western Sydney Airport site (FS01).

6.4.4 Imported Soil Criteria

In accordance with the RAP (TTMP 2022b), imported fill materials were only considered for importation to the site if they:

- Met the definition of VENM as defined in *Protection of Environment and Operations (POEO) Act 1997*; or
- Met the definition of a current resource recovery order and exemption (RRO/RRE) as defined in the relevant regulations (e.g. Excavated Natural Material (ENM) or other exempt material as defined in relevant regulations).

Imported material is also required to meet the relevant NEPM (2013) criteria summarised in **Section 6.4.1**.

7. Quality Assurance and Quality Control

The quality assurance / quality control (QA/QC) program is detailed in **Section 6.1.7**, with a discussion of the quality control results provided below.

7.1 Site Validation QA/QC Summary

Table 7.1: Site Validation QA/QC Summary

Data Quality Indicator	Frequency Conducted	Results	DQI
Precision			
Intra laboratory duplicates	20%	All in agreement	Yes
Inter laboratory duplicates	20%	All in agreement	Yes
Laboratory duplicates	None required for asbestos assessment	-	Yes
Accuracy			
Surrogate spikes (70-130%)	None required for asbestos assessment	-	Yes
Laboratory control samples (70-130%)	None required for asbestos assessment	-	Yes
Matrix spikes (70-130%)	None required for asbestos assessment	-	Yes
Representativeness			
Sampling appropriate for media and analytes	All media / analytes	All sampling considered appropriate	Yes
Samples extracted and analysed within holding times	All samples	All samples extracted and analysed within holding times	Yes
Laboratory blanks (<LOR)	None required for asbestos assessment	-	Yes
Trip spikes (70-130%)	None required for asbestos assessment	-	Yes
Trip blanks (<LOR)	None required for asbestos assessment	-	Yes
PFAS Field Blank	None required for asbestos assessment	-	Yes
Rinsate sample (<LOR)	None required for asbestos assessment	-	Yes
Comparability			
Standard operating procedure for sample collection and handling	All samples	Experienced JBS&G personnel completed the sampling events throughout the project in accordance with standard JBS&G sampling methods and where applicable, methods nominated in Australian Standards and/or EPA endorsed guidelines.	Yes

Data Quality Indicator	Frequency Conducted	Results	DQI
Standard analytical methods used for all analyses	All samples	All laboratories were used the same analytical methods and reported to the same laboratory LORs were maintained throughout the project period.	Yes
Consistent field conditions, sampling staff and laboratory analysis	All samples	The same JBS&G field scientist was used throughout the validation works.	Yes
Limits of reporting appropriate and consistent	All samples	Limits of reporting were appropriate to achieve the validation objectives and were consistent throughout the works	Yes
Completeness			
Soil description and COCs completed and appropriate	All samples	All soils sample sheets and COCs were completed appropriately	Yes
Appropriate documentation	All samples	Appropriate field documentation is included in the appendices	Yes
Satisfactory frequency and results for QA/QC samples	All QA/QC samples	QA/QC samples were collected within satisfactory frequency	Yes
Data from critical samples is considered valid	-	Field and laboratory data is complete and satisfactory for critical samples	Yes
Sensitivity			
Field and analytical methods and limits of recovery appropriate for media and adopted site assessment criteria	All samples	<LOR (site validation criteria)	Yes

Note:

1. Discussion of results in **Section 7.2**

7.2 Soil Validation QA/QC Discussion

7.2.1 Precision

Field Duplicates

Four duplicate and triplicate samples were collected during this sampling event and were in agreement with the primary samples. Therefore, the soil data is considered to be of an acceptable quality upon which to draw conclusions regarding impacts within the soils.

7.2.2 Representativeness

Sampling appropriate for media and analytes

All sampling works completed during the investigation were conducted in accordance with JBS&G standard operating procedures. Soil sampling was conducted with the advancement of test pits. Sampling was undertaken by appropriately experienced staff in accordance with best practice procedures.

Sampling was conducted in accordance with the RAP (TTMP, 2022b). Asbestos quantification was conducted on all sample locations in accordance with WA DoH 2009 and NEPC 2013 guidance.

Holding times

Given the particulate structure of asbestos, no published holding times are prescribed for the analysis of asbestos. As such, all samples were analysed within an adequate time frame.

Rinsate blank

A rinsate blank was not collected as no reusable equipment was used to collect samples.

7.2.3 Comparability

All laboratories used through the project (Eurofins MGT and Envirolab Services) were NATA accredited for all analytical methods.

Experienced JBS&G personnel completed the sampling events throughout the project in accordance with standard JBS&G sampling methods and where applicable, methods nominated in Australian Standards and/or EPA endorsed guidelines. The same JBS&G field scientist team was used throughout the project.

7.2.4 Completeness

All documentation is complete and correct. The frequency of analysis of all QC samples is considered appropriate. Sufficient data was available to demonstrate that the analytical results for the collected samples can be relied upon to make informed decisions with respect the remainder of the DQO process.

7.2.5 Sensitivity

Field and analytical methods and laboratory LORs were all appropriate for the media and the adopted site validation criteria.

7.2.6 QA/QC Assessment

The results of the field and laboratory QA/QC assessment program indicates the data obtained from this validation assessment generally met the predetermined DQIs or, where the DQIs were exceeded, did not indicate systematic sampling and/or analytical errors. Overall, the results are considered to have achieved the 95% compliance rate and as such, the data is considered to be of adequate quality to be relied upon for the purposes of assessing the environmental condition at the site.

8. Validation and Characterisation Results

8.1 Validation Areas

As required by the RAP (TTMP 2022b) (and discussed in **Section 5.1**), soil materials from the asbestos source zone and remaining building footprints (**Figure 4**) required to be managed by removal and offsite disposal to facilitate construction works. A Competent Person was engaged by CPBG to inspect the gradual removal of fill materials and monitor for signs of potential contamination or potential ACM. CPBG-JV completed an inspection of the Asbestos Source Zone and Remaining Building Footprint progressively as materials were removed and stockpiled. Photographs of the provided by CPBG-JV are included in **Appendix D**, with no visual signs of contamination observed by CPBG-JV.

8.1.1 Asbestos Source Zone

Excavation of the Asbestos Source Zone was completed by CPBG-JV as the extent indicated in the RAP, as shown on **Figure 4**, the vertical extent of removal was between 300 mm to 500 mm. CPBG-JV completed an inspection of the Asbestos Source Zone and Remaining Building Footprint progressively as materials were removed and stockpiled, with no visual signs of contamination or ACM observed by CPBG-JV. Photographs provided by CPBG-JV of the inspection following removal of the Asbestos Source Zone are provided as **Photograph 14**, **15** and **16**, **Appendix D**.

JBS&G completed an additional validation inspection on 13 September 2023 of the Asbestos Source Zone including two former building footprints (residential house and shed) as shown in **Figure 4**. The residential house footprint was obstructed by an ENM spoil stockpile from the shaft construction and compacted DGB hardstand underneath. No remaining fill, ACM or any signs of contamination were observed. The shed footprint comprised a concrete slab with a recently built shed occupying the footprint area. No remaining fill, ACM or any signs of contamination were observed.

Materials excavated from this area were stockpiled and assessed for suitability for onsite reuse, as documented in **Section 8.3.1**.

Based on stockpile assessment (**Section 8.3.1**) in combination with CPBG observations at the time of removal (no visual observations of contamination or ACM) and the inspection completed by JBS&G, there is considered to be sufficient information with regards to the clearance of Asbestos Source Zone such that the risk of potential contamination in the Asbestos Source Zone is considered to be low.

8.1.2 Former Shed

JBS&G completed a validation inspection on 13 September 2023 of the former shed building footprint in the northern portion of the site. The shed house footprint comprised compacted DGB hardstand, forming part of the Haul Road. No remaining fill, ACM or any signs of contamination were observed.

Based on CPBG observations at the time of removal (no visual observations of contamination or ACM), in combination with the inspection completed by JBS&G, there is considered to be sufficient information with regards to the clearance of building footprints such that the risk of potential contamination in the building footprints is considered to be low.

8.2 Waste Minimisation Confirmatory Sampling

As discussed in **Section 5.3**, a waste minimisation strategy was developed as documented in TTMP (2022c), which aimed at providing an in-situ classification of material to be excavated during the construction of the shaft at the Bringelly Service Facility. TTMP (2022c) results suggested that rock materials within the immediate vicinity of sample location SBT-BH-4206 at 17.9 – 18.0 m bgs did not meet the definition of VENM, based on the positive detection of PFAS in the sample from this location/depth (**Figure 3**). It was proposed to undertake confirmatory sampling following excavation of materials to assess whether the material from the shaft could be classified as VENM.

TTMP completed confirmatory sampling within the station box to assess natural material as VENM, as documented in TTMP (2023d; 2023f), noting these reports are addenda to TTMP (2022c). The purpose of the confirmatory sampling was to assess whether the trace PFAS concentration identified at SBT-BH-4206 (17.9 – 18.0 m bgs) was a false positive. TTMP collected representative samples from 12 to 13 m bgs (TTMP 2023d), 14 m to 18 m bgs (TTMP 2023e), and 19 to 20 m bgs (TTMP 2023f). Samples from the confirmatory locations (CS-N and CS-S) were collected at 1 m depth intervals from material which was excavated and stockpiled on the ground surface for sampling. Soil sampling frequency met the minimum number of soil samples for stockpiles as per the ENM Order 2014 and samples were analysed for TPH, BTEX, PAH, asbestos, heavy metals, foreign materials, soil pH and electrical conductivity (EC), and PFAS.

The analysis of soil samples did not detect PFAS. Metals and hydrocarbon constituents were detected in some samples, but were considered to be consistent with levels indicative of background levels within the Bringelly Shale. TTMP (2023d; 2023e; 2023f) concluded that the material from 12 m to 20 m bgs within the shaft at the Bringelly Service Facility meets the definition of VENM. TTMP (2023f) further states that Bringelly Shale deeper than 20 m bgs to the base of the excavation of the shaft at 37 m AHD (approximately 36 m bgs) was also considered to comprise VENM. Where the material was disposed offsite, this is further detailed in **Section 9**.

TTMP (2022c, 2023d, 2023e and 2023f) are provided as **Appendix E**.

8.3 Stockpile Assessments

Fill material from building footprints and other site materials generated from earthworks within the site surplus to site requirements were stockpiled. Stockpiled materials were then assessed for site reuse or offsite disposal, depending on the client request. Assessments were completed to determine suitability for reuse onsite or for waste classification for offsite disposal.

A materials tracking summary table is included in **Appendix F**, which provides a register of assessed stockpiles / in-situ materials and the final fate of materials (placement / current location at the site or offsite disposal). Assessment / waste classification reports are provided in **Appendix G**. A summary of material disposed offsite is provided in **Section 9**.

8.3.1 Asbestos Source Zone Stockpile Assessment

8.3.1.1 Material Details

The stockpile was located in the western portion of the site as shown on **Figure 5** and was sourced from the excavation of the Asbestos Source Zone. The estimated stockpile volume was 2000 m^3. It is noted the Asbestos Source Zone was identified in the RAP based on the identification of one ACM fragment in the vicinity of HA01. The consultant complete laboratory assessment on the fragment which confirmed the presence of asbestos and also indicated the fragment was removed at the time of the assessment. Based on the identification of the ACM fragment the RAP was conservatively developed to classify all surficial materials in the vicinity of the dwelling and shed as the Asbestos Source Zone requiring remediation. Additionally, the DSI did not report any other contaminants of concern in these materials, as such asbestos was the only identified contaminant of potential concern for this stockpile.

Following excavation CPBG-JV requested the stockpiled soils to be assessed for suitability to be retained onsite. Considering the estimated stockpile volume of 2000 m^3, in accordance with the Table 4 of *NSW Sampling design part 1 – application* guidelines for assessment of asbestos in stockpiled soil a total of 80 samples are required (at a rate of 1 sample per 25 m^3). Based on the above, 80 samples were collected from the stockpile from a total of 40 test pit locations for assessment of asbestos via 10 L AQs and laboratory analysis. Sample methodology is outlined in **Section 6.3** and test pit locations (B-TP01 to B-TP40) are shown on **Figure 5**.

8.3.1.2 Material Characterisation

The data summary table for characterisation samples collected from the stockpile is provided in **Appendix B**. Laboratory reports are provided in **Appendix C**. Photographs are provided in **Appendix D**.

Visual inspection of the stockpile and sampling of the stockpile was completed on 10 and 11 September 2024. At the time of the assessment the surface of the stockpile was densely covered with grass. The materials consisted of red/brown, silty gravelly clay with trace inclusions of roots/rootlets, wood and gravels (concrete and shale). In some location's bricks, pipe, wire, bone fragments, asphalt and ACM fragments were observed. No odours or staining was observed. No ACM was observed on the stockpile surface.

Eighty 10 L AQ assessments were completed on the stockpile with one fragment of ACM identified in the sample at B-TP24_1-1.5 and B-TP26_1-1.5 at a weight of 6 g and 7 g, respectively, and based on the 10L sample volume, at a concentration of 0.005% w/w and 0.006% w/w, respectively, which was below the site criterion of 0.05% w/w. Asbestos as asbestos fines (AF) was reported in laboratory analysis of sample B-TP24_1-1.5 with a concentration of 0.000017% w/w, which was below the laboratory LOR and site criterion of 0.001% w/w. An ACM fragment was also observed at location B-TP23 in material excavated from the test pit, but not within the 10 L AQ. Laboratory analysis of the material fragments collected in the 10 L AQ samples B-TP24_1-1.5 and B-TP26_1-1.5 and within the test pit B-TP23 confirmed the presence of asbestos as chrysotile, amosite and / or crocidolite.

From a contamination perspective, the Asbestos Source Zone stockpiled materials are considered suitable for reuse as general fill on the site. No ACM was observed on the stockpile surface at the time of the assessment of the stockpile.

Following the assessment of the stockpile, between 30 October and 8 November 2024, Auswide Operations Pty Ltd spread the material in an area in the western portion of site (as shown on **Figure 6**) at an approximate thickness of 250 mm. Following the spreading of the stockpile a clearance of the stockpile surface was completed, with the clearance certificate (Airsafe 2024[20]), including photographs, provided as **Appendix J**. As documented in Airsafe (2024) the following scope of work was completed:

- Auswide Operations Pty Ltd (Class A Asbestos Removal Licence, [SafeWork NSW Licence No AD212715]) undertook the spreading of a soil stockpile containing non-friable asbestos cement sheet fragments using various plant. This was followed by a systematic walkover of the subject area [approximately 1.13 ha, it is noted the Airasafe reports the area was 1040 ha, however based on review of the figure provided this appears to be a typo], visually inspecting the soil surface for the presence of ACM.
- Removal contract workers passed the areas in 1m intervals moving in the direction of north to south or east to west depending on the shorter interval for the area. Workers were separated into two groups which started at the opposites end of the subject area and both completed full passes of the subject area so that two full passes of the subject area were conducted on completion.
- Any identified ACM was removed from the surface and placed in 200um thick plastic bags for off-site disposal as asbestos contaminated waste.

[20] Clearance Certificate, Project: 40 Derwent Road, Bradfield NSW 2556. Job Number: 75451. 8 November 2024. (Airsafe 2024)

It is documented that the clearance inspection revealed the asbestos material specified has been removed in accordance with the Code of Practice: How to Safely Remove Asbestos [Safe Work Australia, 2020] and that the asbestos removal area, and the area immediately surrounding it, are free from visible asbestos contamination.

8.3.2 Separately Reported Stockpile Assessments

A summary of the stockpile assessments completed by other consultants and management is as follows (with stockpile locations at the time of assessment provided as **Figure 7**):

- **Asbestos Stockpile**: Sourced by the identification of an unexpected find of asbestos in soil in a stockpile. An assessment of the 75 m^3 stockpile was completed by Airsafe (Airsafe 2022a[21]). Based on the assessment the stockpile was classified as Special Waste Asbestos (General Solid Waste) and was disposed offsite (further details provided in **Section 9**). Following removal, the clearance of the stockpile footprint was completed as part of the clearance of the unexpected find (**Section 8.4**);
- **MAC18**: Sourced from predominantly natural clay materials from excavations and stripping from around the site during the initial setup phase. An assessment of the 2640 m^3 stockpile was completed by ADE Consulting Group (ADE 2023a). Based on the assessment the stockpile was classified as Excavated Natural Material (ENM) and was partially disposed offsite and partially reused onsite for hardstands, haul roads and laydown areas (further details provided in **Section 9**); and
- **MAC19**: Sourced from predominantly natural clay materials from excavations and stripping from around the site during the initial setup phase. An assessment of the 35 m^3 stockpile was completed by ADE Consulting Group (ADE 2023b). Based on the assessment the stockpile was classified as General Solid Waste (GSW) (non-putrescible) and was disposed offsite (further details provided in **Section 9**).

8.4 Unexpected Finds

Unexpected contamination, if identified during future works, was to be managed through implementation of an Unexpected Contaminated Finds Protocol included in the Project construction environmental management plan (CEMP).

CBPBG-JV advised two unexpected finds were encountered during the site works, with locations shown on **Figure 8**. The two unexpected finds are documented in unexpected find reports provided in **Appendix H** and based on review of these reports are summarised as follows:

- Suspected asbestos fragments at Bringelly (Event ID: T80080.W4.SAF.121022.00311088): On the 12 October 2022, three small suspected asbestos fragments were identified on the ground surface at the southern haul road, adjacent to the southern boundary of site. CPBG implemented the unexpected finds procedure as per the Asbestos Management Plan. The three fragments were managed and removed as per the unexpected finds procedure noted in the AMP. CPBG reported, as per WHS regulation and the AMP, the suspected fragments were less than 10 m^2 and did not require an Asbestos Removal Control Plan (ARCP). The fragments were removed on 12 October 2022 and disposed offsite with asbestos materials from the unexpected find discussed below on 13 October 2022 at Bingo Eastern Creek Recycling Ecology Park (and Landfill), with more information provided in **Section 9**.
- Asbestos in soil at Bringelly (Event ID: T80080.W4.SAF.260822.00307247): On the 26 August 2022, a redundant asbestos pipe mixed with spoil was discovered. Laboratory analysis identified chrysotile asbestos found loose and bound to fibrous cement sheet fragments within the soil sample (above reporting limit of 0.1g/kg). Upon identification the asbestos was covered and bunted off with signage

[21] *Waste Classification* 40 Derwent Street,Bringelly. Prepared for: Mann Group NSW PtyLtd. Project No. 64696. Date: 11/09/22. Airsafe (Airsafe 2022a)

and samples were collected (one fragment and three soil samples). Based on the results, Airsafe prepared an ARCP (included as **Appendix I**), Airsafe prepared a waste classification (included as **Appendix G**), the materials were removed for offsite disposal (details included in **Section 9**) and Airsafe completed a clearance on 29 September 2022 and 20 October 2022 (included as **Appendix J**). The asbestos removal works were completed by MannGroup (Class A Asbestos Removal Licence SafeWork NSW Licence No AD212715, noting MannGroup go by Auswide Operations on the licence) between the 26 and 29 of September 2022 with the clearance inspection, including the collection of three soil samples, completed by Airsafe on 29 September 2022 (Airsafe 2022b[22]). No asbestos was detected in the three soils samples collected for clearance purposes. An additional clearance of the asbestos work zone and excavator was comeplted on the 20 October 2022 (Airsafe 2022c[23]).

8.5 Groundwater Monitoring

Groundwater monitoring for the Project was undertaken by Tetra Tech Major Projects Pty Ltd (Tetra Tech) on a six-monthly basis as per the requirement of the Groudnwater Monitoring Plan (GMP) (Document Ref: SMWSASBT-CPG-SWD-SW000-GE-RPT040404, Rev 4). JBS&G was provided with the second biannual report (Tetra Tech, 2024[24]) including the groundwater level and monitoring data collected between 1 December 2023 and 28 June 2024, with groundwater level and quality data compared to results from the previous (initial) monitoring period and trigger levels as outlined in the GMP.

Based on review of Figure2-3 (TTMP, 2024) monitoring locations within the vicinity of the Bringelly site include SBT-GW-4800, SBT-GW-4801, SBT-GW-4802, SBT-GW-4003, SBT-GW-4005, SWD-TU351-37371-VWP04, SWD-TU351-37377-VWP05 and SWD-TU351-37471-VWP06.

Results for the Bringelly site are summarised as follows:

- Bringelly Shaft excavation started 22 December 2022 and finished 5 September 2023.
- Flow into the excavation at Bringelly commenced May 2023, with an average measured daily inflow of 9.5 kL/day and a maximum of 146 kL/day on the 16th April 2024. With the exception of the spike around mid-April 2024, there has been limited flow to the WTP since mid-March 2024.
- EC data indicates that excavation inflows rapidly increased to >20 mS/cm (assumed to be the maximum range for the sensor), decreasing slightly after excavation finished in September to around 17 mS/cm, similar to the baseline EC range for the area (Table 6-5). In January and February 2024, the water quality changed significantly from an EC of close to 20 mS/cm at the start of the year, decreasing to ~2.5 mS/cm at the start of March.
- The flow from Bringelly is then transported to CLM. Total volumes discharged from Bringelly to May 2024 were approximately 4.19ML.
- No groundwater quality triggers were reported for the monitored Bringelly wells during the monitoring period.
- One groundwater level trigger (above the green trigger level) was reported for well SWD-TU351-37371-VWP04 at Bringelly, but water levels have either stabilised or are decreasing gradually and should continue to be monitored.

[22] Clearance Certificate, Project: 40 Derwent Street, Bringelly, Job Number: 65069, 3 October 2022 (Airsafe 2022b)
[23] Clearance Certificate, Project: 40 Derwent Street, Bringelly, Job Number: 65069, 21 October 2022 (Airsafe 2022c)
[24] *Biannual Groundwater Monitoring Report, December 2023 to June 2024*, Project Number WSA-200-SBT. Document Number: SMWSA-CPG-SWD-SW000-GW-RPT-040419. Revision date: 26/06/2024, Revision 00. Tetra Tech Major Projects (Tetra Tech 2024)

9. Material Disposed Offsite

The following materials were disposed offsite as part of site works:

- 536 tonnes of impacted soils were disposed offsite as Special (Asbestos) mixed with General Solid Waste (GSW) in accordance with the *Waste Classification Guidelines* (NSW EPA 2014) to Bingo Eastern Creek Recycling Ecology Park (and Landfill) located at 1 Kangaroo Avenue, Eastern Creek, NSW (Environmental Protect Licence (EPL) 13426) between 27 September and 20 October 2022. It is noted the waste classification for this material (as discussed in **Section 8.3**) was for a total of 75 m^3, however additional material was identified from this impact and disposed under the same waste classification. No evidence was identified onsite / with the materials that would indicate that a lower waste classification could have been potentially applied. Additionally, review of assessment data present in the RAP indicates that the material otherwise met the chemical based criteria for GSW.
- 15.72 tonnes of soils were disposed offsite as GSW in accordance with the *Waste Classification Guidelines* (NSW EPA 2014) to Aussie Skips located at 13 Bellfrog Street, Greenacre NSW (EPL 21389) on 22 August 2024. This includes the 35 m^3 of general solid waste materials classified by ADE (2023b) (**Section 8.3.2**);
- 7991.8 tonnes of material (including a portion of the 2640 m^3 ENM materials classified by ADE 2023a, **Section 8.3.2**) were disposed offsite as ENM, in accordance with the *Waste Classification Guidelines* (NSW EPA 2014). Disposal was undertaken to the following sites:
    - 7239 tonnes were disposed to the property located at Nepean Business Park, Penrith (the Great River development located at 14-98 Old Castlereagh Road, Penrith NSW); and
    - 752 tonnes were disposed to the property located at Aerotropolis (EPL 21672).
- 38,055 tonnes of natural material were disposed offsite as VENM, in accordance with the *Waste Classification Guidelines* (NSW EPA 2014) to the following sites. This includes the material assessed as VENM as part of the waste minimisation confirmatory sampling completed by TTMP (2022c, 2023d, 2023e and 2023f) (see **Section 8.2**).
    - 5390.2 tonnes were disposed to the property located at Nepean Business Park, Penrith (the Great River development located at 14-98 Old Castlereagh Road, Penrith NSW);
    - 10,236.8 tonnes were disposed to the property located at AWJ Civil Development Site, 769 Manre Road, Kemps Creek NSW;
    - 4718 tonnes were disposed to the property located at M12 Motorway West, 1793 Elizabeth Drive, Badgerys Creek (EPL 21595); and
    - 17,710 tonnes were disposed to the property located at M12 Motorway Central, Elizabeth Drive, Penrith NSW.
- 685.65 tonnes of natural material were disposed offsite as XP Spoil to SBT Works FS01, 560 Badgerys Creek Road, Badgerys Creek under the CPBG *Southern Tunnelling Works Application to Import Cross Passage Material to FS01 (CPBG 2023[25]);*
- 1004.2 tonnes of concrete waste was disposed to:
    - Boral Recycling, 38 Widermere Road, Wetherill Park NSW 2164 (EPL 11815);
    - ECORR Resource Recovery, 155 Newton Road Weatherill Park NSW (EPL 10699); and

[25] *Southern Tunnelling Works Application to Import Cross Passage Material to FS01.* CPBG. 8/09/2023. Project number WSA-200-SBT, Document number SMWSASBT-CPBG-SWD-SW000-GE-RPT-040555, Revision A.06 (CPBG 2023)

- Brandown Recycling Yard, Elizabeth Drive Cecil Park NSW 2178 (EPL12618).

Waste materials were appropriately classified in accordance with the Waste Classification Guidelines (EPA 2014) and in accordance with the RAP (TTMP 2022b). All waste tracking documentation including disposal dockets were maintained by CBPG-JV and was provided to JBS&G for inclusion in the validation report. A material tracking register is provided in **Appendix K**, waste disposal dockets and NSW EPA WasteLocate consignment dockets (where required) are provided in **Appendix L**, waste classifications are provided in **Appendix G**, and receiving sites documentation are provided in **Appendix M**.

10. Imported Materials Tracking

Materials were imported to Bringelly as part of the site preparation operations. Details of the materials imported, the approximate quantities and their original (source site) location are all included in the material import register included as **Appendix K**.

A summary of materials imported to the site is presented in **Table 10.1** below. Material classification / characterisation documentation is included as **Appendix N** and import material dockets are included as **Appendix O**.

The importation of materials to the site was managed through CPBG-JV's internal 'Material Reuse and Importation Procedure' included as **Appendix P**. It is noted the CPBG-JV procedure differs from the requirements of the RAP, however the import procedure is considered to be adequate for the purposes of identifying the materials are suitable for acceptance at the site. Management of material importation as per the CPBG-JV procedures included:

- Confirmation the material is sourced from a quarry with an appropriate EPL, classified as either VENM or ENM, or supplied in accordance with a NSW EPA Resource Recovery Order / Resource Recovery Exemption (RRO/RRE);
- Review of supplier documentation by the CPBG Environmental Coordinator (EC) for review;
- EC to assess (through visual inspection, sampling and analysis) the material during import; and
- CPBG-JV visually inspect the material during import and placement to confirm that the material is commensurate with that described in the supplier documentation.

CPBG-JV reported that the procedure was undertaken as per the above requirements and no issues were identified. There were no materials rejected based on the import assessment process.

Table 10.1: Imported Materials Summary

Material Type	Site Placement	Volume (tonnes)	Source	Details
Recovered Aggregate (DGB20)	Within tunnel cross passage ramps (underground)	2662	Ace Demolition and Excavation - 29 Carter Street, Lidcombe NSW	Recovered aggregate test documentation, included in **Appendix N**

Based on the information and data collected, all materials imported to Bringelly site to date are deemed suitable for the intended land use.

11. Site Characterisation

As stated in **Section 6** validation data is required to be collected to verify the final site conditions are suitable for the intended land use. **Section 6.1.6** provides the decision rules applicable to assessing whether the site has been appropriately validated. Discussion of each of these points is provided in the following sections.

11.1 Have any identified remediation areas at the site not been appropriately managed in accordance with the RAP?

As documented in **Section 8**, validation of unexpected finds, the asbestos source zone (as a stockpile and following placement) and building footprints were generally completed in accordance with the RAP (TTMP 2022b). Due to the ongoing site works, the Asbestos Source Zone and multiple building footprints were inaccessible for inspection at the time of the field works in September 2023. For all of these areas, CPBG-JV advised the site was initially cut to natural soils prior to placement of approximately 0.4 m thick DGB. Additionally, a visual inspection was completed by CPBG-JV at the time of topsoil/fill removal works, with provided photographs included in **Appendix D**.

Where temporary stockpiles were placed, the footprint was either cleared as part of the asbestos removal works (unexpected finds) or stockpiles were deemed suitable for site reuse and therefore no inspection was deemed required.

The September 2023 inspections completed by JBS&G in combination with the CPBG inspections, reporting the absence of potential contamination, is considered to be sufficient information with regards to the clearance of the Asbestos Source Zone, building footprints such that the risk of potential contamination in these areas is considered to be low and these areas being validated in accordance with the RAP.

The implementation of the validation requirements is discussed further with respect to the other decisions.

11.2 Have any unexpected finds encountered at the site not been appropriately managed in accordance with the UFP?

As documented in **Section 8.4** two unexpected finds requiring management to address site contamination risks were encountered during earthworks within site boundary. The unexpected finds were appropriately managed in general accordance with the RAP (TTMP 2022b).

11.3 Are there any materials removed from the site that have not been appropriately characterised and disposed of during the development works?

A qualitative assessment of material disposal records was undertaken following completion of earthworks with respect to the waste classification documentation. Generally, there were no inconsistencies within the offsite disposal records provided by the principal contractor with respect to the material classifications (i.e. VENM classification) provided as part of the works.

On this basis, it is considered that waste material removed from site has been appropriately characterised and transported to a lawful receiving facility.

11.4 Has imported material been appropriately characterised to demonstrate it does not present an unacceptable risk in relation to the future site use?

Review of provided material characterisation documentation was completed and it was identified all imported material was suitable to be applied to the site based on the provided documentation compliant with the RAP requirements.

11.5 Have development works at the site been completed in accordance with the requirements of the RAP?

A qualitative assessment of management of material tracking was undertaken with respect to procedures documented in the RAP (TTMP 2022b). The development works were completed in general accordance with the RAP. It is noted that there are potentially some limitations in the strict application of the validation procedure / process to the site works, where building footprints were inaccessible, however based the inspections completed by CPBG, in combination with the JBS&G inspections, is considered sufficient to meet the requirements of the RAP.

11.6 Are contaminant concentrations in soil remaining on site above the adopted validation criteria?

Appropriate characterisation/validation sampling events were generally undertaken for all identified areas of concern as required under the RAP (assessment of the asbestos source zone stockpile). Soil analytical data for all validation and characterisation sampling (**Section 8**) were reported to have concentrations of contaminants below the adopted site validation criteria (**Section 6.4**). Based on the validation outcomes, there are considered to not be any outstanding issues associated with site contamination and/or aesthetic issues at the site.

It is noted that not all building footprints were accessible at the time of the assessment due to ongoing site works which have resulted in the areas being covered with construction materials. However, confirmation by CPBG-JV that all building footprints and the asbestos source zone were inspected, with no residual contamination identified, in combination with the JBS&G inspections, there is considered sufficient information to meet the validation requirements of the RAP.

11.7 Is the site considered suitable for the proposed use?

No residual contamination or aesthetic issues have been identified within material retained at the site area. Waste disposal records are available which confirm the removal of the identified asbestos contaminated soils has occurred from the site. There is no evidence of importation of material which may be considered to be a potential source of contamination on the site.

Notwithstanding the minor data gaps, there is considered to be no basis in the extensive works completed to consider that the site areas are not suitable form a contamination perspective for a future commercial / industrial land-use.

12. Conclusions

Based on the findings of the previous investigations and this validation assessment, and subject to the limitations in **Section 13**, it is considered that the development works were completed in general accordance with the RAP (TTMP, 2022b). Notwithstanding minor data gaps due to inaccessible localised areas of building footprints, there is considered to be sufficient information to conclude there is a low potential for risk to site users from contamination. The site is considered suitable for the intended commercial / industrial land use.

13. Limitations

This report has been prepared for use by the client who has commissioned the works in accordance with the project brief only, and has been based in part on information obtained from the client and other parties. The report has been prepared specifically for the client for the purposes of the commission, and no warranties, express or implied, are offered to any third parties and no liability will be accepted for use or interpretation of this report by any third party.

The advice herein relates only to this project and all results conclusions and recommendations made should be reviewed by a competent person with experience in environmental investigations, before being used for any other purpose. This report should not be amended in any way without prior approval by JBS&G, or reproduced other than in full including all attachments as originally provided to the client by JBS&G.

Sampling and chemical analysis of environmental media is based on appropriate guidance documents made and approved by the relevant regulatory authorities. Conclusions arising from the review and assessment of environmental data are based on the sampling and analysis considered appropriate based on the regulatory requirements or agreed scope of work.

Limited sampling and laboratory analyses were undertaken as part of the investigations undertaken, as described herein. Conditions between sampling locations and media may vary, and this should be considered when extrapolating between sampling points. Chemical analytes are based on the information detailed in the site history. Further chemicals or categories of chemicals may exist at the site, which were not identified in the site history and which may not be expected at the site.

Changes to the conditions may occur subsequent to the investigations described herein, through natural processes or through the intentional or accidental addition of contaminants. The conclusions and recommendations reached in this report are based on the information obtained at the time of the investigations.

This report does not provide a complete assessment of the environmental status of the site, and it is limited to the scope defined herein. Should information become available regarding conditions at the site including previously unknown sources of contamination, JBS&G reserves the right to review the report in the context of the additional information.

©JBS&G Australia Pty Ltd

Figures

©JBS&G Australia Pty Ltd

Legend

Approximate Site Boundary

JBS&G

Job No: 63723

Client: CPB Contracting

Version: R10 Rev A	Date 2/12/2024
Drawn By: IA	Checked By: EH

Scale 1:12,000

0 110 220

metres

Coord. Sys. GDA 1994 MGA Zone 56

40 Derwent Road
Bringelly, NSW

SITE LOCATION

FIGURE 1

File Name: 63723_WSA_OrchardHill_R10_RevA
Reference: www.nearmap.com.au (Capture Date 2024/07/11)

Legend

- Approximate Site Boundary
- Construction Footprint
- NSW Cadastre

JBS&G

Job No: 63723

Client: CPB Contracting

Version: R10 Rev A	Date 2/12/2024
Drawn By: IA	Checked By: EH

Scale 1:2,000

0 10 20

metres

Coord. Sys. GDA 1994 MGA Zone 56

40 Derwent Road
Bringelly, NSW

SITE LAYOUT

FIGURE 2

File Name: 63723_WSA_OrchardHill_R10_RevA
Reference: www.nearmap.com.au (Capture Date 2024/07/11)

Legend

- Approximate Site Boundary
- Construction Footprint
- NSW Cadastre
- Sample Locations (RAP TTMP, 2022b)

Base Features

- Hydro Line
- Road Labels

JBS&G

Job No: 63723

Client: CPB Contracting

Version: R10 Rev A	Date 2/12/2024
Drawn By: IA	Checked By: EH

Scale 1:2,000

0 10 20
metres

Coord. Sys. GDA 1994 MGA Zone 56

40 Derwent Road
Bringelly, NSW

SAMPLE LOCATIONS

FIGURE 3

File Name: 63723_WSA_OrchardHill_R10_RevA
Reference: www.nearmap.com.au (Capture Date 2024/07/11)

Legend

- Approximate Site Boundary
- Construction Footprint
- NSW Cadastre
- Asbestos Source Zone (RAP, TTMP 2022b)
- JBS&G Visual Inspection Area - 13 September 2023

JBS&G

Job No: 63723

Client: CPB Contracting

Version: R10 Rev A	Date 2/12/2024
Drawn By: IA	Checked By: EH

Scale 1:2,000

0 10 20

metres

Coord. Sys. GDA 1994 MGA Zone 56

40 Derwent Road
Bringelly, NSW

ASBESTOS SOURCE ZONE

FIGURE 4

File Name: 63723_WSA_OrchardHill_R10_RevA
Reference: www.nearmap.com.au (Capture Date 2024/07/11)

Legend

- Approximate Site Boundary
- Stockpile
- Current Sample Locations

JBS&G

Job No: 63723

Client: CPB Contracting

Version: R10 Rev A	Date 23/09/2024
Drawn By: IA	Checked By: EH

Scale 1:460

0 4.5 9

metres

Coord. Sys. GDA 1994 MGA Zone 56

40 Derwent Road
Bringelly, NSW

ASBESTOS SOURCE ZONE STOCKPILE SAMPLE LOCATIONS

FIGURE 5

File Name: 63723_WSA_OrchardHill_R10_RevA
Reference: www.nearmap.com.au (Capture Date 2024/07/11)

Legend

- Approximate Site Boundary
- Construction Footprint
- NSW Cadastre

Site Features

- Asbestos Source Zone Material Placement (Airsafe, 2024)
- Asbestos Source Zone Clearance (Airsafe, 2024)

Base Features

- Hydro Line
- Road Labels

JBS&G

Job No: 63723

Client: CPB Contracting

Version: R10 Rev A	Date 2/12/2024
Drawn By: IA	Checked By: EH

Scale 1:2,000

0 10 20

metres

Coord. Sys. GDA 1994 MGA Zone 56

40 Derwent Road
Bringelly, NSW

ASBESTOS SOURCE ZONE MATERIAL PLACEMENT (AIRSAFE, 2024)

FIGURE 6

File Name: 63723_WSA_OrchardHill_R10_RevA
Reference: www.nearmap.com.au (Capture Date 2024/07/11)

Legend

- Approximate Site Boundary
- Construction Footprint
- NSW Cadastre
- Hydro Line

Stockpile Locations

- MAC18
- MAC19
- Asbestos Stockpile
- Asbestos Source Zone Stockpile

JBS&G

Job No: 63723

Client: CPB Contracting

Version: R10 Rev A	Date 2/12/2024
Drawn By: IA	Checked By: EH

Scale 1:2,000

0 10 20

metres

Coord. Sys. GDA 1994 MGA Zone 56

40 Derwent Road
Bringelly, NSW

STOCKPILE LOCATIONS

FIGURE 7

File Name: 63723_WSA_OrchardHill_R10_RevA
Reference: www.nearmap.com.au (Capture Date 2024/07/11)

Legend

- Approximate Site Boundary
- Construction Footprint
- NSW Cadastre
- Asbestos in Soil - Unexpected Finds
- Suspected Asbestos Fragments Unexpected Find

JBS&G

Job No: 63723

Client: CPB Contracting

Version: R10 Rev A	Date 2/12/2024
Drawn By: IA	Checked By: EH

Scale 1:2,000

0 10 20

metres

Coord. Sys. GDA 1994 MGA Zone 56

40 Derwent Road
Bringelly, NSW

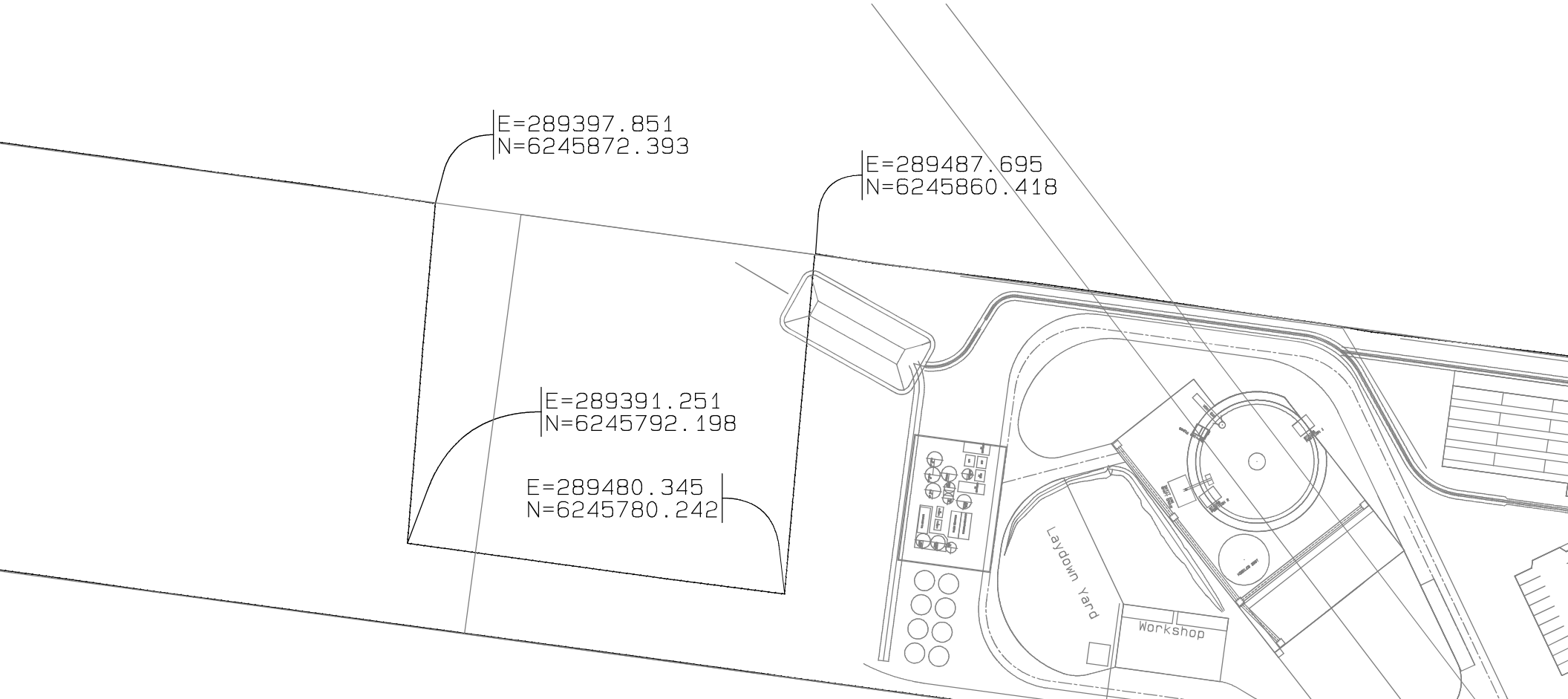
UNEXPECTED FINDS LOCATIONS

FIGURE 8

File Name: 63723_WSA_OrchardHill_R10_RevA
Reference: www.nearmap.com.au (Capture Date 2024/07/11)

Appendix A Site Survey

©JBS&G Australia Pty Ltd


E=289397.851
N=6245872.393
E=289487.695
N=6245860.418
E=289391.251
N=6245792.198
E=289480.345
N=6245780.242
Laydown Yard
Workshop