Orchard Hills Section A Site Audit Report and Statement

Sydney Metro Western Sydney Airport Station Boxes and Tunnelling Works

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Document approval

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0	21/07/2023	Ramboll Australia	Ramboll Australia	Ramboll Australia
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Details of Revision Amendments

Document Control

The Project Director is responsible for ensuring that this report is reviewed and approved. The Project Discipline Director is responsible for updating this plan to reflect changes to construction, legal and other requirements, as required.

Amendments

Any revisions or amendments must be approved by the Project Director and/or client before being distributed/implemented.

Revision Details

Revision	Details
0	Issued for comment
1	Revised to permit open space land use

Prepared for
CPB Contractors Pty Ltd and Ghella Pty Ltd
Prepared by
Ramboll Australia Pty Ltd
Date
22 December 2023
Project Number
318001447-003
Audit Number
TO-095-A2

SITE AUDIT REPORT
ORCHARD HILLS STATION (STAGE 1), SYDNEY METRO WESTERN SYDNEY AIRPORT

RAMBOLL Bright ideas. Sustainable change.

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ENVIRONMENT
& HEALTH

22 December 2023

CPB Contractors Pty Ltd and Ghella Pty Ltd
[redacted]
Werrington Park Corporate Centre
Werrington NSW 2747

[redacted]

Dear [redacted]

SITE AUDIT REPORT - ORCHARD HILLS STATION (STAGE 1), SYDNEY METRO WESTERN SYDNEY AIRPORT

I have pleasure in submitting the Site Audit Report for the subject site. The Site Audit Statement, produced in accordance with the NSW *Contaminated Land Management Act 1997*, is included as Appendix B of the Site Audit Report. The Audit was commissioned by CPB Contractors Pty Ltd and Ghella Pty Ltd Joint Venture to assess the suitability of the site for its intended recreational/open space land use including construction and operation of a Sydney Metro train station.

The Audit was initiated to comply with requirements of Critical State Significant Infrastructure (CSSI) approval 10051, issued on 23 July 2021 by the Minister for Planning and Public Spaces, and is therefore a statutory audit.

Thank you for giving me the opportunity to conduct this Audit. Please call me on 9954 8100 if you have any questions.

Yours faithfully,
Ramboll Australia Pty Ltd

[redacted]

[redacted]
EPA Accredited Site Auditor 1505

cc: NSW EPA – Statement only
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Audit No. TO-095-A2

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CONTENTS

LIST OF TABLES

APPENDICES

LIST OF ABBREVIATIONS

Measures

%	per cent
µg/L	Micrograms per Litre
µm	Micron
ha	Hectare
km	Kilometres
L	Litre
m	Metre
m^2	Square Metre
m^3	Cubic Metre
mbgl	Metres below ground level
mg/kg	Milligrams per Kilogram
mm	Millimetre
t	Tonne

General

ABC	Ambient Background Concentration
ACL	Added Contaminant Limits
ACM	Asbestos Containing Material
ADE	ADE Consulting Group
ADWG	Australian Drinking Water Guidelines
AEC	Areas of Environmental Concern
AF	Asbestos Fines
ANZG	Australian & New Zealand Guidelines
ASS	Acid Sulphate Soil
AST	Aboveground Storage Tank
ANZECC	Australian and New Zealand Environment and Conservation Council
BaP	Benzo(a)pyrene
BTEX	Benzene, Toluene, Ethylbenzene & Xylenes
CA	Characterisation Assessment
CCME	Canadian Council of Ministers of the Environment
CEC	Cation Exchange Capacity
CLM Act	NSW Contaminated Land Management Act 1997
COC	Chain of Custody
Council	Penrith City Council
CPBG	CPB Contractors Pty Ltd and Ghella Pty Ltd
CSM	Conceptual Site Model
CSSI	Critical State Significant Infrastructure
CT	Certificate of Title
DGB	Densely Graded Base
DO	Dissolved Oxygen
DQI	Data Quality Indicator
DQO	Data Quality Objective
DSI	Detailed Site Investigation
EC	Environmental Coordinator
EIL	Ecological Investigation Levels
ENM	Excavated Natural Material
EPA	Environment Protection Authority (NSW)
EPL	Environment Protection Licence
ESL	Ecological Screening Levels
FA	Fibrous Asbestos
GMRRW	Guidelines for Managing Risks in Recreational Water
GSW	General Solid Waste
HBM	Hazardous Building Material
HDPE	High-Density Polyethylene
HEPA	Heads of EPAs Australia and New Zealand
HIL	Health Investigation Level
HSL	Health Screening Level
IAA	Interim Audit Advice
IBC	Intermediate Bulk Container

JBS&G	JBS&G Australia Pty Ltd
LCS	Laboratory Control Sample
LEP	Local Environment Plan
Metals	As: Arsenic, Cd: Cadmium, Cr: Chromium, Cu: Copper, Ni: Nickel, Pb: Lead, Zn: Zinc, Hg: Mercury
ML	Management Limits
MS	Matrix Spike
NATA	National Association of Testing Authorities
NC	Not Calculated
ND	Not Detected
NEPC	National Environmental Protection Council
NEPM	National Environment Protection Measure
NL	Non-Limiting
n	Number of Samples
OCPs	Organochlorine Pesticides
OHS	Orchard Hills Station
OPPs	Organophosphorus Pesticides
PAHs	Polycyclic Aromatic Hydrocarbons
PCBs	Polychlorinated Biphenyls
PFAS	Per- and Poly-fluoroalkyl substances
PFHxS	Perfluorohexane Sulfonate
PFOA	Perfluorooctanoic Acid
PFOS	Perfluorooctane Sulfonate
pH	A measure of acidity, hydrogen ion activity
PID	Photoionisation Detector
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
Ramboll	Ramboll Australia Pty Ltd
RAP	Remediation Action Plan
RPD	Relative Percent Difference
RRE	Resource Recovery Exemption
RRO	Resource Recovery Order
RSL	Regional Screening Level
SAQP	Sampling Analysis Quality Plan
SAR	Site Audit Report
SAS	Site Audit Statement
SMWSA	Sydney Metro – Western Sydney Airport
SWL	Standing Water Level
TEQ	Toxic Equivalence Quotient
TfNSW	Transport for New South Wales
TRHs	Total Recoverable Hydrocarbons
Trinitas	Trinitas Group
TTMP	Tetra Tech Major Projects Pty Ltd
UFP	Unexpected Finds Protocol
VENM	Virgin Excavated Natural Material
VOCs	Volatile Organic Compounds
VR	Validation Report
-	On tables is "not calculated", "no criteria" or "not applicable"

1. INTRODUCTION

1.1 Audit Details

A site contamination audit has been conducted in relation to a portion of the proposed Orchard Hills Station site (the OHS site or the site) for the Sydney Metro – Western Sydney Airport (SMWSA) Rail Project (the SMWSA Rail Project).

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

The Critical State Significant Infrastructure (CSSI) approval 10051 was issued on 23 July 2021 by the Minister for Planning and Public Spaces for construction of new stations, tunnels, bridges, viaducts, and rail and associated ancillary infrastructure along the SMWSA rail alignment from the existing Sydney Trains suburban T1 Western Line (at St Marys) in the north and the Aerotropolis (at Bringelly) in the south. Condition E96 of the CSSI requires a site audit as follows:

> *"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."*

The Audit was initiated to comply with condition E96 of the CSSI approval and is therefore a statutory audit.

Details of the Audit are:

Requested by:	[redacted] behalf of CPB Contractors Pty Ltd and Ghella Pty Ltd (CPBG)
Request/Commencement Date:	9 May 2022
Auditor:	[redacted]
Accreditation No.:	1505

1.2 Project Background

Construction activities planned at the OHS site included demolition of existing buildings/structures, vegetation clearance, ground levelling via cutting and filling, establishment of temporary construction work facilities such as a water treatment plant, offices, car parking and access roads, piling and excavation of the station box and dive structure. The proposed station box and dive structure was reported to be approximately 300 metre (m) long, 20 m wide, and 10 m deep. These activities are also collectively known as preparatory construction activities.

A Detailed Site Investigation (DSI) and a DSI Addendum were completed for the OHS site prior to the commencement of preparatory construction activities. The DSI and the DSI Addendum focused on the assessment of the site soil and groundwater conditions under a 'commercial/industrial' land use exposure scenario. The DSI and the DSI Addendum did not identify a remediation requirement at the OHS site for the intended 'commercial/industrial' land use, however, a Remediation Action Plan (RAP) was prepared outlining the requirements for spoil management, validation of soil beneath buildings/structures following demolition, and assessment of imported materials during construction. The ultimate objective of the RAP was to retain the suitability of the OHS site for 'commercial/industrial' land use throughout the preparatory construction works. Preparation of the DSI (and the DSI Addendum) and the RAP was required under a Deed (*Sydney Metro (2022) Sydney Metro - Western Sydney Airport,*

Station Boxes and Tunnelling Works Design and Construction) between Transport for New South Wales (TfNSW) and CPBG (the Deed). It is noted that a copy of the Deed was not sighted by the Auditor.

Construction at the OHS site is being undertaking in stages and an initial Validation Report (the Initial VR) dated 20 July 2023 was prepared by JBS&G Australia Pty Ltd (JBS&G) for an area within the southern portion of the OHS site (the OHS Stage 1 site or the Stage 1 site, shown by the green-dashed line on **Attachment 1**, **Appendix A**) concluding this area was suitable for the intended commercial/industrial land use.

The Auditor reviewed the Initial VR (20 July 2023) and documented the review in Site Audit Statement (SAS) No. TO-095-A1 and SAR 'Orchard Hills Stage (Stage 1), Sydney Metro Western Sydney Airport' dated 21 July 2023 (TO-095-A1).

JBS&G have since re-assessed the historical soil analytical results against a 'recreational/open space' land use exposure scenario and prepared a second VR confirming that the OHS Stage 1 site was suitable for 'recreational/open space' land use.

JBS&G's reassessment of the historical soil analytical results and the second VR are the main subject of the current audit.

1.3 Interim Audit Advice

The Auditor previously reviewed the DSI, the DSI Addendum and the RAP for the OHS, and documented the review outcomes in interim audit advice (IAA) letters. IAAs were prepared for other sites within the Sydney Metro Western Sydney Airport alignment; hence IAA numbers are not sequential. The following IAAs relate to the OHS.

- 'Interim Audit Advice Letter No.6 – Review of Detailed Site Investigation, Proposed Sydney Metro Western Sydney Airport Orchard Hills Station, Orchard Hills NSW', 29 September 2022, Ramboll Australia Pty Ltd (Ramboll) (*the IAA#6*).
- 'Interim Audit Advice Letter No.7 – Proposed Preparatory Works, Sydney Metro Western Sydney Airport, Orchard Hills Station, Orchard Hills NSW', 29 September 2022, Ramboll (*the IAA#7*).
- 'Interim Audit Advice Letter No.13 – Review of Remediation Action Plan, Sydney Metro Western Sydney Airport Orchard Hills Station, Orchard Hills NSW', 6 December 2022, Ramboll (*the IAA#13*).

The IAAs are attached in **Appendix C** and are referenced in this Site Audit Report (SAR) where required. Reports reviewed for the IAAs are listed in **Section 1.4**.

1.4 Scope of the Audit

The scope of work undertaken for the IAAs and SAS/SAR TO-095-A1 included:

- Review of the following reports:
  - 'Orchard Hills Sampling Analysis Quality Plan, Sydney Metro Western Sydney Airport Station Boxes and Tunnelling Works', 26 July 2022 (and an earlier version dated 29 April 2022), Tetra Tech Major Projects Pty Ltd (TTMP) (*the SAQP*).
  - 'Technical Memorandum: Preliminary Soil Results Orchard Hills', 24 August 2022 (and earlier versions dated 29 July 2022 and 18 August 2022), TTMP (*the Memo*).
  - 'Orchard Hills Station Detailed Site Investigation', 26 September 2022 (and earlier versions dated 9 August 2022, 29 August 2022 and 15 September 2022), TTMP (*the DSI*).

  - 'Detailed Site Investigation – Addendum Orchard Hills Groundwater Monitoring Data' (Rev A02), 24 November 2022 (and an earlier version dated 2 November 2022), TTMP (*the DSI Addendum*).
  - 'Orchard Hills Station Remedial Action Plan, Sydney Metro Western Sydney Airport Station Boxes and Tunnelling Works' (Rev A03), 24 November 2022 (and an earlier version 2 November 2022), TTMP (*the RAP*).
  - 'Orchard Hills Station Box Stage 1 Validation Report', 20 July 2023, JBS&G (*the Initial VR*).
- Review of management plans prepared by CPBG for the SMWSA Rail Project, including:
  - 'Asbestos Management Plan, Sydney Metro Western Sydney Airport Station Boxes and Tunnelling Work' Revision A, 2 February 2022, CPBG (*the AMP*).
  - 'NSW (Off-Airport) Soil and Water Management Sub-Plan, Sydney Metro Western Sydney Airport Station Boxes and Tunnelling Works' (Revision A), 19 May 2022, CPBG (*the Sub-Plan*). The Sub-Plan includes a flow chart outlining procedures for addressing unexpected contamination.
- A site visit by the Auditor on 11 October 2022.
- Discussions with CPBG, with TTMP who undertook the investigations and prepared the RAP, and with JBS&G who prepared the Initial VR.

The scope of work undertaken in completing the current SAR and accompanying SAS (TO-095-A2) included:

- Review of the following reports:
  - 'Orchard Hills Station Box, Open Space / Recreational Characterisation Assessment', 19 July 2023, JBS&G (*the CA).*
  - 'Orchard Hills Station Box Stage 1 Validation Report', 18 December 2023 (and earlier drafts dated 23 November 2023 and 30 October 2023), JBS&G (*the VR*).
- A site visit by the Auditor on 11 December 2023.
- Discussions with CPBG, and with JBS&G who undertook the validation works.

The Auditor notes that:

- The DSI, the DSI Addendum, the RAP and the CA were prepared for the OHS site, whilst the VR and the Initial VR were specific for the OHS Stage 1 site. Where possible, the Auditor has separated data specific to the Stage 1 site for this SAR. Where information could not be segregated, it was deemed immaterial given that the conditions between the Stage 1 site and the wider OHS site are expected to be similar.
- Environmental investigations were completed in lands surrounding the OHS site and findings from these investigations were referenced in the investigation reports prepared by TTMP and JBS&G. The Auditor has referenced the results (where relevant) in this SAR. The associated investigation reports, however, were not available for the Auditor to review.

2. STAGE 1 SITE DETAILS

2.1 Location

The Stage 1 site is part of the OHS site and is located along Kent Road and Lansdowne Road, Orchard Hills NSW.

Details of the Stage 1 site are as follows.

Identifier:	Parts of Lots 47 to 50 and 81 to 83 in Deposited Plan (DP) 29388
Local Government:	Penrith City Council (Council)
Owner:	TfNSW
Site Area:	Approximately 8.2 hectares (ha)

Locality of the OHS and Stage 1 site are shown on **Attachment 1**, **Appendix A**. Surveyed boundaries of the Stage 1 site are shown on **Attachment 2**, **Appendix A**.

2.2 Zoning

The current zoning of the Stage 1 site is "*RU4 Primary Production Small Lots"* and "*TIN SEPP (Transport and Infrastructure) 2021*" under Penrith Local Environment Plan (LEP) 2010.

2.3 Adjacent Uses

The OHS site is located within an area of residential and agricultural land use. The surrounding land use includes:

North: Western Motorway with residential dwellings of Claremont Meadows beyond.

East: Rural residential properties with some open land/small scale agricultural land uses.

South: Rural residential properties and unnamed tributaries of Blaxland Creek.

West: Kent Road, then rural residential properties and some small scale agricultural land uses.

The Stage 1 site is located in the southern portion of the OHS site.

A tributary of Blaxland Creek runs through the southern end of the Stage 1 site, flowing eastwards into Blaxland Creek approximately 400 m to the southeast. Blaxland Creek flows in a northeast direction and discharges into South Creek located approximately 800 m east of the Stage 1 site. Blaxland Creek, including its tributaries, and South Creek are considered as the closest sensitive ecological receptors for groundwater.

2.4 Stage 1 Site Condition – Pre-Preparatory Construction and Validation

TTMP inspected the OHS site during the SAQP and the DSI. The conditions of the Stage 1 site and the wider OHS site were described as largely rural residential properties characterised by residential dwellings with outbuildings such as workshops or storage sheds. Asbestos containing materials (ACM) largely in the form of fibre cement sheeting was suspected of being present within numerous structures (mainly houses).

Key features relating to the individual properties forming the Stage 1 site are as follows.

Lot 47 DP29388 (94-98 Kent Road)

- A two-storey house of brick construction and a large shed with no flooring were situated on the western portion of the property. *Sydney Metro - Western Sydney Airport Technical Paper 8 Contamination* (the EIS Technical Paper) appended to the SAQP indicated the shed to be a potential cattle dip site. However, no signs of a cattle dip were observed during the DSI.

- Fibre cement debris suspected of containing asbestos was present in the central-eastern portion of the shed. The footprint of the fibre cement was estimated to be 1 square metre (m^2).
- Disused metal cans including old fuel drums were present on the bare ground within the shed. A small concrete pad with a cut-off metal pipe was present on the southern side of the shed. The metal pipe could potentially be associated with fuel storage.

Lot 48 DP29388 (100-104 Kent Road)

- A single-storey weatherboard house on the south-western corner of the property.
- A large workshop was situated immediately to the north of the house. The hardstand within the workshop was in good condition with minor staining present. Evidence of filling was observed on the eastern side of the workshop.
- A dam was present at the eastern extent of the property, and several soil mounds were present along the southern and eastern sides of the dam.
- Anthropogenic materials in the form of discarded metal, plastic and concrete roofing tiles were observed to the south of the dam.

Lot 49 DP29388 (106-112 Kent Road)

- A single-storey brick house was present on the north-west corner of the property. A detached multi-car garage and a large workshop/shed were observed to the north of the house.
- A large fill mound (approximately 25 m x 2 m x 1.5 m) was observed parallel to the northern property boundary.

Lot 50 DP29388 (114-122 Kent Road)

- A single-storey residential house constructed of weatherboard was present in the north-western portion of the property. A small shed constructed of corrugated metal was situated north-east of the house.
- The southern half of the property had a small house situated in the south-west corner, constructed of fibre cement sheeting suspected of containing asbestos.
- A stockpile of anthropogenic materials (approximately 10 m in size) was located on the north-eastern section of the property. The stockpile consisted of plastic, metal, carpet and plasterboard. No potential ACM was observed within the stockpile.

Lot 81 DP29388 (34-38 Lansdowne Road)

- A house was present on the north-western portion of the property. Several sheds and intermediate bulk containers (IBCs) were observed to the south of the house.
- A large dam was present in the southern portion of the property.

Lot 82 DP29388 (28-32 Lansdowne Road)

- A house was present on the north-western portion of the property.
- Several disused metal drums (200 litre (L)) and building materials were observed on a driveway leading to the northern central portion of the property.

Lot 83 DP29388 (22-26 Lansdowne Road)

- A house and a large shed were present on the western portion of the property. Small stockpiles were observed.

- A small above ground storage tank (AST) was present on a grassed area along the western boundary. The AST appeared to be empty.

The DSI noted that most properties appeared to have septic systems; access within buildings and structures was generally restricted; and the site walkover generally did not extend to areas where long grass was present.

2.5 Stage 1 Site – Current Condition

JBS&G did not provide a clear discussion on the current Stage 1 site condition in the VR. However, they indicated that planned preparatory construction activities (e.g., site establishment and dive structure excavation) were completed. The Auditor understood that the Stage 1 site has been handed over to the next contractor for the ongoing construction of the proposed Sydney Metro Orchard Hill train station.

At the time of the site inspection by the Auditor (11 December 2023), CPBG had vacated the site and the next contractor had taken occupation of the site. No works were being undertaken at the site at the time of the inspection. The site was transected by Lansdowne Road (east to west) and the concrete paved dive structure (north to south). The site was level and largely paved with imported aggregate and bitumen, with shallow drainage channels either side of, and running parallel to, the dive structure. The northern portion of the site contained site sheds and a remaining building (referenced as AEC22 or BF21). The remainder of the site was vacant.

For the purposes of this Audit, the 'recreational/open space' land use exposure scenario will be assumed.

3. STAGE 1 SITE HISTORY

The 'S*ydney Metro - Western Sydney Airport Technical Paper 8 Contamination*' (the EIS Technical Paper appended to the SAQP) assessed the history of the OHS site based on site photographs, historical business records, the EPA records and Certificates of Title (CTs), which was augmented by a review of available historical aerial images in the SAQP.

The Auditor has summarised information relating to the Stage 1 site as follows:

- The properties comprising the Stage 1 site were privately owned dating back to 1949, similar to the properties within the wider OHS site.
- There were no historical business directory records within the Stage 1 site or the wider OHS site.
- The properties were constructed between 1965 and 1978 and the layout of the Stage 1 site has remained largely unchanged since 1978.

3.1 Auditor's Opinion

In the Auditor's opinion, the Stage 1 site history is broadly understood and adequate for identification of contaminants of concern (**Section 4**). The Auditor considers that the Stage 1 site has been predominantly used for rural residential purposes, with potential small scale agricultural activities. The Auditor is satisfied that there is no evidence of past uses that have significant potential to contaminate the Stage 1 site.

A review of the EPA public records conducted by the Auditor did not identify any notifications for the Stage 1 site or immediate surrounds.

Previous land uses with the highest potential to cause contamination include hazardous building materials (HBM) associated with the onsite buildings/structures, use and onsite stockpiling of fill soils with unknown origins, and use/storage of chemicals (anticipated in small volumes) such as pesticides and herbicides.

The DSI noted that most properties appeared to have septic systems and therefore, the Auditor considers that there was a potential for historical reuse/disposal of effluent onsite. The large shed on Lot 47 was suspected of being used as a cattle dip, however, signs of a cattle dip were not observed during the site inspection in the DSI.

4. CONTAMINANTS OF CONCERN

The EIS Technical Paper provided a list of areas of environmental concern (AECs) and associated contaminants of concern for the OHS site. 30 AECs were identified on the OHS site and those relevant to the Stage 1 site are presented in **Table 4.1**. The locations of the AECs are shown on **Attachments 3A** and **3B**, **Appendix A**.

Table 4.1: AECs and Associated Contaminants of Concern

Land Parcel	AEC	Activity	Potential Contaminants
Lot 47	20 (numbered as "21" in the DSI)	Potential cattle dip and use of HBM.	Metals, pesticides and asbestos.
	21 (numbered as "20" in the DSI)	Residential dwelling potential use of HBM.	Metals and asbestos.
Lot 48	22	Potential workshops, minor waste disposal, use or storage of HBM.	Total recoverable hydrocarbons (TRH), volatile organic compounds (VOCs), semi volatile organic compounds (SVOCs), metals and asbestos.
	23	Residential dwelling, potential use of HBM.	Metals and asbestos.
Lot 49	24	Potential workshops, minor waste disposal, use or storage of HBM.	TRH, VOCs, SVOCs, metals and asbestos.
Lot 49	25 (in part)	Waste and stockpiles on surface.	TRH, VOCs, SVOCs, metals and asbestos.
Lot 50	26	Potential workshops, minor waste disposal/storage, use or storage of HBM.	TRH, VOCs, SVOCs, metals and asbestos.
Lot 81	29	Potential workshops, minor waste disposal/storage, use or storage of HBM.	TRH, VOCs, SVOCs, metals and asbestos.
Lot 82	30 (in part)	Stockpiles and presence of demolition waste	TRH, VOCs, SVOCs, metals and asbestos.
Lot 83	30 (in part)	Stockpiles and presence of demolition waste	TRH, VOCs, SVOCs, metals and asbestos.

4.1 Auditor's Opinion

The Auditor considers that the analyte list identified in the EIS Technical Paper adequately reflects the site history and condition.

The Auditor has identified the potential use/disposal of effluent onsite, which may have contained nutrients and/or per- and poly-fluoroalkyl substances (PFAS). Although these chemicals were not identified as potential contaminants by the consultants, the soil and groundwater samples in the DSI and the DSI Addendum were analysed for PFAS. Selected groundwater samples were also analysed for nutrients including ammonia and nitrate.

5. STRATIGRAPHY AND HYDROGEOLOGY

5.1 Stratigraphy

TTMP reviewed geological maps and reported that the OHS site is underlain by Bringelly Shale of the Wianamatta Group. Bringelly Shale is described as shale, carbonaceous claystone, laminite, lithic sandstone, with rare coal.

TTMP advanced 9 x 2 m deep boreholes, 8 x 1 m deep boreholes, 9 x 1 m deep test pits, 13 rock coring boreholes (to depths between 21 and 30 m) and installed 2 x 9 m deep groundwater monitoring wells within the footprint of the Stage 1 site. The coring boreholes were within or in the vicinity of the proposed station box and dive structure. In addition, surficial soil sampling (using a shovel or trowel) was carried out in 52 locations. The intrusive locations are summarised by the Auditor in **Table 5.1** and are illustrated on **Attachment 4**, **Appendix A**.

Table 5.1: DSI Investigation Locations on the Stage 1 Site

Land Parcel	Boreholes/ *Test Pit* (1 m)	Boreholes (2 m)	Monitoring Wells	Boreholes (Rock Core)	Surficial samples
Lot 47	SBT-BH-1309	SBT-BH-1285 SBT-BH-1286 SBT-BH-1288	SBT-GW-1042 (9 m)	Nil	SBT-BH-6231 to SBT-BH-6239
Lot 48	Nil	SBT-BH-1283 SBT-BH-1310	SBT-GW-1043_S (9 m)	SBT-GW-1043 (21 m)	SBT-BH-OHE-6247 to SBT-BH-OHE-6251 SBT-OHE-306
Lot 49	SBT-BH-1281 SBT-BH-1282 *SBT-BH-1308*	Nil	Nil	SBT-BH-1045 (28 m) SBT-BH-1046 (29 m)	SBT-OHE-3003 to SBT-OHE-3005 SBT-BH-1302 SBT-BH-1303
Lot 50	*SBT-BH-1294* *SBT-BH-1295* *SBT-BH-1296* *SBT-BH-1297* *SBT-BH-1298* *SBT-BH-1339*	Nil	Nil	SBT-BH-1050 (26 m) SBT-BH-1051 (29 m) SBT-BH-1503 (30 m) SBT-BH-1054 (29 m)	SBT-OHE-6300
Lot 81	SBT-BH-1299 SBT-BH-1300 SBT-BH-1335 SBT-BH-1336 SBT-BH-1337	Nil	Nil	SBT-BH-1060 (20 m)	SBT-OHE-320 to SBT-OHE-332 SBT-OHE-334 SBT-OHE-3008 to SBT-OHE-3012 SBT-OHE-6216
Lot 82	Nil	SBT-BH-1276 SBT-BH-1278 SBT-BH-1279 SBT-BH-1280	Nil	SBT-BH-1055 (30 m) SBT-BH-1056 (29 m) SBT-BH-1059 (27 m) SBT-BH-1061 (20 m) SBT-BH-1062 (20 m)	SBT-OHE-6212 SBT-OHE-6213 SBT-OHE-6252 to SBT-OHE-6256 SBT-OHE-3006 and SBT-OHE-3007
Lot 83	*SBT-BH-1301* *SBT-BH-1338*	Nil	Nil	Nil	SBT-OHE-6214 SBT-OHE-6217
Total number of investigation locations	**8 boreholes** ***9 test pits***	**9 boreholes**	**2 monitoring wells**	**13 cored boreholes**	**52 surface samples**

Locations in italic font (e.g., 'SBT-BH-1301') represent test pit locations.
Locations with underline (e.g., 'SBT-BH-1056') represents locations where borehole logs are not available for the Auditor's review.

A review of available borehole logs indicated that the subsurface profile in these locations could be described as shallow fill/topsoil (typically <0.3 m), underlain by natural clay soil and bedrock (siltstone and sandstone). It is noted that fill was not encountered in some investigation locations. The investigation locations were terminated in natural soils except SBT-BH-1280. The subsurface profile reported in SBT-BH-1280 consisted of natural clay soils from surface to 1 m below ground level (mbgl) followed by concrete to the depth of investigation at 2 mbgl.

Most of the sample logs for surficial locations completed during the DSI were not included or discussed in the DSI. This omission is not considered to be material by the Auditor. Based on the general geological conditions encountered in other sampling locations, the sampled soils were likely to be fill or topsoils.

TTMP reviewed the Atlas of Australian Acid Sulfate Soil (ASS) compiled by CSIRO in the DSI. The review indicates that the OHS site is located in an area with Extremely Low Probability of Occurrence of ASS.

5.2 Hydrogeology

The VR reported that the nearest registered groundwater bore is located approximately 1.7 kilometres (km) to the east of the OHS site and was installed at approximately 6 mbgl for groundwater monitoring purpose.

In the DSI, 4 groundwater monitoring wells were installed at approximately 8 mbgl on the OHS site (SBT-GW-1037, SBT-GW-1042, SBT-GW-1043 and SBT-GW-1048). As per **Table 5.1**, two groundwater monitoring wells (SBT-GW-1042 and SBT-GW-1043) were positioned on the Stage 1 site. One monitoring well was installed offsite to the west of the Stage 1 site (SBT-GW-1063). Monitoring well locations are shown on **Attachment 4**, **Appendix A**.

Depth to groundwater in the monitoring wells was between 1.8 to 5.7 mbgl. The DSI indicated that based on groundwater levels, the regional groundwater was anticipated to flow to the east/southeast towards South Creek.

The DSI Addendum included field records of groundwater parameters collected during sampling. The parameters indicated that the groundwater beneath the Stage 1 site and the OHS site was of similar signature and could be described as brackish, and slightly acidic to near-neutral with low dissolved oxygen (DO) and redox values.

5.3 Auditor's Opinion

Despite some borehole logs not being available, the Auditor is satisfied that the investigation provided sufficient information with which to confirm Stage 1 site stratigraphy. The Auditor notes that there are some uncertainties relating to the concrete layer reported in SBT-BH-1280 as a similar concrete layer is not identified in the surrounding locations (SBT-BH-1055, SBT-BH-1056 and SBT-BH1059, **Attachment 4**) or investigation locations completed on the wider OHS site. In the Auditor's opinion, the reported concrete layer is likely to represent a logging error, and if present, was within the dive structure and would therefore have been removed during excavation.

The Auditor considers that the stratigraphy and hydrogeology of the Stage 1 site are sufficiently well known for the purpose of the Audit.

6. EVALUATION OF QUALITY ASSURANCE AND QUALITY CONTROL

The Auditor has assessed the overall quality of the data acquired for the OHS site by review of the information presented in the referenced reports, supplemented by field observations. The data sources are summarised in **Table 6.1**.

Table 6.1: Summary of Investigations

Stage of Works	Field Data	Analytical Data
DSI (TTMP, 2022a) *Fieldwork date: May to August 2002.*	16 test pits. 72 boreholes, 5 were converted into groundwater monitoring wells including two wells on the Stage 1 site (**Section 5.2**). 79 surficial soil samples.	Soil: Metals, TRH/BTEX, polycyclic aromatic hydrocarbons (PAHs), phenols, organochlorine pesticides (OCPs), organophosphorus pesticides (OPPs), polychlorinated biphenyls (PCBs), VOCs, SVOCs, PFAS, asbestos (presence/absence) and asbestos (% w/w).
DSI Addendum (TTMP, 2022b) *Fieldwork date: August to September 2022.*	7 groundwater samples including: • 3 samples from new wells SBT-GW-1042 (sampled once in August 2022), SBT-GW-1037 and SBT-GW-1048 (sampled twice in September 2022). • 2 samples from existing wells BH-A372 and BH-A372S (sampled once in August 2022). BH-A372 and BH-A372S were on the Stage 1 site.	Groundwater: Metals/TRH/BTEX/PFAS (7 samples), SVOC/VOC (5 samples) PAHs/OCPs/OPPs/phenolic compounds (2 samples), TRH silica gel clean-up/nutrients/major ions (2 samples).

The Auditor's assessment of data quality follows in **Table 6.2** and **Table 6.3**.

Table 6.2: QA/QC – Sampling and Analysis Methodology Assessment

Sampling and Analysis Plan and Sampling Methodology	Auditor's Opinion
Data Quality Objectives (DQO) The DSI defined specific DQOs in accordance with the seven-step process outlined in Schedule B2 of NEPM (2013). The following decisions were identified in the DQOs: • Is soil and groundwater contamination present at the site in consideration of the data gaps / uncertainties identified? • Is groundwater contamination present in the vicinity of the site which may be drawn into the excavation during construction? • If contamination is present, how likely is it to be disturbed during construction works? • Are potential sources of contamination identified likely to represent a constraint to the project with respect to construction and spoil management in relation to contamination? • Are remediation actions or management measures required to manage risks to human health and the environment related to contamination? • Is asbestos present which requires management during construction? And if asbestos is present, what is the condition of the material (i.e., bonded and / or friable)? If asbestos in soils is identified, is additional investigation required to assess potential risks to human health during construction, or can risks be controlled through implementation of an asbestos management plan and	The identified DQOs are considered appropriate for the investigation conducted.

Sampling and Analysis Plan and Sampling Methodology	Auditor's Opinion
procedures outlined in SafeWork NSW codes of practice for asbestos related works?	
Sampling pattern, locations and density *Soil:* Investigation consisted of grid based (to provide coverage) and targeted (targeting the identified AECs) locations. Fill soils and the underlying natural soils/bedrocks were sampled. A sampling density of 167 locations over approximately 19 ha was achieved. *Groundwater:* Two monitoring wells (SBT-GW-1042 and SBT-1043) were installed in the vicinity of AEC20 on Lot 47 which was identified as a potential cattle dip. Another two wells were installed on the wider OHS site (SBT-GW-1037 to the north of the Stage 1 site and SBT-GW-1048 on the OHS site down gradient of the Stage 1 site). SBT-GW-1063 was installed offsite down gradient of the Stage 1 site.	In the Auditor's opinion, soil sample locations were positioned to provide systematic coverage with a skew to target areas with higher likelihood of impact, which is considered appropriate. The soil sampling density is slightly lower than the minimum number of samples for systematic sampling recommended in the EPA (2022) *Sampling design part 1 – application* (55 sample locations for a site with a size of 5 ha), but is sufficient for characterisation of the site soils. The Auditor also notes that a portion of the site was covered by building footprints and dense vegetation and could not be accessed. The placement and density of on-site wells, plus historical groundwater data from the surrounding lands, are adequate to inform potential risk to on and offsite receptors and evaluate if further assessment is warranted.
Sample depths Soil samples were collected and analysed from a range of depths, with the primary sampling interval being from surface to up to 2 mbgl. The maximum depth of investigation was 30 mbgl and the maximum depth of sampling was approximately 27 mbgl.	In the Auditor's opinion, the sampling depths were appropriate and adequate to characterise the fill and natural soils on the site.
Well construction *Groundwater:* The monitoring wells were installed at 8 or 11 mbgl and were screened from 2 mbgl to the bottom of the wells. The screened sections were placed in gravel. Wells were constructed of 50 mm uPVC. The remaining well annulus was backfilled with bentonite or bentonite followed by cement grout to the ground surface.	In the Auditor's opinion the well construction is acceptable. The monitoring wells are screened in the underlying natural clay soil and upper bedrock unit, targeting the same water bearing unit. The Auditor also notes the depth of installation was similar to the excavation depth proposed for the station box and dive structure excavation (10 mbgl).
Sample collection method *Soil*: Surficial soil samples were collected using a hand tool (trowel or shovel). Intrusive borehole locations to a depth of 1 or 2 mbgl were carried out using a Geoprobe drill rig with topsoil/fill samples collected using a shovel and push tube into the natural soils. Test pits were samples by hand directly from the excavator bucket. Rock core boreholes were advanced using a drilling rig equipped with solid stem augers and rock coring tools. At these locations sample collection was via solid stem auger or from the standard penetration test (SPT) split spoon or from the rock coring barrel. Asbestos samples (sample weight varied between 30 grams (g) to 400 g) were collected for analysis for asbestos identification. Laboratory reports indicate that asbestos analysis on some samples was undertaken on sub-samples from soil jars; and some asbestos samples were further analysed for asbestos fines/fibrous asbestos (AF/FA). *Groundwater*: Monitoring wells were developed with a bailer/pump and were sampled using dedicated high-density polyethylene (HDPE) Hydrosleeves approximately one week after their deployment.	Sample collection from the auger flights is not ideal as it can result in loss of volatiles. Given volatile organics are unlikely to be the key contaminants at the site, this deficiency is not considered to be of great significance. The DSI indicates that use of test pits was not permitted on the site until July 2022, resulting in most investigation locations completed as boreholes. The Auditor noted in the IAA#6 *"potential for asbestos to be present at the site cannot be precluded given the low sample volumes, absence of 10 L samples, use of boreholes, presence of fill material and small stockpiles and presence of vegetation, hardstand and structures"*. Collection of 10 L bulk samples for field screening for ACM was proposed in the SAQP. Overall, the sample collection method was found to be acceptable. However, management controls should be in place to address the potential for encountering asbestos or other unforeseen contamination during construction. The Auditor further notes that the findings from the DSI indicate

Sampling and Analysis Plan and Sampling Methodology	Auditor's Opinion
	the site has limited fill presence and as such, the overall risk associated with asbestos in fill soils is likely to be low.
Decontamination procedures Drill rig and drilling equipment were inspected to confirm that they were clean prior to the commencement of drilling. A rinsate sample was collected from the drilling equipment (e.g., push tube liner, auger head or coring barrel) immediately prior to the commencement of drilling. Reusable sampling equipment was decontaminated prior to the first use each day, and between each sampling location. Decontamination procedure included: • For equipment used in soil sampling, adhered materials (such as soil, vegetation) were removed by gloved hand, paper towel or scrubbing brush. • Equipment was washed in a bucket of potable water with Liquinox detergent. • The equipment was rinsed thoroughly in a second bucket containing deionised water. • The equipment was spray rinsed with potable water. Cleaned equipment and samples were handled with clean disposable nitrile gloves. Equipment was stored after decontamination and prior to use in clean polypropylene bags to ensure the cleaned equipment did not come into contact with anything that may introduce contamination to the equipment.	Acceptable.
Sample handling and containers Samples were placed into appropriate sampling containers provided by the laboratory and chilled during storage and subsequent transport to the labs. Samples for PFAS analysis were placed in PFAS specific sample containers provided by the laboratory. Groundwater samples proposed for dissolved metals analysis were filtered in the field using 0.45 micron (µm) disposable filters.	Acceptable.
Chain of Custody (COC) Completed COC forms were provided in the report.	Acceptable.
Detailed description of field screening protocols *Soil:* Field screening for volatiles was undertaken using a pre-calibrated photoionisation detector (PID). *Groundwater:* Field parameters were measured during well sampling.	Acceptable.
Calibration of field equipment Calibration certificates from the equipment supplier were provided.	Acceptable.
Sampling logs Soil logs are provided indicating sample depth, PID readings and lithology. Groundwater field sampling records were provided and/or tabulated in the investigation reports, indicating standing water level (SWL), field parameters, methodology and observations.	Acceptable. As per **Section 5** some borehole or sampling logs are missing. Notwithstanding this, the Auditor is satisfied that the stratigraphy of the site is sufficiently well known for the purpose of the Audit.

Table 6.3: QA/QC – Field and Lab Quality Assurance and Quality Control

Field and Lab QA/QC	Auditor's Opinion
Field quality control samples Field quality control samples including trip blanks, trip spikes, rinsate blanks, field blanks, intra-laboratory and inter-laboratory duplicates were undertaken.	Acceptable.
Field quality control results The results of field quality control samples were generally within appropriate limits except for some RPD outliers between the primary and the corresponding intra and/or inter-laboratory duplicate. These RPD outliers were likely due to the heterogeneity of the soil matrix.	Acceptable.
NATA registered laboratory and NATA endorsed methods Laboratories used included: ALS and Eurofins. Laboratory certificates were NATA stamped.	Acceptable.
Analytical methods Analytical methods were included in the laboratory test certificates. Both ALS and Eurofins provided brief method summaries of in-house NATA accredited methods used based on USEPA and/or APHA methods (excluding asbestos) for extraction and analysis in accordance with the NEPM (2013). Asbestos identification was conducted using polarised light microscopy with dispersion staining by method AS4964-2004 *Method for the Qualitative Identification of Asbestos Bulk Samples*.	Acceptable.
Holding times TTMP reported some analysis was conducted outside the recommended holding times. TTMP further noted that these holding time breaches were unlikely to have significantly impacted the overall integrity of the analytical results, particularly given the samples were in chilled storage within the laboratory.	Overall, in the context of the dataset reported and the inferred site history, the identified holding time outliers are not significant, and the data set are of adequate quality for the purpose of the Audit.
Practical Quantitation Limits (PQLs) *Soil:* PQLs (except asbestos) were lower than the threshold criteria for the contaminants of concern, except: • PQLs for TRH >C_{10}-C_{16} in SBT-OHE-6252, SBT-OHE-6253 and the triplicate sample for SBT-BH-1059/0.0-0.2 mbgl were raised to levels greater than the adopted ecological based criterion. *Asbestos:* The NATA approved limit of detection for asbestos in soil was 0.01% w/w although NEPM (2013) analyses were reported to 0.001% w/w for AF/FA. *Groundwater:* Trigger values for benzo(a)pyrene (BaP), some OCP, OPP and PFAS compounds were less than the PQLs.	*Soil (except asbestos):* Overall the soil PQLs are acceptable. *Asbestos:* In the absence of any other validated analytical method, the detection limit for asbestos is considered acceptable. *Groundwater*: BaP, OCPs, OPPs and PFAS were reported at concentrations below the PQLs. In the context of the results reported and the inferred site history, these discrepancies do not materially affect the outcome of the Audit. Implications on the adopted PFAS PQLs were further evaluated by the Auditor in **Section 9**.
Laboratory quality control samples Laboratory quality control samples including laboratory control samples, matrix spikes, surrogate spikes, blanks and duplicates were undertaken by the laboratory.	Acceptable.
Laboratory quality control results The results of laboratory quality control samples were within appropriate limits, except for some recovery outliers in matrix spikes/surrogate spikes/laboratory control samples (primarily due to matrix interferences) and RPD outliers in laboratory duplicates (most likely due to the heterogenous nature of soil samples).	In the context of the dataset reported, the non-conformances in laboratory quality control results are not considered significant and the laboratory quality control results are acceptable.

Field and Lab QA/QC	Auditor's Opinion
Data Quality Indicators (DQI) and Data Evaluation (completeness, comparability, representativeness, precision, accuracy) Predetermined data quality indicators (DQIs) were set in the DSI for laboratory analyses including blanks, replicates, duplicates, laboratory control samples, matrix spikes and surrogate spikes. These were discussed with regards to the five category areas. The DSI concluded that *"In summary, whilst a number of non-conformances were identified in the data quality assessment, TTMP consider these non-conformances are unlikely to affect the outcome of the investigation. On this basis, it is assessed that the field and laboratory data is directly useable for assessing potential contamination risks from this site"*.	An assessment of the data quality with respect to the five category areas has been undertaken by the Auditor and is summarised below.

6.1 Auditor's Opinion

The investigations were undertaken in general accordance with the SAQP reviewed by the Auditor and included appropriate QA/QC programs.

Based on review of the above items, and in consideration of the inferred site history and the additional assessment and validation undertaken (**Section 11**), the Auditor is satisfied that the data is of suitable quality for the purpose of this Audit.

In considering the data as a whole and the site history, the Auditor concludes that:

- The data is largely complete, although there are data gaps with regards to soil conditions beneath building footprints and in areas with dense vegetation. The Auditor notes that these data gaps were addressed in the validation phase as discussed in **Section 11**.
- The data is likely to be adequately representative of the overall conditions. The potential for asbestos to be present in fill could not be precluded and management controls were to be in place to address the potential for encountering asbestos or other unforeseen contamination during construction. The Auditor notes that the findings from the DSI indicated that the site had limited fill presence and as such, the overall risk associated with asbestos in fill soils was likely to be low.
- There is a degree of confidence that data is comparable for each sampling and analytical event.
- The laboratories provided sufficient information to conclude that data is of sufficient precision.
- The data is likely to be accurate.

An evaluation of the data obtained during validation is presented in **Section 11**.

7. ENVIRONMENTAL QUALITY CRITERIA

The Auditor has assessed the results against Tier 1 criteria from National Environmental Protection Council (NEPC) *National Environmental Protection (Assessment of Site Contamination) Measure 1999*, as Amended 2013 (NEPM, 2013). Other guidance has been adopted where NEPM (2013) is not applicable, or criteria are not provided. As discussed in **Section 1.2**, the human health and ecological criteria for 'recreational/open space' land use exposure scenario have been adopted. Criteria for a 'commercial/industrial' land use were adopted where they are more conservative.

7.1 Soil Assessment Criteria

7.1.1 Human Health Assessment Criteria

The Auditor has adopted human health assessment criteria from the following sources:

- NEPM (2013) Health Investigation Levels (HILs) for 'Recreational' (HIL C) land use.
- NEPM (2013) Health Screening Levels (HSLs) for 'Commercial/Industrial' (HSL D) land use, as these are more conservative than the 'recreational/open space' criteria. In consideration of the site geological conditions (**Section 5.1**), the HSLs assumed a clay soil type. Depth to source adopted was <1 m as an initial screen.
- NEPM (2013) Management Limits (MLs) for petroleum hydrocarbons for 'Residential, parkland and public open space' land use and assuming fine soil texture.
- NEPM (2013) HSLs for Asbestos Contamination in Soil for 'Recreational' (HSL C) land use.
- Friebel & Nadebaum (2011) HSLs for direct contact for all land use categories, and vapour inhalation/direct contact pathways for intrusive maintenance workers.
- Heads of EPAs Australia and New Zealand (HEPA) (2020) *PFAS National Environmental Management Plan*. Perfluorooctane sulfonate (PFOS)/perfluorohexane sulfonate (PFHxS) and perfluorooctanoic acid (PFOA) '*human health investigation levels for soil*' for 'Public open space' land use.

7.1.2 Ecological Assessment Criteria

The Auditor has adopted ecological soil assessment criteria from the following sources:

- NEPM (2013) Ecological Screening Levels (ESLs) for 'Urban residential and public open space' land use, assuming fine soil.
- NEPM (2013) Ecological Investigation Levels (EILs) for 'Urban residential and public open space' land use. The Auditor calculated the EILs using the most conservative soil-specific added contaminant limits (ACL) for aged contaminants and 25th percentile of the ambient background concentration (ABC) values referenced from Olszowy et al (1995) (for low traffic and old suburbs in NSW).
- Canadian Council of Ministers of the Environment (CCME) (2010) Canadian soil quality guidelines: carcinogenic and other polycyclic aromatic hydrocarbons (PAHs) soil quality guideline (SQG) for BaP for 'Public Open Space' land use. The SQG has been adopted in place of the NEPM (2013) ESL as it is based on a larger and more up-to-date toxicity database than the low reliability NEPM (2013) ESL.
- HEPA (2020) PFOS and PFOA '*interim soil ecological direct exposure*' and '*interim soil ecological indirect exposure*' criteria for all land uses.

7.1.3 Soil Aesthetic Considerations

The Auditor has considered the need for soil remediation based on 'aesthetic' contamination as outlined in *Section 3.6 Aesthetic Considerations* of NEPM (2013) Schedule B1, which acknowledges that there are no chemical-specific numerical aesthetic guidelines. Instead, site assessment requires a balanced consideration of the quantity, type and distribution of foreign material or odours in relation to the specific land use and its sensitivity.

7.1.4 Imported Fill

Imported fill has been assessed in relation to attributes expected of virgin excavated natural material (VENM). The EPA (2014) *Waste Classification Guidelines, Part 1: Classifying Waste* defines VENM as *"…natural material (such as clay, gravel, sand, soil or rock fines):*

- *'that has been excavated or quarried from areas that are not contaminated with manufactured chemicals, or with process residues, as a result of industrial, commercial, mining or agricultural activities*
- *'that does not contain sulphidic ores or soils, or any other waste, and includes excavated natural material that meets such criteria for virgin excavated natural material as may be approved from time to time by a notice in the NSW Government Gazette."*

On this basis, the Auditor considers that for soil to be classified as VENM, the following criteria generally apply:

- Organic compounds (including petroleum hydrocarbons, PAHs, OCPs, PCBs and phenols) should be less than the PQLs.
- Inorganic compounds should be consistent with background concentrations.
- The material should not contain or comprise actual or potential acid sulphate soil.

Imported material, such as excavated natural material (ENM) or non-VENM construction materials, was assessed against the requirements of the applicable resource recovery order (RRO) and resource recovery exemption (RRE) issued by the EPA under clause 93 of the *Protection of the Environment Operations (Waste) Regulation 2014 (the POEO Regulation)*.

7.2 Groundwater Assessment Criteria

7.2.1 Human Health Assessment Criteria

The Auditor has adopted human health assessment criteria from the following sources:

- NEPM (2013) HSLs for 'Commercial/Industrial' (HSL D) land use, as these are more conservative than the 'recreational/open space' criteria. The HSLs assumed a clay soil type and a depth to groundwater of 2 to <4 m.
- NHMRC (2011) *National Water Quality Management Strategy, Australian Drinking-Water Guidelines* (ADWG), Version 3.8 Updated September 2022 for potable use and where HSLs are not applicable. The ADWG are also appropriate for assessing risks from groundwater to human health at the site due to the potential for direct contact.
- NHMRC (2008) *Guidelines for Managing Risks in Recreational Water* (GMRRW). The GMRRW indicates that a qualitative assessment of recreational use can be undertaken using 10 times the concentrations of chemicals stipulated in the ADWG. This is based on an assumed contribution for swimming equivalent to 10% of drinking water consumption. This adjustment accounts for a reduced intake of groundwater, and therefore can only be applied to criteria derived based on health considerations and cannot be applied to criteria derived for aesthetic reasons (e.g. copper). The adjustment should also not be applied to volatile compounds (e.g. benzene) where inhalation is the primary pathway of concern. Where a 'health-based' and an 'aesthetic-based' criteria is provided, the 'health-based' criteria was adopted.

- HEPA (2020) drinking water and recreational water quality criteria values for PFOS/PFHxS and PFOA.

7.2.2 Ecological Assessment Criteria

The Auditor has adopted ecological groundwater assessment criteria from the following sources:

- ANZG (2018) *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*. Australian and New Zealand Governments and Australian state and territory governments, Canberra ACT, Australia (www.waterquality.gov.au/anz-guidelines). Criteria for freshwater and 95% level of species protection were adopted.
- HEPA (2020) ecological water quality criteria values for PFOS and PFOA. Criteria for freshwater and 99% level of species protection were adopted.

7.3 Auditor's Opinion

The environmental quality criteria referenced by the Auditor are consistent with those adopted in the DSI, DSI Addendum, CA and VR, with the exception of the following:

- *For soil assessment criteria*
  - As noted in **Section 1.2**, the DSI assessed the data set against criteria for a 'Commercial/Industrial' land use exposure scenario. This data set was reassessed under a 'Recreational/Open Space' land use exposure scenario in the CA and VR.
  - The DSI and CA did not mention assessment of 'aesthetic' contamination as outlined in the NEPM (2013).
  - Limited soil samples from the wider OHS were analysed for pH, CEC and clay content. The CA and VR considered these values and derived site-specific EILs for copper, nickel and zinc. These site-specific EILs were calculated using site-specific ACLs for aged contaminants and ABC referenced from Olszowy et al (1995) (for NSW, old suburbs and low traffic).
  - The CA and VR adopted NEPM (2013) ESL for BaP.
  - The CA and VR considered NEPM (2013) ESLs for coarse soil type.
- *For groundwater assessment criteria*
  - The DSI/DSI Addendum did not consider NHMRC (2008) GMRRW when screening the available groundwater monitoring data.
  - The DSI/DSI Addendum referenced ANZECC/ARMCANZ (2000) guideline values for physical and chemical stressors when assessing the groundwater monitoring data.
  - The DSI/DSI Addendum considered HSLs for 'Commercial/Industrial' (HSL D) land use exposure scenario. Historical groundwater results were not reassessed in the CA or VR.

Given the results obtained, the Auditor considers that these discrepancies do not affect the overall conclusions reached by TTMP/JBS&G and the Auditor.

Aesthetic contamination is not expected on the Stage 1 site based on the Auditor's review of the available borehole logs and photographs from the DSI and observations during the October 2022 site inspection.

To facilitate the development works, construction materials have been imported and placed on the Stage 1 site. The potential aesthetic implications relating to these materials are further discussed in **Section 11.6**.

8. EVALUATION OF SOIL RESULTS

8.1 Field Results

During the DSI, fill soils were encountered in some locations. Where observed, the typical fill thickness was less than 0.3 m. The DSI considered the lithology was consistent with the inferred site history (rural residential land use) where extensive land filling was unlikely to have occurred.

Fill soils were typically consistent with reworked natural soils and did not contain anthropogenic materials. Fragments of suspected ACM was observed on the soil surface within the large shed on Lot 47 (AEC20) and in the surficial soil sampling location SBT-OHE-6217 during the DSI. Suspected ACM was not observed in other areas.

Field screening of soil samples was completed in the DSI, and the available PID results indicated an absence of VOC contamination. No olfactory or visual signs of contamination were reported.

8.2 Analytical Results

Soil samples were analysed for a variety of contaminants including petroleum hydrocarbons, PAHs, asbestos and heavy metals. The results have been assessed against the environmental quality criteria and are summarised in **Table 8.1** and **Table 8.2**. Soil sampling locations are shown as **Attachment 4**, **Appendix A**.

Table 8.1: Evaluation of Soil Analytical Results – Summary Table (Fill/Topsoil)

Analyte	n	Detections	Maximum (mg/kg)	n > Human Health Screening Criteria	n > Terrestrial Ecological Screening Criteria
AF/FA (500 mL samples)	37	1	**1.45% w/w**	**1 above HSL 0.001% w/w**	-
Asbestos in soil	23	0	<PQL	0 above 0.1 g/kg	-
Benzene	94	0	<PQL	0 above HSL D 0-1 m, clay 4 mg/kg	0 above ESL (open space) (fine) 65 mg/kg
Toluene	94	0	<PQL	0 above HSL D 0-1 m, clay NL	0 above ESL (open space) (fine) 105 mg/kg
Ethylbenzene	94	0	<PQL	0 above HSL D 0-1 m, clay NL	0 above ESL (open space) (fine) 125 mg/kg
Total Xylenes	94	1	1.8	0 above HSL D 0-1 m, clay NL	0 above ESL (open space) (fine) 45 mg/kg
F1 (TRH C_6–C_{10} minus BTEX)	93	0	<PQL	0 above HSL D 0-1 m, clay 310 mg/kg	0 above ESL (open space) (fine) 180 mg/kg
F2 (TRH >C_{10}–C_{16} minus naphthalene)	93	3	160	0 above HSL D 0-1 m, clay NL	-
TRH C_6–C_{10}	93	0	<PQL	0 above ML (open space) 800 mg/kg	-
TRH >C_{10}–C_{16}	93	3	160	0 above ML (open space) 1,000 mg/kg	**5 above ESL (open space) (fine) 120 mg/kg**
TRH >C_{16}-C_{34}	93	19	1,400	0 above ML (open space) 3,500 mg/kg	**1 above ESL (open space) (fine) 1,300 mg/kg**
TRH >C_{34}-C_{40}	93	15	700	0 above ML (open space) 10,000 mg/kg	0 above ESL (open space) (fine) 5,600 mg/kg

Analyte	n	Detections	Maximum (mg/kg)	n > Human Health Screening Criteria	n > Terrestrial Ecological Screening Criteria
Naphthalene	94	0	<PQL	0 above HSL D 0-1 m, clay NL	0 above EIL (open space) 170 mg/kg
Benzo(a)pyrene	94	4	5.8	-	0 above CCME SQG (open space) 20 mg/kg
Benzo(a)pyrene TEQ	94	4	**11**	**4 above HIL C 3 mg/kg**	-
Total PAHs	94	4	140	0 above HIL C 300 mg/kg	-
Total Phenols	94	0	<PQL	0 above HIL C 40,000 mg/kg	-
Arsenic	93	83	24	0 above HIL C 300 mg/kg	0 above EIL (open space) 100 mg/kg
Cadmium	93	3	2	0 above HIL C 90 mg/kg	-
Chromium	93	93	**390**	**1 above HIL C 300 mg/kg**	**1 above EIL (open space) 198 mg/kg**
Copper	93	84	72	0 above HIL C 17,000 mg/kg	0 above EIL (open space) 78 mg/kg
Lead	93	93	130	0 above HIL C 600 mg/kg	0 above EIL (open space) 1,100 mg/kg
Mercury	93	1	0.1	0 above HIL C 80 mg/kg	-
Nickel	93	81	**65**	0 above HIL C 1,200 mg/kg	**2 above EIL (open space) 35 mg/kg**
Zinc	93	90	**890**	0 above HIL C 30,000 mg/kg	**9 above EIL (open space) 147 mg/kg**
PCB	4	0	<PQL	0 above HIL C 1 mg/kg	-
OCP - Endrin	92	1	0.07	0 above HIL C 20 mg/kg	-
OCP - Heptachlor	92	2	0.11	0 above HIL C 10 mg/kg	-
OCP – Sum DDT, DDP and DDD	92	3	0.07	0 above HIL C 400 mg/kg	0 above EIL 180 mg/kg
OPP	88	0	<PQLs	0 above HIL C	-
VOCs	20	0	<PQLs	-	-
PFHxS	84	1	0.0003	0 above HIL C 1 mg/kg	-
PFOS	84	77	0.0039	0 above HIL C 1 mg/kg	0 above ecological direct exposure 1 mg/kg 0 above ecological indirect exposure 0.01 mg/kg
PFOA	84	13	0.0008	0 above HIL C 10 mg/kg	0 above ecological direct exposure 10 mg/kg

mg/kg	milligram per kilogram
n	number of samples
-	No criteria available/used
NL	Non-limiting
TEQ	Toxic Equivalence Quotient

Table 8.2: Evaluation of Soil Analytical Results – Summary Table (Natural Soils/Bedrock)

Analyte	n	Detections	Maximum (mg/kg)	n > Human Health Screening Criteria	n > Terrestrial Ecological Screening Criteria
Asbestos in soil	14	0	<PQL	0 above 0.1 g/kg	-
Benzene	133	2	4.6	**1 above HSL D 0-1 m, clay 4 mg/kg**	0 above ESL (open space) (fine) 65 mg/kg
Toluene	133	8	4.4	0 above HSL D 0-1 m, clay NL	0 above ESL (open space) (fine) 105 mg/kg
Ethylbenzene	133	1	4.6	0 above HSL D 0-1 m, clay NL	0 above ESL (open space) (fine) 125 mg/kg
Total Xylenes	133	16	16	0 above HSL D 0-1 m, clay NL	0 above ESL (open space) (fine) 45 mg/kg
F1 (TRH C_6–C_{10} minus BTEX)	132	4	91	0 above HSL D 0-1 m, clay 310 mg/kg	0 above ESL (open space) (fine) 180 mg/kg
F2 (TRH >C_{10}–C_{16} minus naphthalene)	132	3	120	0 above HSL D 0-1 m, clay NL	-
TRH C_6–C_{10}	132	6	96	0 above ML (open space) 800 mg/kg	-
TRH >C_{10}–C_{16}	132	3	120	0 above ML (open space) 1,000 mg/kg	0 above ESL (open space) (fine) 120 mg/kg
TRH >C_{16}-C_{34}	132	6	190	0 above ML (open space) 3,500 mg/kg	0 above ESL (open space) (fine) 1,300 mg/kg
TRH >C_{34}-C_{40}	132	0	<PQL	0 above ML (open space) 10,000 mg/kg	0 above ESL (open space) (fine) 5,600 mg/kg
Naphthalene	126	2	3	0 above HSL D 0-1 m, clay NL	0 above EIL (open space) fine 170 mg/kg
Benzo(a)pyrene	90	0	<PQL	-	0 above CCME SQG (open space) 20 mg/kg
Benzo(a)pyrene TEQ	90	0	<PQL	0 above HIL C 3 mg/kg	-
Total PAHs	90	13	6.5	0 above HIL C 300 mg/kg	-
Total Phenols	90	0	<PQL	0 above HIL C 40,000 mg/kg	-
Arsenic	132	74	44	0 above HIL C 300 mg/kg	0 above EIL (open space) 100 mg/kg
Cadmium	132	5	4	0 above HIL C 90 mg/kg	-
Chromium	132	124	140	0 above HIL C 300 mg/kg	0 above EIL (open space) 198 mg/kg
Copper	132	121	61	0 above HIL C 17,000 mg/kg	0 above EIL (open space) 78 mg/kg
Lead	132	126	50	0 above HIL C 600 mg/kg	0 above EIL (open space) 1,100 mg/kg

Analyte	n	Detections	Maximum (mg/kg)	n > Human Health Screening Criteria	n > Terrestrial Ecological Screening Criteria
Mercury	132	5	0.4	0 above HIL C 80 mg/kg	-
Nickel	132	97	**80**	0 above HIL C 1,200 mg/kg	**3 above EIL (open space) 35 mg/kg**
Zinc	132	116	**170**	0 above HIL C 30,000 mg/kg	**1 above EIL (open space) 147 mg/kg**
PCB	1	0	<PQL	0 above HIL C 1 mg/kg	-
OCP - Endrin	40	0	<PQL	0 above HIL C 20 mg/kg	-
OCP - Heptachlor	40	0	<PQL	0 above HIL C 10 mg/kg	-
OCP – Sum DDT, DDP and DDD	40	0	<PQL	0 above HIL C 400 mg/kg	0 above EIL 180 mg/kg
OPP	39	0	<PQL	0 above HIL C	-
VOCs	9	0	<PQL	-	-
PFHxS	131	2	0.0004	0 above HIL C 1 mg/kg	-
PFOS	131	20	0.0032	0 above HIL C 1 mg/kg	0 above ecological direct exposure 1 mg/kg 0 above ecological indirect exposure 0.01 mg/kg
PFOA	131	6	0.0006	0 above HIL C 10 mg/kg	0 above ecological direct exposure 10 mg/kg

n number of samples
- No criteria available/used

In reviewing the analytical results, the Auditor notes the following:

- PFAS (especially PFOS) were generally present in the sampled fill/topsoils, however, detections were less frequent in the underlying natural soils/bedrock. The reported concentrations were below the adopted assessment criteria and could be representative of ambient concentrations in the local area.
- Concentrations of other contaminants of concern were below the adopted human-health based assessment criteria, except:
    - The single asbestos concentration (AF/FA) in the fill soils in SBT-BH-1295/0.1-0.2 mbgl. SBT-BH-1295 was located within AEC26 on Lot 50.
    - The benzene concentration in the surficial soil sample SBT-BH-1336/0-0.1 mbgl. SBT-BH-1336 was located adjacent to the residential dwelling on Lot 81 (AEC29). The underlying sample collected from 0.1-0.2 mbgl reported BTEX concentrations less than the PQL. Further assessment was subsequently undertaken at SBT-BH-1336 and immediately surround area and sample results were less than the detection limit for TRH, BTEX, VOCs and SVOCs.
    - The single chromium concentration in the fill soils in SBT-BH-1059/0.3–0.5 mbgl. The reported chromium concentration in this sample was 390 mg/kg, compared to the adopted criterion of 300 mg/kg. SBT-BH-1059 was located on Lot 82 and the subsurface profile recorded for this location consisted of fill soils to approximately 0.8 mbgl followed

by natural clay and bedrock. It is noted that the result is for total chromium, however the HIL is for hexavalent chromium.

- The BaP TEQ concentrations reported in four fill soil samples, including SBT-OHE-3005 (3.8 mg/kg), SBT-OHE-6213/ 0.0-0.1 mbgl (5.8 mg/kg), SBT-OHE-6252 (11 mg/kg) and SBT-OHE-6253 (4.4 mg/kg).

- Concentrations exceeding the adopted ecological assessment criteria were detected in a low number of fill soil samples, predominantly related to the top 0.2 m of fill soils, as follows:
  - TRH C_{10}-C_{16} concentrations in surficial fill soils in SBT-OHE-6256 (160 mg/kg) and SBT-OHE-3006 (150 mg/kg) exceeding the adopted criterion of 120 mg/kg. Due to matrix interference, the PQL for TRH C_{10}-C_{16} was raised to levels greater than the adopted ecological assessment criterion for surficial fill soil samples SBT-OHE-6252 (raised to 250 mg/kg) and SBT-OHE-6253 (raised to 250 mg/kg). The review of the DSI also noted that TRH C_{10}-C_{16} PQL for the triplicate sample for SBT-BH-1059/0.0-0.2 mbgl was raised to 500 mg/kg, exceeding the adopted criterion.
  - TRH >C_{16}-C_{34} concentration in surficial fill soil sample SBT-OHE-6216 (1,400 mg/kg) exceeded the adopted ecological assessment criterion (1,300 mg/kg).
  - Chromium concentration in fill soil sample SBT-BH-1059/0.3-0.5 mbgl (390 mg/kg) exceeded the adopted criterion of 198 mg/kg.
  - Nickel concentrations in surficial fill soil sample SBT-BH-1045/0.1-0.2 mbgl (40 mg/kg) and the triplicate sample for SBT-BH-1059/0.0-0.2 mbgl (65 mg/kg) were greater than the adopted criterion (35 mg/kg).
  - Zinc concentrations in surficial fill soil samples SBT-OHE-3008 (180 mg/kg), SBT-BH-1303 (245 mg/kg), SBT-BH-OHE-6250 (170 mg/kg), SBT-BH-1309 (520 mg/kg), SBT-BH-6231 (190 mg/kg), SBT-BH-6238 (230 mg/kg), SBT-BH-6236 (890 mg/kg), SBT-BH-6233 (410 mg/kg) and SBT-BH-1285 (290 mg/kg) were above the adopted criterion of 147 mg/kg.
- Nickel concentrations in natural soil samples SBT-BH-1055/29.0-29.1 mbgl (80 mg/kg), SBT-BH-1059/5.9-6.0 mbgl (50 mg/kg) and SBT-BH-1059/9.26-9.5 mbgl (36 mg/kg), and zinc concentration in natural soil sample SBT-BH-1061/5.90-6.0 mbgl (170 mg/kg) are considered to present a low risk based on sample depths greater than 2 mbgl.
- The analytical results indicated widespread contamination was not present in the fill/topsoils and the underlying natural soils/bedrock.

8.3 Auditor's Opinion

The soil analytical results obtained during the DSI are consistent with the site history and field observations. Due to the asbestos impacted fill soil in SBT-BH-1295, it was recommended by TTMP that fill soils at this location should be managed in accordance with the AMP.

In the Auditor's opinion:

- The chromium concentration exceedance related to SBT-BH-1059/0.3–0.5 mbgl is marginal and is unlikely to be related to hexavalent chromium and therefore adoption of the HIL is conservative. The reported total chromium concentration is unlikely to pose an unacceptable risk to human health.
- The overall risk to human health from the BaP TEQ concentration exceedances is considered to be low give that the exceedances were isolated (4 out of 94 samples).

- The overall ecological based risk due to metal (chromium, nickel and zinc) and TRH concentrations is considered low and acceptable given that the exceedances are in isolated locations. It is also noted that the EILs adopted by the Auditor are based on the most conservative ACLs.

The Auditor considers that soils within the Stage 1 site do not present a potential risk to human health or the environment and the Stage 1 site is suitable for the intended recreational/open space land uses. As discussed in **Section 11**, the majority of the fill soils within the OHS were removed during site construction, which further mitigated the potential risk associated with the identified concentration exceedances.

The Auditor previously recommended in IAA#6 that controls should be in place during construction works to ensure asbestos or other unforeseen contamination identified during the bulk earthworks was dealt with appropriately to minimise risks to human health and the environment. Management controls adopted by CPBG and their representatives during construction are discussed further in **Section 11**.

9. EVALUATION OF GROUNDWATER RESULTS

Three wells (SBT-GW-1037, SBT-GW-1042 and SBT-GW-1048) were installed and sampled in the DSI and the DSI Addendum for chemical analysis. As the newly installed well SBT-GW-1043 could not be accessed during the sampling event, the nearby pre-existing groundwater monitoring wells SMGW-BH-A372 and SMGW-BH-A372-S were sampled.

The groundwater analytical results were presented in the DSI Addendum. The DSI Addendum and the Auditor's observations in assessing the DSI Addendum (IAA#13, **Appendix C**) note the following:

- No visual or olfactory signs of contamination was observed. No detections of light non-aqueous phase liquid (LNAPL) were identified.
- Dissolved metals including lead, nickel and zinc were detected at concentrations exceeding the adopted ecological based criteria.
- TRH, BTEX, PAH, OCP, OPP, VOCs and SVOCs were not detected, except for low concentrations of TRH >C_{10}-C_{16} (380 micrograms per litre (µg/L) and >C_{16}-C_{34} (300 µg/L) in SMGW-BH-A372.
- Nutrients including ammonia and nitrate were reported in groundwater samples from SBT-GW-1037 and SBT-GW-1048; and the reported ammonia concentrations were below the adopted ecological screening criterion.
- Historically, groundwater wells including SMGW-BH-A017, SMGW-BH-A113, SMGW-BH-A117, SMGW-BHA117S, SMGW-BH-A310, SMGW-BH-A315 and SMGW-BH-A315S were installed in immediate surrounds (**Figure 9.1**). These wells were sampled at least once in 2019, 2020 and/or 2021. Most of these wells were located to the immediate west of the OHS site in assumed up hydraulic gradient locations and reported similar analytical results to the DSI/DSI Addendum, indicating the reported metal, ammonia and nitrate concentrations in site groundwater could be representative of background conditions.
- The laboratory detection limit adopted for PFOS was greater than the HEPA (2020) criterion for 99% (0.00023 µg/L) but below the criterion for 95% (0.13 µg/L) freshwater species protection. Historically, PFOS concentrations exceeding the HEPA (2020) criterion for 99% freshwater species protection (and below 95% freshwater species protection) were reported in the assumed upgradient offsite monitoring wells SMGW-BH-A310, SMGW-BH-A315 and SMGW-BH-A315S (**Figure 9.1**), indicating that it is likely that the site groundwater contains PFAS.
- In consideration of the monitoring results, the PFAS concentrations in site groundwater are anticipated to be low (above 99% but below 95% species protection criteria). Given the nearest surface water receptors (Blaxland Creek and South Creek) are not of high ecological conservation value, adopting the HEPA (2020) criterion for 99% freshwater species protection to assess PFAS concentrations in groundwater is likely to be conservative and the overall risk associated with PFAS in groundwater is expected to be low.

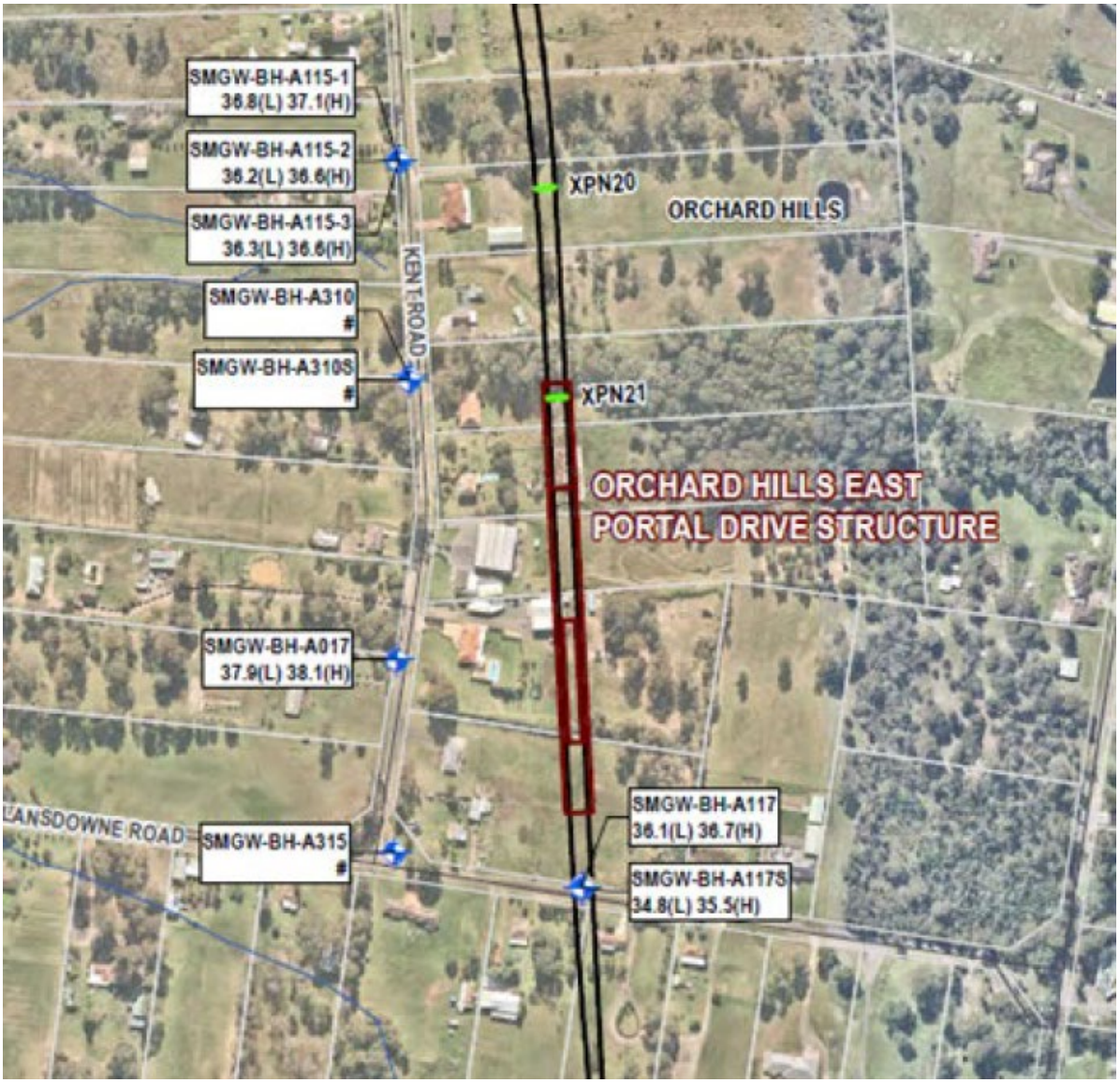


Figure 9.1: Locations of Historical Offsite Groundwater Monitoring Wells (Source: the SAQP)

9.1 Auditor's Opinion

It is the opinion of the Auditor that the findings from the DSI/DSI Addendum are consistent with the historical monitoring data; and groundwater on the Stage 1 site and the wider OHS site is unlikely to pose an unacceptable risk to the environment.

The groundwater is not expected to pose a potential risk to human health under a recreational/open space land use exposure scenario or during station box and dive structure construction. Implementation of standard work health and safety procedures during construction will further minimise potential risks associated with groundwater, if any.

The Auditor is satisfied that further investigation or remediation of groundwater is not required. Groundwater encountered during construction (if any) will require capture, treatment and disposal in accordance with the Water Reuse and Discharge Management Procedure provided in Appendix C of the NSW (Off-Airport) Soil and Water Management Sub-Plan.

10. EVALUATION OF CONCEPTUAL SITE MODEL

A conceptual site model (CSM) is a representation of the source, pathway and receptor linkages at a site. TTMP developed a preliminary CSM in the SAQP when scoping the DSI, which was revised in the DSI in consideration of the findings from the investigation. **Table 10.1** provides the Auditors review of these CSMs. Whilst CSMs developed by TTMP were based on a 'commercial/industrial' land use exposure scenario, the Auditor considers they are also appropriate for a 'recreational/open space' land use exposure scenario.

Table 10.1: Review of the CSM

Element of CSM	Consultant	Auditor Opinion
Contaminant source and mechanism	Uncontrolled fill material, contamination associated with general agricultural activities including HBM, storage and application of herbicides and pesticides, stockpiled soil, leaks associated with the presence of the small AST, a potential cattle dip and infrastructure related to workshops. There was a potential for contamination to be distributed through transportation pathways such as erosion and deposition (wind and water) and leaching/migration of contaminants in groundwater and surface water, and construction activities which involve the movement of soil materials during construction.	The source and mechanism for soil is considered appropriate. Low contaminant concentrations were identified in soils and groundwater, which are not considered to present a potential risk to human health or the environment.
Affected media	Soil and groundwater. During construction of the station box and dive structure, groundwater has the potential to be drawn towards these structures. Groundwater inflow may require treatment prior to discharge.	Appropriate.
Receptor identification	Potential receptors during construction included onsite workers, general public who could be subject to contaminated media generated during development (e.g., dust), ecological receptors and surface water/groundwater receptors. The site will be used as a rail station. Potential receptors which may be exposed to contaminants post-redevelopment include future site users, workers involved with maintenance of the rail infrastructure, ecological receptors and surface water/groundwater receptors.	Appropriate.
Exposure pathways	*Human health receptors*: Inhalation of dust and vapours, incidental dermal contact or ingestion of soil or groundwater. *Ecological receptors*: Direct contact, biota uptake mechanisms, surface water runoff, and infiltration/lateral groundwater migration.	Appropriate.
Presence of preferential pathways for contaminant movement	Not discussed.	Preferential pathways for groundwater and vapour migration may be present, however, are not considered relevant as contamination presenting a risk to human health was not identified.
Potentially complete source-pathway-receptor (SPR) linkages	The CSM did not clearly specify potentially complete SPR linkages.	Potentially complete SPR linkages during construction are likely to include inhalation of dust, incidental dermal contact or ingestion of soil or groundwater, which can be efficiently managed via

Element of CSM	Consultant	Auditor Opinion
requiring remediation or management		implementation of standard health and safety control measures.
Evaluation of data gaps	Based on the DSI results, TTMP identified the following data gaps in the revised CSM. • The DSI was completed prior to demolition. There is a potential risk from ACM post-demolition. TTMP recommended that an asbestos clearance certificate be obtained post-demolition and prior to the commencement of earthworks. Where demolition works result in the deposition of ACM on soil, further assessment and/or remedial works may be required. • Potential also exists for contamination to be uncovered from areas which were inaccessible during the investigation such as beneath concrete slabs, sheds, septic tanks. Ground conditions will need to be inspected by a competent person post-demolition to check for indicators of contamination.	Appropriate. As noted in **Section 8**, concentration exceedances have been identified in the context of a recreational/open space land use exposure scenario. However, in the opinion of the Auditor, the potential risk is considered to be low. Management controls were recommended in the DSI to mitigate these data gaps. These are discussed in **Section 11**.

10.1 Auditor's Opinion

The Auditor is of the opinion that the CSM is a reasonable representation of the contamination at the Stage 1 site, as well as the wider OHS site.

Contamination requiring remediation has not been identified. However, data gaps and potential for encountering unexpected contamination remained on the Stage 1 site which required management during construction to retain the site suitability. These are further discussed in **Section 11**.

11. EVALUATION OF SOIL MANAGEMENT AND VALIDATION

11.1 Review of Soil Management Measures Recommended in the DSI

TTMP concluded that the DSI did not identify sources of contamination that could pose a significant risk to potential receptors and that "*where assessed, the soil within the site poses a low risk of contamination to the project*" and that "*the site can be made suitable as per the requirements of State Environmental Planning Policy (Hazards and Resilience) 2021*".

To address the identified data gaps and retain the site suitability, TTMP recommended the following in the DSI:

- *"Competent person is present during disturbance of soil materials to monitor for signs of potential contamination (e.g. stained or odourous soils, buried wastes, etc) and potential ACM. Where these materials are encountered, the materials should be stockpiled separately for subsequent investigation by TTMP in line with the unexpected finds protocol. The competent person must be experienced in the undertaking of excavation/remediation works and have the necessary experience to identify soil materials containing ACM and unforeseen contamination.*
- *The DSI was completed prior to demolition. There is a potential risk from ACM post-demolition, and it is recommended that an asbestos clearance certificate be obtained post demolition and prior to the commencement of Preliminary Works.*
- *Topsoil and fill materials are stockpiled separately to natural soils, and stockpiles are managed in accordance with the requirements of the CEMP.*
- *CPBG is to maintain a record of where materials have been cut and placed as fill within the* [OHS] *site.*
- *Soil materials removed from the site as waste should be classified in accordance with the NSW EPA Waste Classification Guidelines (2014) which includes the preparation of a Waste Classification Report and/or a Material Classification Report.*
- *Groundwater samples should be collected from the monitoring wells which have been installed and not sampled at the time of writing and the results are to be included as an addendum to the DSI for inclusion in the RAP.*
- *Six-monthly construction groundwater monitoring be carried out to detect changes in groundwater quality as outlined in the Groundwater Monitoring Plan (TTMP ref: SMWSASBTCPG-SWD-SW000-GE-RPT-040404). This monitoring would also confirm the inferred groundwater flow direction.*
- *Fill soil at AEC26 (sample location ref: SBT-BH-1295), where detections of FA/AF were identified should be managed in accordance with CPG's AMP (ref: SMWSASBT-CPG -1NL-NL000-SFPLN-000024).*
- *In order to satisfy the requirements of the Deed, a remedial action plan (RAP) should be prepared to inform the management of excavated spoil, additional soil characterisation, unexpected finds (if encountered) and the management of water associated with excavation and dewatering."*

Auditor's Opinion:

The Auditor reviewed these recommendations in IAA#6 (**Appendix C**). The Auditor noted in IAA#6 that the assessment of asbestos in the DSI was not undertaken in accordance with the SAQP and there was a potential to encounter asbestos and other unforeseen contamination

during construction. These uncertainties could be appropriately mitigated via implementing the controls as recommended in the DSI.

The Auditor also noted in IAA#6 that the recommendation relating to sampling of the installed groundwater monitoring wells was closed out in the DSI Addendum.

It is unclear if the recommendation associated with the six-monthly construction groundwater monitoring was implemented. However, this is not considered a significant data gap as site groundwater is unlikely to present a potential risk to human health or the environment.

The Auditor reviewed the DSI and prepared IAA#6 in the context of a 'commercial/industrial' land use exposure scenario and the current audit is to confirm the site suitability for the purposes of 'recreational/open space' land uses. Given the results obtained, the Auditor considers that this discrepancy will not alter the conclusions of the current audit.

11.2 Review of the RAP

To satisfy the requirements of the Deed and as per the recommendations in the DSI, TTMP prepared the RAP to outline the requirements for spoil management and validation of soil exposure beneath former buildings/structures and assessment of imported materials during preparatory construction works. The RAP also presented a validation strategy (**Table 11.1**) and required preparation of a Validation Report to document site suitability.

Table 11.1: Validation Strategy Proposed in the RAP

Item	Element	Validation Strategy
1	*Validation of soil exposed beneath former structures/waste storage areas.*	• Removal of a nominal 300 millimetres (mm) of soil in areas beneath former structures. • A competent person to complete a detailed inspection of the soil materials exposed (following removal of the nominal 300 mm surface materials) within the footprint of former structures, waste storage areas, areas of fill etc., for indicators of potential contamination. • In the event that fill remains below the depth of 300 mm and is to be retained, or where indicators of potential contamination are noted on fill/exposed natural soil, confirmatory samples shall be collected from in-situ soil within the excavation area and analysed for the following contaminants to confirm the suitability of these materials for onsite retaining: – Residence: heavy metals, OCPs/OPPs and asbestos. – Workshop/shed/waste storage area: heavy metals, BTEX, PAH, TRH, phenols, PFAS, OCPs/OPPs and asbestos.
2	*Asbestos exceedance in SBT-BH-1295 (AEC 26)*	• Scrape back of surface soils to a nominal depth of 300 mm, or to the depth of natural material (whichever is shallowest) following demolition of the house and surface clearance inspection. • The horizontal extent of the scrap-back is to extend a minimum of 1 m beyond the drip line of the roof. • The excavation is to be inspected to confirm that fill/topsoil soils have been removed to the depth of natural soil. • In the event that natural soil has still not been encountered following the initial 300 mm scrape back, excavation may proceed to the depth of natural or validation sampling may be undertaken to confirm removal of asbestos impacted fill. Validation sampling will include: – Collection of a 10 L bulk sample for field screening and collection of a separate 500 ml sample for subsequent asbestos analysis. – Collection of a minimum of one sample on each side of the house and one additional sample from the central area of the footprint (five samples in total).

<table>
<tr><th>Item</th><th>Element</th><th>Validation Strategy</th></tr>
<tr><td>3</td><td>AEC20 where suspected ACM was observed on bare ground surface.</td><td>• Soil materials are to be scraped to the depth of undisturbed natural ground. Materials from this shed are to be stockpiled and tested to determine its waste classification in accordance with the EPA (2014) Waste Classification Guidelines.
• Confirmatory samples shall be collected from the surface/shallow soil exposed beneath the footprint of this shed and analysed for COPC including heavy metals, TRH/BTEXN, PAH/Phenols, PFAS, OCPs/OPPs and asbestos</td></tr>
<tr><td>4</td><td>Imported Materials</td><td>• Material imported as general fill to include VENM, ENM or other product having a suitable RRO/RRE published by the EPA.
• Prior to importation, a suitability qualified and experienced contaminated land consultant shall assess whether the material is suitable for use at the site by means including detailed review of documentation and/or confirmative sampling. Quarried VENM will be exempt from sampling and analysis if documentation confirming the VENM status can be provided by the supplier. Recycled or processed products that are not VENM or ENM will require sampling and analysis.
• Imported materials are required to be visually inspected periodically during importation.</td></tr>
<tr><td colspan="2">Sampling frequency</td><td>• For Items 1, 2 and 3, the investigation approach and sampling density shall be determined based on the guidance provided within the EPA (2022) Sampling design part 1 – application and NEPM (2013).
• For Item 4, the sampling frequency is as below.
<table>
<tr><th>Type</th><th>Material Volume / Sampling Frequency</th><th>Analysis</th></tr>
<tr><td>VENM (not quarried)</td><td>Up to 250 m^3: 1/25m^3
250 m^3 - 2,500 m^3: 1/100m^3 up to 10 sample
>2,500 m^3: 1/250m^3
With a minimum of 3 samples per source.</td><td>Source dependant although may include TRH, BTEX, PAH, OCP, OPP, PCB, PFAS, metals and asbestos.</td></tr>
<tr><td>ENM</td><td>As per Table 1 of the NSW EPA current ENM Order 2014</td><td>As per Table 4 of the NSW EPA current ENM Order 2014 (metals, electrical conductivity, pH, TRH, BTEX, PAHs, metals, foreign materials), PFAS, OCP, OPP, PCB and asbestos.</td></tr>
<tr><td>Other Soil Materials</td><td>Up to 250 m^3: 1/25m^3
250 m^3 - 2,500 m^3: 10 samples
>2,500 m^3: 1/250m^3
With a minimum of 3 samples per source and per stockpile.</td><td>Source dependant although may include TRH, BTEX, PAH, OCP, OPP, PCB, PFAS, metals and asbestos.</td></tr>
</table></td></tr>
<tr><td colspan="2">Validation Criteria</td><td>• Items 1, 2 and 3, NEPM (2013) health-based and ecological based investigation/screening levels for ‘commercial/industrial’ land use exposure scenario.
• Item 4, NEPM (2013) health-based and ecological based investigation/screening levels for ‘commercial/industrial’ land use exposure scenario, and commensurate with the relevant RRE/RRO.</td></tr>
</table>

Auditor’s Opinion

The Auditor’s review of the RAP is documented in IAA#13 (**Appendix C**).

The Auditor concluded in IAA#13 that “*Overall, in the Auditor’s opinion, investigation of the site has not identified the need for specific remediation of soil or groundwater, however, management actions are required to ensure any contamination identified during the construction works is dealt with appropriately to minimise risks to human health and the environment. The management approach recommended in the RAP is considered adequate. If adequately implemented, the RAP should render the site suitable for generic commercial/industrial land use, however, successful validation of preparatory construction works will be required to confirm this*”.

The Auditor reviewed the RAP and prepared IAA#13 in the context of a 'commercial/industrial' land use exposure scenario and the current audit is to confirm the site suitability for the purposes of 'recreational/open space' land uses. Given the results obtained, the Auditor considers that this discrepancy will not alter the conclusions of the current audit.

11.3 Overview of Validation Works Undertaken

A review of the VR indicated the key project team comprised:

- Principal – CPBG.
- Subcontractors – Mann Group NSW Pty Ltd (Mann Group).
- Asbestos removalists – Mann Group, Class A Asbestos Removal Licence (Safework NSW Licence No AD210134).
- Occupational Hygienist – Airsafe Laboratory Pty Ltd (Airsafe, SafeWork NSW Licence No LAA 001455).
- Validation Environmental Consultant – JBS&G.

Based on the VR, the validation works were completed in two stages as follows:

- August 2022 and September 2022: Following demolition of the former structures/waste storage areas and stripping of the surficial fill/topsoil, CPBG and their representatives inspected the exposed soils for indicators of contamination. Following these inspections, most of the Stage 1 site was covered with engineering materials (understood to be a combination of sandstone and densely graded based (DGB)) to create a stable surface for the construction works.
- June 2023: JBS&G reinspected the former building footprints to confirm excavation to natural soils and collected validation samples as required and where possible. Where the inspection of an area was unable to be completed due to presence of imported soils, JBS&G queried CPBG on the methodology for the removal of topsoil and completed an inspection of the surrounding areas (where possible).

The VR also noted:

- As per the RAP, CPBG completed an inspection of cleared vegetation areas on 1 September 2022. The associated inspection records indicated that signs of contamination, including ACM, were not observed.
- CPBG advised that the entire site was initially cut to natural prior to placement of approximately 0.4 m thick layer of imported DGB.
- JBS&G reviewed aerial photographs obtained from Nearmap and confirmed that demolition works and earthworks commenced in August 2022 and the entire site surface appeared to have been stripped to natural in November 2022. Therefore, it is considered that areas where sample results exceeded open space/recreational criteria have been appropriately validated and there was a low potential for residual contamination.
- Unexpected finds were not encountered during validation/construction works.

Validation works undertaken, as reported in the VR, are summarised in **Table 11.2**.

Table 11.2: Summary of Validation Works

Validation Element	Validation Activities and Results (August to September 2022, Prior to Preparatory Construction) As Reported in the VR	Validation Activities and Results (June 2023, End of Preparatory Construction) As Reported in the VR	Auditor Opinion
Validation of soil exposed beneath former structures/waste storage areas.	Mann Group were onsite during demolition of the aboveground structures and inspected the exposed soils following demolition. Forms noting observations were provided in Appendix O of the VR. Following the removal of surficial fill/topsoil an inspection was completed by Airsafe. Clearance Certificates were provided in Appendix P of the VR. Signs of contaminations were not observed from these inspections.	JBS&G inspected the surface conditions within the former structures during validation works and noted residual fill/topsoil in the eastern portion of BF24. Therefore, two samples were collected from the residual fill/topsoils, including chemical jars, 10 L bulk samples and 500 mL asbestos samples. No asbestos was detected, and no contaminant concentrations exceeded criteria. JBS&G also noted in the VR that: • *"due to the ongoing site works, multiple building footprints were inaccessible for inspection at the time of the field works in June 2023. For the majority of these areas, CPBG-JV provided inspection/clearance reports from Airsafe and Mann Group, reporting the absence of potential contamination, and advised the site was initially cut to natural soils prior to placement of approximately 0.4 m thick DGB. Where available, inspections of adjacent swales were completed confirming the presence of natural materials adjacent to or intersecting some building footprints."* • The existing building within AEC22 (referenced as BF21 in the VR) has not been removed, which is a data gap. The VR further noted that based on review of the inspection records from Airsafe and Mann Group which reported absence of potential contamination in combination with the inspection completed by JBS&G, the potential risk associated with the retained building is low. • JBS&G further noted in the VR that "*The surface soils at the site are not intended to be used as growing media and are generally deficient of the physical soil properties and/or inclusions of organic content that would support vegetation anticipated with an open space / recreational development*" and "*Should the site be redeveloped for open space/recreational land use with significant areas of landscaping also proposed, then validated topsoil / growing media would be imported and placed in any areas proposed for landscaping or vegetation growth.*	The former structures are referenced as BF03 – BF24 in the VR and are shown on **Attachment 5**, **Appendix A**. Based on the information presented in Appendix O and Appendix P of the VR, the Auditor notes that the sequence of validation activities completed between August and September 2022 by CPBG's representatives appeared to be as follows: • Demolition of the aboveground structures by Mann Group followed by a surface clearance inspection by Airsafe. Airsafe issued a clearance certificate dated 8 August 2022 following their inspection noting that No.100 – 104 Kent Road (i.e., Lot 48) was not inspected as plant was still operating. The Auditor notes that photographs included in the Airsafe clearance certificate indicated the areas inspected appeared to be in natural soils. • Mann Ground stripped the surficial fill/topsoil and inspected the resulting surface in September 2022. The inspection did not identify the presence of potential ACM. Despite the potential discrepancies, the Auditor agrees with JBS&G's justification and conclusion and considers that the overall risk associated with the retained structure (if any) is low. The Auditor recommends implementation of an unexpected finds protocol (UFP) should the remaining building be demolished in the future.

Validation Element	Validation Activities and Results (August to September 2022, Prior to Preparatory Construction) As Reported in the VR	Validation Activities and Results (June 2023, End of Preparatory Construction) As Reported in the VR	Auditor Opinion
		New plants should be placed in this layer of imported (and validated) topsoil".	
AEC26 Asbestos exceedance in SBT-BH-1295.	The former footprint was cut to natural soils prior to placement of approximately 0.4 m thick cover layer of DGB. Mann Group were onsite during demolition and completed an inspection of surface following demolition. Following the removal of surficial fill soils/topsoil an inspection was completed by Airsafe. Signs of contaminations were not observed from these inspections.	At the time of the JBS&G's inspection, the former building footprint was obstructed by a large stockpile. CBPG relocated part of the stockpile (and the underlying imported sandstone/DGB) to allow for inspection of the ground surface, including an area of approximately 3 m x 9 m along the northern boundary of the former building footprint. Where materials were visually inspected, the observed material consisted of a natural red/orange clay. No odours, staining or ACM was observed. Three samples were collected from the exposed area, including 10 L bulk samples and 500 mL asbestos samples. No asbestos was detected in the samples tested.	Former structures within AEC26 are referenced as BF01, BF14, BF15 and BF16 in the VR and are shown on **Attachment 5**, **Appendix A**. As noted above, Airsafe issued a surface clearance certificate following the demolition works. The VR notes that the entire footprint was not inspected by JBS&G and validation samples were not completed as described in the RAP (a minimum of one sample on each side of the house and one additional sample from the central area of the footprint) due to access constraints. Based on the validation works completed prior to preparatory construction, the identified impact in SBT-BH-1295 is considered to have been appropriately remediated.
AEC20 where suspected ACM was observed on bare ground surface.	Following demolition of the shed and surface clearance inspection (completed by Mann Group), CPBG excavated the surface soils to a nominal depth of 300 mm, or to the depth of natural material (whichever was shallowest). At the time of the excavation, the surface was inspected by Airsafe to confirm that fill soils /topsoil had been removed to the depth of natural soil.	At the time of the JBS&G's inspection, the western portion was within the station box excavation which was to a depth of greater than 12 m. The eastern portion was outside of the station box excavation, however, was partially obstructed due to the presence of a concrete slab and a conveyor belt. Where materials were visually inspected, the observed material consisted of a natural red/orange clay. JBS&G collected two samples from the accessible areas, including chemical jars, 10 L bulk samples and 500 mL asbestos samples. No asbestos was detected, and no concentrations exceeded criteria.	Former structures within AEC20 are referenced as BF02, BF04 and BF23 and are shown on **Attachment 5**, **Appendix A**. As noted above, Airsafe issued a surface clearance certificate following the demolition works. The Auditor considers that the potential asbestos issues associated with former AEC20 have been appropriately managed.

Areas inspected/validated by JBS&G are shown on **Attachment 5**, **Appendix A**.

11.4 Additional Validation Activities

11.4.1 Imported Materials

The VR indicated that approximately 7900 cubic metres (m^3) of materials were imported to the Stage 1 site as part of the site preparation operations. The materials imported are summarised in **Table 11.3**.

Table 11.3: Imported Fill

Source	Volume Imported (m^3)	Material Type	Supporting Documentation	Auditor Comment
112-118 Talavera Rd, Macquarie Park NSW	5291	VENM (sandstone)	VENM Classification Report prepared by Trinitas Group (Trinitas) (26 August 2022). Trinitas obtained 11 samples from a worksite on Talavera Rd, Macquarie Park NSW. Trinitas described the sampled materials as yellow to white, well sorted sandstone. Samples were analysed for a range of potential contaminants including metals, TRH, BTEX, PAHs, PCBs, OCP, OPP, chlorinated hydrocarbons, phenols, PFAS, asbestos and ASS indicators. Concentrations of organic analytes were below the PQLs, asbestos was not detected, and metals concentrations were low. Presence of ASS was not detected.	Material is suitable for use on the Stage 1 site.
WestConnex Stage 3B, Rozelle Interchange, Rozelle NSW (via Badgerys Creek)	987.45	VENM (sandstone)	VENM Classification Reports prepared by ADE Consulting Group (ADE) (3 August 2022 and 20 September 2022). ADE obtained 15 samples over the two sampling rounds from the Rozelle Rail Yard Worksite from depths of approximately 15 mbgl. ADE described the sampled materials as natural silty sand. Samples were analysed for a range of potential contaminants including metals, TRH, BTEX, PAHs, PCBs, OCP, OPP, PFAS and ASS indicators. Concentrations of organic analytes were below the PQLs, metals concentrations were low, and presence of ASS was not detected.	Material is suitable for use on the Stage 1 site.
ECORR, Eco Resource Recovery, 155 Newton Rd, Wetherill Park	310	Recycled DGB.	Documentation classifying the material under an applicable RRO/RRE was not provided.	The company recycles construction waste to create performance engineered construction materials and is operated under an Environment Protection Licence (EPL) (No. 10699). On this basis, the Auditor considers that the imported product is likely to be produced under an applicable RRO/RRE. Sampling in accordance with the RAP was not undertaken, however, the Auditor is of the

Source	Volume Imported (m^3)	Material Type	Supporting Documentation	Auditor Comment
				opinion that these materials are suitable for use on the Stage 1 site.
ECORR, Eco Resource Recovery, 155 Newton Rd, Wetherill Park	182.6	Recovered Aggregate (DGS40)	Recovered aggregate test documentation (for asbestos presence/absence) was include in the VR as Appendix L. However, documentation classifying the material under an applicable RRO/RRE was not provided.	The company recycles construction waste to create performance engineered construction materials and is operated under an EPL (No. 10699). On this basis, the Auditor considers that the imported product is likely to be produced under an applicable RRO/RRE. Sampling in accordance with the RAP was not undertaken, however, the Auditor is of the opinion that these materials are suitable for use on the Stage 1 site.
Benedict Sand and Gravel, Brayton Rd, Marulan.	409.3	20 mm drainage aggregate	Commercial quarried material – no validation required.	Material is suitable for use on the Stage 1 site.
Select Quarry Materials, Pepper Tree	258.8	63 mm ballast	Commercial quarried material – no validation required.	Material is suitable for use on the Stage 1 site.
Select Quarry Materials, Albion Park	420.2	75-100 Gabion	Commercial quarried material – no validation required.	Material is suitable for use on the Stage 1 site.
Boral Recycling Widemere Rd, Wetherill Park	16.9	Recycled DGB	Recovered aggregate test documentation (for asbestos presence/absence) was included in the VR as Appendix L. However, documentation classifying the material under an applicable RRO/RRE was not provided.	The company is operated under an EPL (No. 11815) and scheduled activities under the EPL include resource recovery. On this basis, the Auditor considers that the imported product is likely to be produced under an applicable RRO/RRE. Sampling in accordance with the RAP was not undertaken, however, the Auditor is of the opinion that these materials are suitable for use on the Stage 1 site.

JBS&G noted the following in the VR:

- The importation of materials was managed through CPBG's internal *Material Reuse and Importation Procedure*.
- Although the importation requirements detailed in the RAP were not strictly followed, the implemented procedure was considered appropriate for determining the suitability of the materials brought to site. Management of material importation as per the CPBG 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 an EPA RRO/RRE.
  - Review of supplier documentation by CPBG Environmental Coordinator (EC).
  - CPBG visually inspect the material (including quarried VENM) during importation and placement to confirm that the material was commensurate with that described in the supplier documentation.

JBS&G concluded in the VR that "*based on the information and data collected, all materials imported to Orchard Hills Station Box to date are deemed suitable for the intended land use*".

11.4.2 Material Disposed Offsite

Waste materials were sampled and classified in accordance with the EPA (2014) *Waste Classification Guidelines*. Sampling from stockpiles of excavated soils and *insitu* material was undertaken to characterise and classify the materials prior to offsite disposal.

JBS&G reported in the VR that:

- Approximately 3,734.1 tonnes of waste material were disposed offsite as General Solid Waste (non-putrescible) (GSW) with asbestos in October 2022 and in May 2023.
- Approximately 151,266.2 tonnes of material were removed from the Stage 1 site and reused offsite as ENM.
- Approximately 6,668.1 tonnes of natural material were reused offsite as VENM.
- Approximately 7.56 tonnes of asbestos wastes, 1345.4 tonnes of construction and demolition waste and 1 tonne of green waste were disposed offsite.

JBS&G also confirmed that no liquid waste was generated.

The VR included supporting waste disposal documentation, including waste disposal dockets and material tracking register and EPA WasteLocate consignment dockets (where required). The VR noted that the EPA WasteLocate consignment dockets for 14 loads of asbestos waste in October 2022 and loads of asbestos waste from June/July 2022 were not provided in the VR and CPBG has requested the missing documents from the contractor. The missing consignment notes will be provided in the validation report for the remainder of the OHS site.

The Auditor reviewed the documentation provided and is of the opinion that the documentation is generally consistent with the works described. Further assessment of the waste classifications and disposal quantities is discussed in **Section 13.4**.

11.5 Validation QA/QC

JBS&G undertook the validation following DQOs developed in accordance with the seven-step process outlined in Schedule B2 of NEPM (2013). Predetermined DQIs were set by JBS&G for field and laboratory analyses and the results of these were discussed by JBS&G with regards to the five data quality category areas - completeness, comparability, representativeness, precision and accuracy.

The Auditor has assessed the overall quality of the validation data by review of the information presented in the referenced reports. The following key observations were made with respect to the adequacy of the validation data to support site suitability:

- The adopted decision statements for the validation were identified in the DQOs including *"Is the site suitable for the proposed use"*[1]. The adopted decision statements were appropriate for the validation conducted.
- Validation sampling (where required) was completed by hand/hand tools (shovel or hand auger) directly from the exposed surface soils. Following the collection of each sample using hand tools, the equipment was decontaminated by scrubbing with a wire brush to remove gross contamination, pressure spray with Decon 90 detergent and tap water mix, pressure spray rinse with tap water and air drying. Features such as seepage, discolouration, staining,

[1] '*Commercial / industrial infrastructure, including construction and operation of a Sydney Metro station'*, as per the VR.

odours and other indicators of contamination were noted on the field documentation. Reports associated with waste classification and evaluation of imported materials were included in the VR.

- Asbestos assessment of retained fill and validation surfaces (where relevant) was undertaken using visual observations and collection of 500 mL soil samples for laboratory analysis. Field screening of 10 L bulk samples was also undertaken following the methodology outlined in NEPM 2013.
- Laboratory analyses performed were NATA accredited (excluding asbestos analysis reported to NEPM (2013) detection limits) and completed COC documentation was provided in the reports.
- Adequate field and laboratory quality control sampling was undertaken.

JBS&G concluded in the VR that "*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*.".

In the Auditor's opinion, overall, the validation data is considered to be of adequate completeness, comparability, representativeness, precision and accuracy for the purposes of assessing the suitability of the Stage 1 site.

11.6 Auditor's Opinion

Validation was achieved by visual inspection of the footprints following removal of former structures, visual inspection of the exposed surface following topsoil/fill soil removal and collection of validation samples where required/possible.

The validation works were generally undertaken in accordance with the RAP. The data gap associated with the retained structure is considered to present a low risk and will not materially affect the outcome of this Audit. The Auditor notes that:

- Condition E99 of the development consent requires the implementation of an Unexpected Contaminated Land and Asbestos Finds Procedure throughout construction. The unexpected finds procedures provided in Appendix C of the NSW (Off-Airport) Soil and Water Management Sub-Plan should be implemented during construction.
- The VR indicated that the majority of the site was filled with an imported engineering material (understood to be a combination of sandstone and DGB) to create a stable surface for the future works. Whilst this creates a potential aesthetic concern in the context of the intended 'recreational/open space' land uses, this is considered acceptable on this basis that the site is to be handed over to the next contractor under the contract conditions presented in **Figure 11.1**[2].
- The VR also noted some surplus ENM, as excavated during tunnelling works, remained onsite and would be disposed of over the coming months. These were not observed by the Auditor during inspection of the site in December 2023.

[2] Sourced from the VR.

Figure 11.1: Contract Conditions for the next Contractor (Source: the VR)

The next site contractor must adhere to guidance/criteria on retaining site-won materials as set out in the contract (Particular Specification 02 – Built Environment (Station, Systems, Trains, Operation and Maintenance (SSTOM) PPP)). Relevant guidance/criteria that mitigate any health and/or ecological risk to potential residual soil contaminants are summarised as follows:

- Finished subgrade materials to planting and turf areas must be cultivated to a minimum of 150 mm depth immediately prior to spreading of topsoil;
- All planting areas must be provided with a minimum 50-75 mm depth of mulch that is placed so that it is not in direct contact with tree trunks and feather mulched away from trunks at base of root ball;
- Strip and store topsoil within all disturbed works areas for reuse in the landscape works, ensuring to strip and store topsoil separately from subsoil;
- All soils must be designed and specified by a soil scientist to meet the requirements of AS 4419, noting the AS 4419 requires soils to meet chemical contaminants criteria for unrestricted use;
- All planting on-structure, planter boxes and green roof areas are installed with imported soil designed specifically fit for purpose for these areas and sit-won material must not be used; and
- Adhere to the minimum soil depths for each soil horizon.

12. CONTAMINATION MIGRATION POTENTIAL AND ASSESSMENT OF RISK

12.1 Auditor's Opinion

The DSI identified minimal contamination of soil at the OHS site. The construction works completed to date has removed most fill soils on the Stage 1 site, further reducing the potential for contamination to be present within the site.

Groundwater monitoring completed in the DSI and the DSI Addendum indicated acceptable groundwater condition and the reported metal, PFAS and nutrient concentrations are likely to be representative of background conditions.

In the Auditors opinion, the Stage 1 site in its current condition has a negligible potential for migration of contamination, including to groundwater; and contaminant concentrations remaining onsite do not pose a risk to site users or the environment under the proposed 'recreational/open space' land use exposure scenario.

13. COMPLIANCE WITH REGULATORY GUIDELINES AND DIRECTIONS

13.1 General

The Auditor has used guidelines currently made and approved by the EPA under section 105 of the NSW CLM Act.

The investigations and validation were generally conducted in accordance with Chapter 4 Remediation of Land in the Resilience and Hazards State Environment Planning Policy 2021 (formerly known as SEPP 55) and reported in accordance with the EPA (2020) *Consultants Reporting on Contaminated Land*.

13.2 Development Approvals

A CSSI approval 10051 was issued on 23 July 2021 by the Minister for Planning and Public Spaces for construction of new stations, tunnels, bridges, viaducts, and rail and associated ancillary infrastructure along the SMWSA rail alignment from the existing Sydney Trains suburban T1 Western Line (at St Marys) in the north and the Aerotropolis (at Bringelly) in the south. Condition E96 of the CSSI requires a site audit as follows:

> *"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."*

This SAR and accompanying SAS are prepared to comply with this condition.

13.3 Duty to Report

Consideration has been given to the requirements of the EPA (2015) *Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997*. Based on the findings of this SAR, the Auditor considers that the site is not required to be notified under the Duty to Report requirements.

13.4 Waste Management

In accordance with Section 4.3.7 of the EPA (2017) *Guidelines for the NSW Site Auditor Scheme (3rd Edition),* the Auditor has checked the following aspects relating to waste disposal and recycling.

13.4.1 Waste Classification

Waste classification letters were prepared by ADE, TTMP and JBS&G, and included in the VR. It was reported that wastes were classified in accordance with the EPA (2014) *Waste Classification Guidelines*. The adopted waste classification strategy included sampling from stockpiles of excavated soils and in-situ material.

The waste classification letters included in the VR and reviewed by the Auditor are as follows:

- 'Material Classification Assessment, Orchard Hills Station Box', 12 October 2022, TTMP. In-situ classification of soil materials deeper than 0.3 mbgl to be excavated during the construction of the station box and portal dive structure in accordance with the EPA 2014 Waste Classification Guidelines and definition of VENM.
- 'Materials Analysis & Classification Report, 100 Kent Road, Orchard Hills, NSW, 2748', 27 September 2022, ADE. Sampling of 10 stockpiles (SP1 to SP10 inclusive) sourced from surficial soils removed from the former building footprints. GSW (non - putrescible) - Special

waste (asbestos waste) for SP7 (75 m^3) and GSW (non - putrescible) for the remainder of the stockpiled materials (735 m^3).

- 'Material Classification Assessment: Orchard Hills Station Box Stockpiles 1, 2 and 4', 18 February 2023, TTMP. Sampling of 3 stockpiles (SP1, SP2 and SP4, 12980 tonnes) excavated during the construction of the station box and portal dive structure. Materials met the definition of ENM provided under the EPA 2014 ENM Order.
- 'Material Classification Assessment: Orchard Hills Station Box Lansdowne Stockpile', 29 March 2023, TTMP. Sampling of one stockpile (approximately 460 m^3) excavated during the construction works near Lansdowne Road. Materials met the definition of ENM provided under the EPA 2014 ENM Order.
- 'Material Classification Assessment: Orchard Hills Station Box, Stockpile SPA', 17 May 2023, TTMP. Stockpile sampling of approximately 4000 m^3 topsoil/surficial soils stripped from the wider OHS site. GSW (non - putrescible) - Special waste (asbestos waste).
- 'Material Classification Assessment: Orchard Hills Stockpile SP1 and SP3', 18 May 2023, TTMP. Sampling of two stockpiles (SP1 50 m^3 and SP3 162 m^3) excavated during the construction of the station box and portal dive structure in accordance with the EPA 2014 Waste Classification Guidelines, definition of VENM and definition of ENM under the EPA 2014 ENM Order.
- 'Excavated Natural Material Assessment – SP01 Orchard Hills Station Box - 62 Kent Road, Orchard Hills NSW', 25 May 2023, JBS&G. ENM assessment of stockpiled material (approximately 2000 tonnes).
- 'Excavated Natural Material Assessment – SP02 Orchard Hills Station Box - 62 Kent Road, Orchard Hills NSW', 31 May 2023, JBS&G. ENM assessment of stockpiled materials (3000 to 4000 tonnes) sourced from south of Lansdowne Road.
- 'Excavated Natural Material Assessment – SP03 and SP04 (north) Orchard Hills Station Box - 62 Kent Road, Orchard Hills NSW', 1 June 2023, JBS&G. ENM assessment of stockpiled materials (SP03 975 tonnes and SP04 1200 tonnes) sourced from south of Lansdowne Road.
- 'Excavated Natural Material Assessment – SP05 Orchard Hills Station Box - 62 Kent Road, Orchard Hills NSW', 15 June 2023, JBS&G. ENM assessment of stockpiled materials (1,200 tonne) sourced from south of Lansdowne Road.
- 'Excavated Natural Material Assessment – SP06 Orchard Hills Station Box - 62 Kent Road, Orchard Hills NSW', 15 June 2023, JBS&G. ENM assessment of stockpiled materials (12400 tonne) sourced from south of Lansdowne Road.

13.4.2 Waste Volumes, Disposal Receipts and Disposal Facilities

Waste disposal dockets were included in the VR for the period of April 2022 to June 2023. The VR also included a waste tracking register prepared by CPBG. The Auditor reviewed a selection of the documents including the EPLs of the waste disposal facilities to confirm compliance.

Table 13.1 summarises the waste disposal information for soil disposed offsite to several waste management facilities that are licensed to receive the specified waste under their EPLs. A total of 161,668.49 tonnes of wastes were removed and disposed offsite. The Auditor notes that some of the disposed wastes were sourced from the wider OHS site.

Table 13.1: Summary of Waste Disposal

Waste Classification	Tonnage (t)	Disposal Facility	EPL No.
GSW (non-putrescible) and Special waste (Asbestos)	267.9	Bingo Eastern Creek Recycling Ecology Park, Kangaroo Avenue, Eastern Creek.	13426
GSW (non-putrescible) and Special waste (Asbestos)	3466.19	Erskine Park Landfill, 85-87 Quarry Road, Erskine Park NSW.	20986
ENM	119003.2	14-98 Old Castlereagh Road, Penrith	Not applicable
	32,263.1	Patons Lane, Orchard Hills	Not applicable
VENM	5262.4	14-98 Old Castlereagh Road, Penrith	Not applicable
	1405.7	Patons Lane, Orchard Hills	Not applicable
Asbestos Waste from demolition	7.56	Bingo Eastern Creek Recycling Ecology Park, Kangaroo Avenue, Eastern Creek.	13426
Demolition waste	1345.4	Bingo Auburn Industries Recycling Centre, 3/5 Duck St, Auburn.	10935
		Bingo Eastern Creek Recycling Ecology Park, Kangaroo Avenue, Eastern Creek.	13426
		SIMS Saint Marys, 76 Christie St, St Marys	6934
		Cleanaway Kemp Creek Resource Recovery, 1725 Elizabeth Drive, Kemps Creek	4068
		ECORR Resource Recovery, 155 Newton Road Wetherill Park NSW	10699
		Sell and Parker, 45 Tattersall Road, Kings Park	11555
Green waste	1	Bingo Auburn Industries Recycling Centre, 3/5 Duck St, Auburn.	10935

The Auditor makes the following observations:

- Approximately 735 m^3 of soils were classified by ADE in 2022 as GSW (non-putrescible). However, records for offsite disposal of these materials were not reported. This omission will not materially affect the outcome of the Audit as the materials were removed from the site.
- 4075 m^3 (75 m^3 by ADE in 2022 and 4000 m^3 by TTMP in 2023) were classified as GSW (non-putrescible) and Special waste (Asbestos), whilst the disposal records indicated approximately 3800 tonnes of GSW (non-putrescible) and Special waste (Asbestos) (or 5,700 m^3 assuming a bulk density of 1.5 tonne/m^3) were disposed offsite. The reported volumes were comparable.

13.4.3 Auditor's Opinion

The Auditor considers that the waste management undertaken was generally consistent with the works described in the VR and generally complied with the EPA (2014) *Waste Classification Guidelines, Part 1: Classifying Waste*.

13.5 VENM and Other Imported Materials

Based on the information in **Section 11.4.1**, the Auditor is of the opinion that the VENM and commercially available materials imported to the Stage 1 site are suitable for onsite use (from a

contamination perspective) and generally have been imported in accordance with relevant legislation.

13.6 Licenses

Former building removal was conducted by Mann Group which holds a Class A Asbestos Removal Licence (Safework NSW Licence No AD210134). An occupational hygienist from Airsafe (SafeWork NSW Licence No LAA 001455) subsequently inspected the building footprints following demolition works and issued a surface clearance inspection certificate confirming the areas were free from visual asbestos contamination on the ground surface.

13.7 Conflict of Interest

The Auditor has considered the potential for a conflict of interest in accordance with the requirements of section 3.2.3 of the EPA (2017) *Guidelines for the NSW Site Auditor Scheme*.

The Auditor considers that there are no conflicts of interest, given that:

1. The Auditor is not related to a person by whom any part of the land is owned or occupied.
2. The Auditor does not have a pecuniary interest in any part of the land or any activity carried out on any part of the land.
3. The Auditor has not reviewed any aspect of work carried out by, or a report written by, the site auditor or a person to whom the site auditor is related.

14. CONCLUSIONS AND RECOMMENDATIONS

Based on the results documented in the VR, JBS&G concluded that "*Notwithstanding the minor data gaps due to the inaccessible building footprints and the remaining structure at BF21, there is considered to be sufficient information to conclude there is a low potential for risk to site users from contamination and the Stage 1 site is considered suitable for the intended recreational / public open space land use.*".

Based on the information presented in the VR and observations made on site and following the Decision-making process for assessing urban redevelopment sites in NSW EPA (2017) *Guidelines for the NSW Site Auditor Scheme (3rd Edition)*, the Auditor concludes that the site is suitable for the purposes of 'recreational/open space' land use, as well as less sensitive land uses (i.e. commercial/industrial use for operation of a Sydney Metro train station).

Condition E99 of the development consent requires the implementation of an Unexpected Contaminated Land and Asbestos Finds Procedure throughout construction. The unexpected finds procedures provided in Appendix C of the NSW (Off-Airport) Soil and Water Management Sub-Plan should be implemented during construction. The relevant contract conditions (**Section 11.6**) should also be adhered to by the future contractor. Should the site be redeveloped for open space/recreational land use with landscaping, then validated topsoil/growing media must be imported and used in areas proposed for landscaping or vegetation growth.

Groundwater has not been assessed for any beneficial re-use. Any future use of groundwater would require appropriate assessment and regulatory approvals from the NSW Office of Water.

15. OTHER RELEVANT INFORMATION

This Audit was conducted on the behalf of CPBG for the purpose of assessing whether the land is suitable for the proposed recreational/open space and commercial/industrial uses, i.e. a "Site Audit" as defined in Section 4 (definition of a 'site audit' (b)(iii)) of the CLM Act.

This summary report may not be suitable for other uses. TTMP and JBS&G included limitations in their reports. The Audit must also be subject to those limitations. The Auditor has prepared this document in good faith, but is unable to provide certification outside of areas over which the Auditor had some control or is reasonably able to check.

The Auditor has relied on the documents referenced in Section 1 of the Site Audit Report in preparing the Auditors' opinion. If the Auditor is unable to rely on any of those documents, the conclusions of the audit could change.

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

APPENDIX A
ATTACHMENTS

Attachment 1: Locality of the OHS Site and the Stage 1 Site
Attachment 2: Stage 1 Site Boundary
Attachment 3A: AECs Identified on the Stage 1 Site and in Surrounding Areas
Attachment 3B: AECs Identified on the Stage 1 Site and the Wider OHS Site
Attachment 4: DSI Investigation Locations Completed On and In the Vicinity of the Stage 1 Site
Attachment 5: Areas Inspected/Validated by JBS&G

Attachment 1: Locality of the OHS Site and the Stage 1 Site

Legend
- Approximate Site Boundary
- Stage 1 Site Boundary
- NSW Cadastre
- Hydro Line

Scale 1:5,000 (0 40 80 metres)

Coord. Sys. GDA 1994 MGA Zone 56

Job No: 63723

Client: CPB Contracting

Version: R06 Rev B | Date 12/07/2023

Drawn By: PA | Checked By: EH

Kent Road
Orchard Hills, NSW

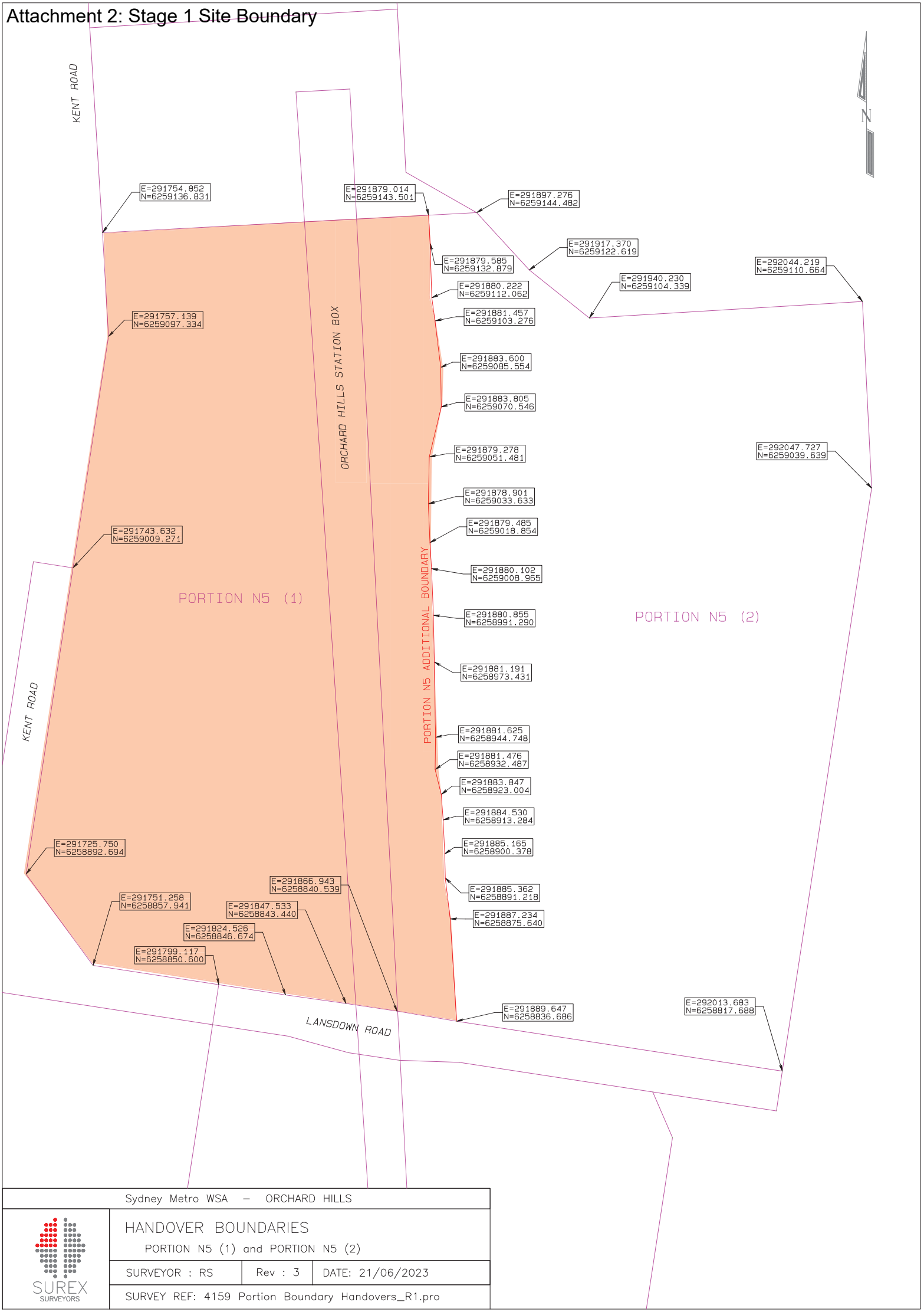
SITE LAYOUT

FIGURE 2

JBS&G

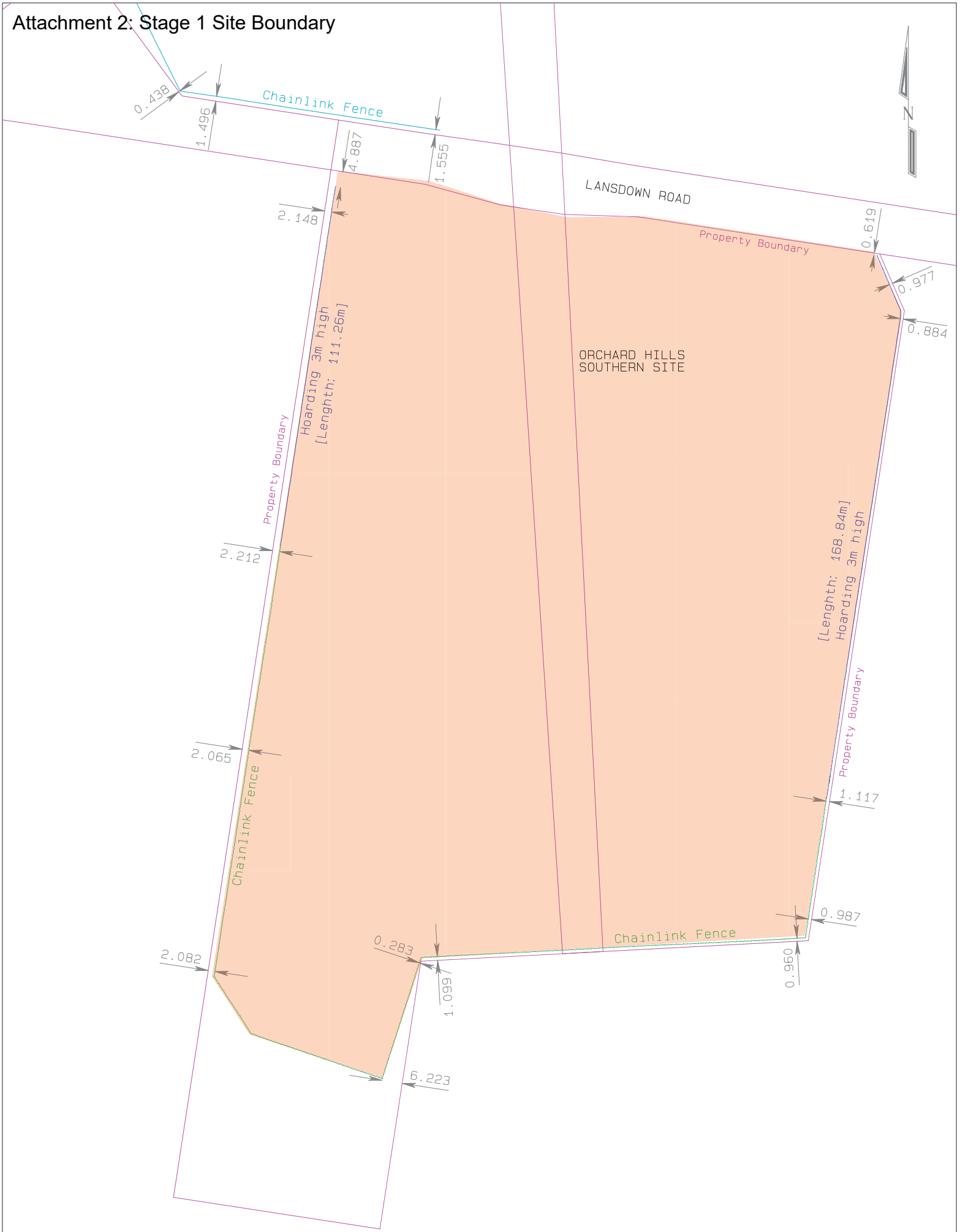
File Name: C:\Users\pabhyankar\JBS&G Australia\JBS&G - DCS - Internal - Documents (1)\Projects\CPB Contracting\63723 - Sydney Metro Western Sydney Airport SBT\GIS\ArcGISProTemplate\02_MapProjects\63723_WSA_OrchardHill_R06_RevB.aprx
Reference: Nearmap 21/06/2023

Attachment 2: Stage 1 Site Boundary



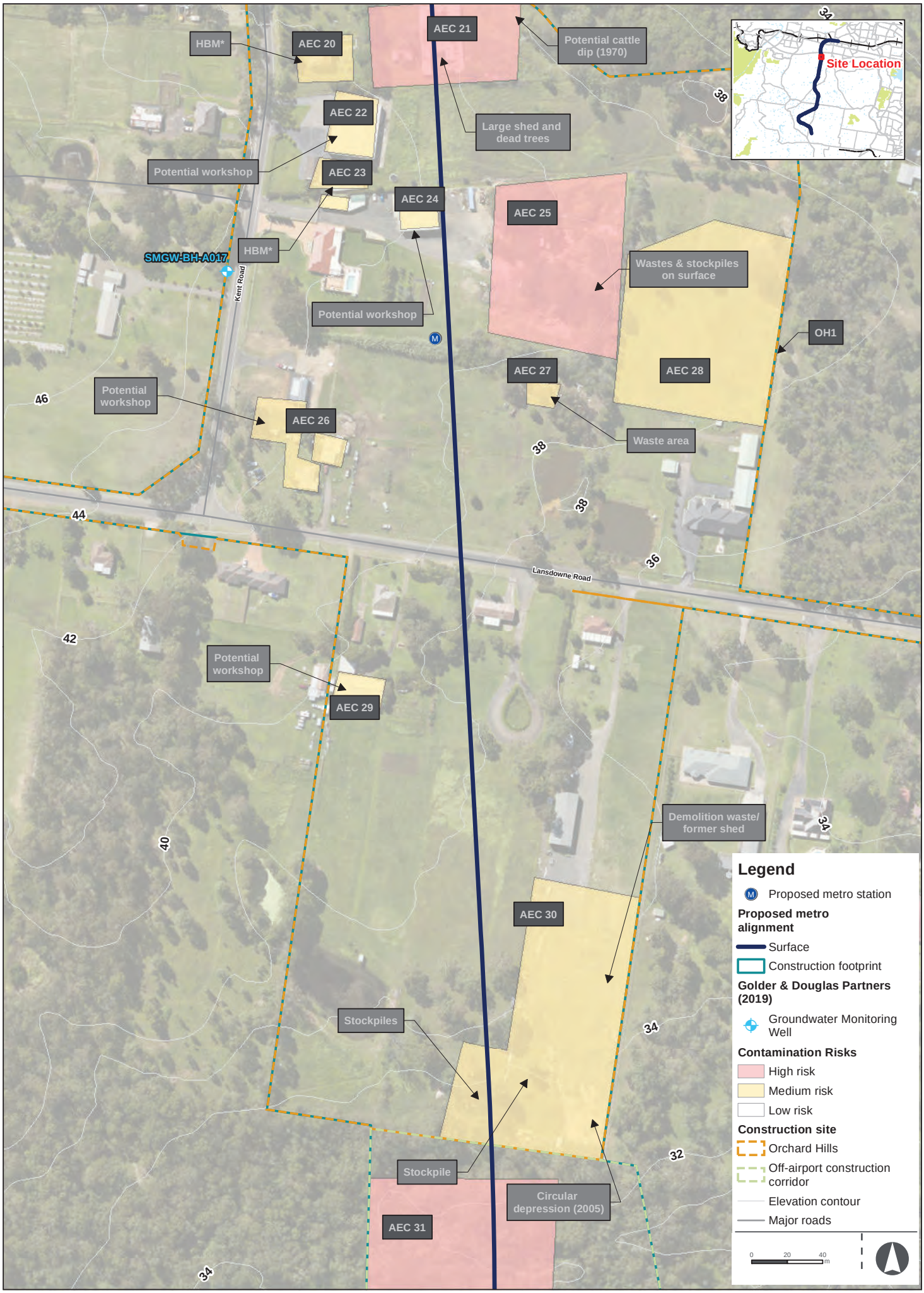
Sydney Metro WSA – ORCHARD HILLS		
SUREX SURVEYORS	HANDOVER BOUNDARIES PORTION N5 (1) and PORTION N5 (2)	
SURVEYOR : RS	Rev : 3	DATE: 21/06/2023
SURVEY REF: 4159 Portion Boundary Handovers_R1.pro		

Attachment 2: Stage 1 Site Boundary



Sydney Metro WSA – ORCHARD HILLS		
SUREX SURVEYORS	South of Lansdown Rd – Hoarding/Fencing As–Built Survey (offsets to Site Boundary)	
SURVEYOR : RS	Rev : 1	DATE: 14/06/2023
SURVEY REF: 4156 Orchard Hills Hoarding Asbuilt_R2		

Attachment 3A: AECs Identified on the Stage 1 Site and in Surrounding Areas

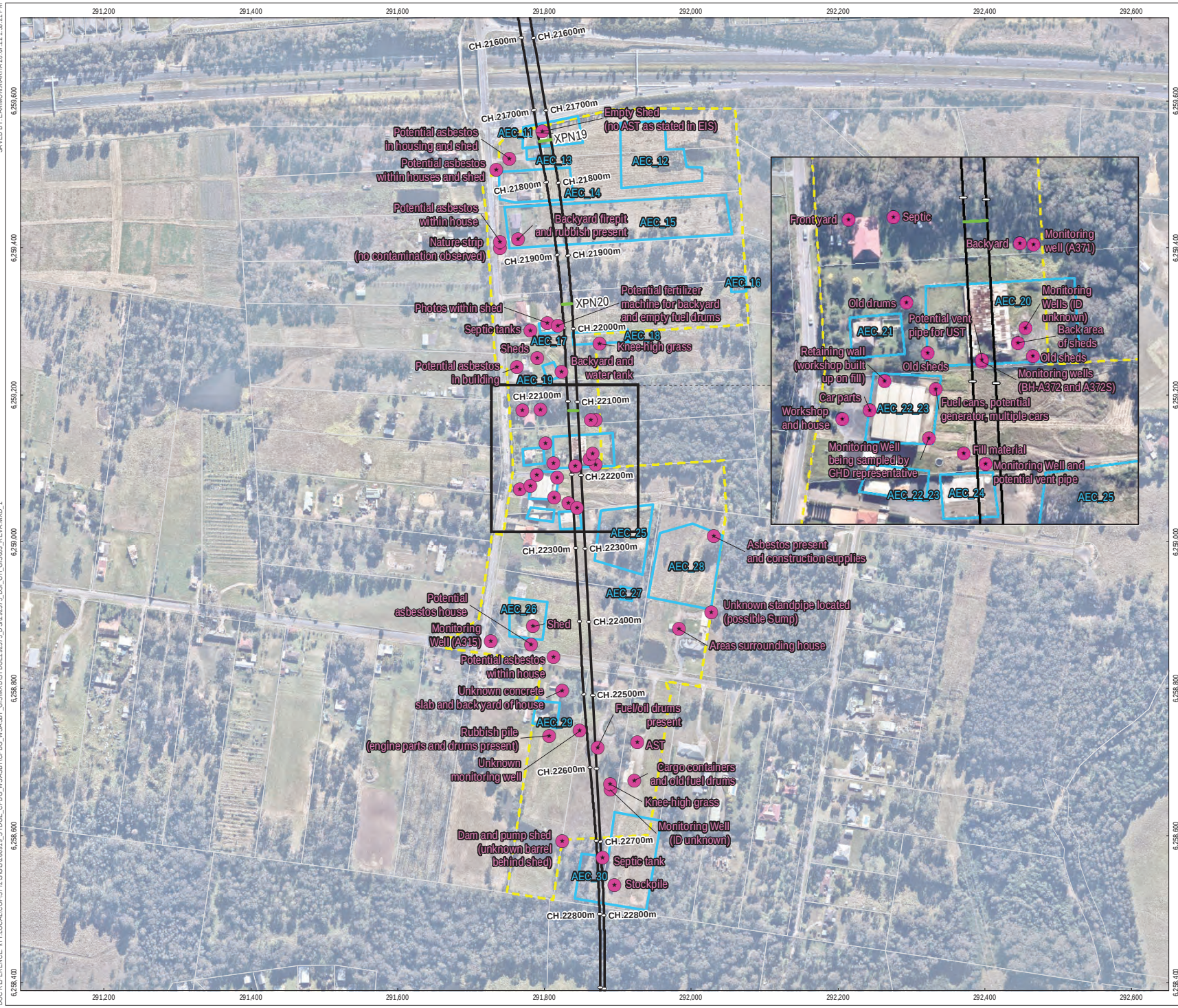


Orchard Hills construction footprint contamination sources and risk ranking

*HBM - Potential hazardous building materials
Indicative only, subject to design development

Figure A6

Attachment 3B: AECs Identified on the Stage 1 Site and on the Wider OHS Site



CPB CONTRACTORS

Ghella 1894 5 Generations of Tunnelers

LEGEND

- Site Observation
- Tunnel Alignment
- Tunnel Alignment - Chainage
- Tunnel Alignment - Cross Passage
- Cadastral Boundary
- OH Site Boundary
- Area Of Environmental Concern

SOURCE
Site observations and boundaries from Tetra Tech Coffey.
Alignment supplied by CPBG.
Cadastre from DFSI.
Aerial imagery from Nearmap (capture date 14-06-2022).

N

0 100 200 m

SCALE 1:5,000
PAGE SIZE: A3
PROJECTION: GDA2020 MGA Zone 56

CPB - GHELLA

WESTERN SYDNEY AIRPORT
STATION BOXES AND TUNNELLING WORKS

FIGURE 3

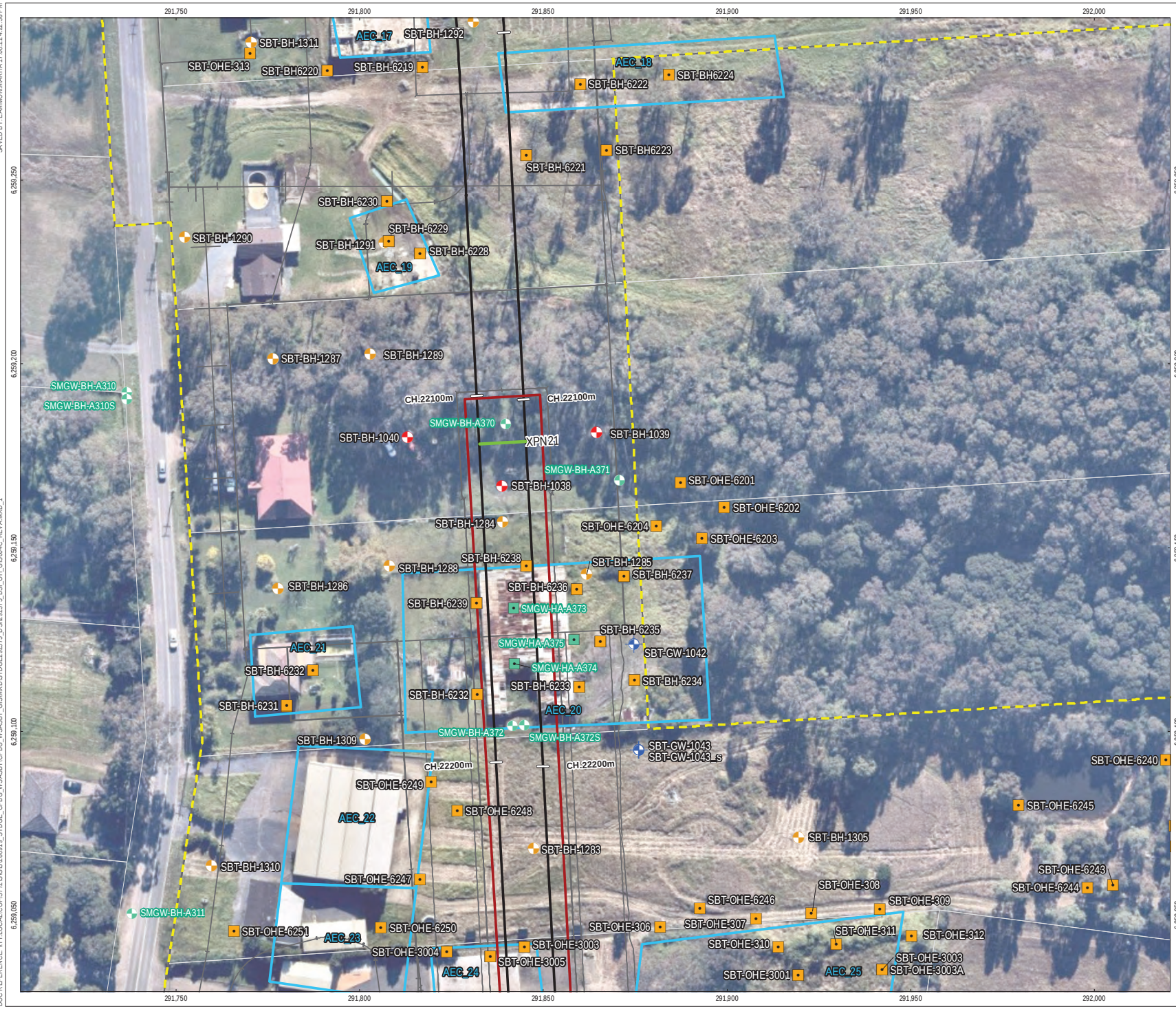
Site Observations - Orchard Hills Station and Portal Dive Structure

TETRA TECH COFFEY

DATE: 26.07.22 PROJECT: 754-SYDGE292575 FILE: 292575_DSI_OH_F003_GIS

SAVED BY: EAMMON.MARHA 26.07.22 1:59:21 PM
DOC REFERENCE: \\TT.LOCAL\COP\S72\SIG\S128691\9_SYDGE_CPBG_WSA\SBT\CPBG_WSASBT\GIS\MXD\SYDGE292575_DSI_OH_GIS003_REVA.MXD_1
DISCLAIMER: THIS FIGURE HAS BEEN PRODUCED FOR INTERNAL REVIEW ONLY AND MAY CONTAIN INCONSISTENCIES OR OMISSIONS. IT IS NOT INTENDED FOR PUBLICATION.

Attachment 4: DSI Investigation Locations Completed On and In the Vicinity of the Stage 1 Site



CPB CONTRACTORS

Ghella 1894 5 Generations of Tunnelers

LEGEND

Additional Contaminated Land Location
- Borehole
- Hand Sample

Additional Geotechnical/Hydrogeological Location
- Borehole
- Monitoring Well

Investigation Location - Cardno
- Borehole
- Hand Auger
- Tunnel Alignment
- Tunnel Alignment - Chainage
- Tunnel Alignment - Cross Passage
- Orchard Hills and Portal Dive Structure Site Layout
- Cadastral Boundary
- Areas of Environmental Concern
- OH Site Boundary
- Station Box and Portal Dive Structure

SOURCE
Contaminated land locations, additional investigations, site boundary, and hand samples from Tetra Tech Coffey.
Existing investigations, site layout, station box and alignment supplied by CPBG.
Investigation locations from Cardno.
Cadastre from DFSI.
Aerial imagery from Nearmap (capture date 14-06-2022).

N

0 20 40 m

SCALE 1:1,000
PAGE SIZE: A3
PROJECTION: GDA2020 MGA Zone 56

CPB - GHELLA

WESTERN SYDNEY AIRPORT
STATION BOXES AND TUNNELLING WORKS

FIGURE 4C

Contaminated Land Locations -Orchard Hills Station and Portal Dive Structure

TETRA TECH COFFEY

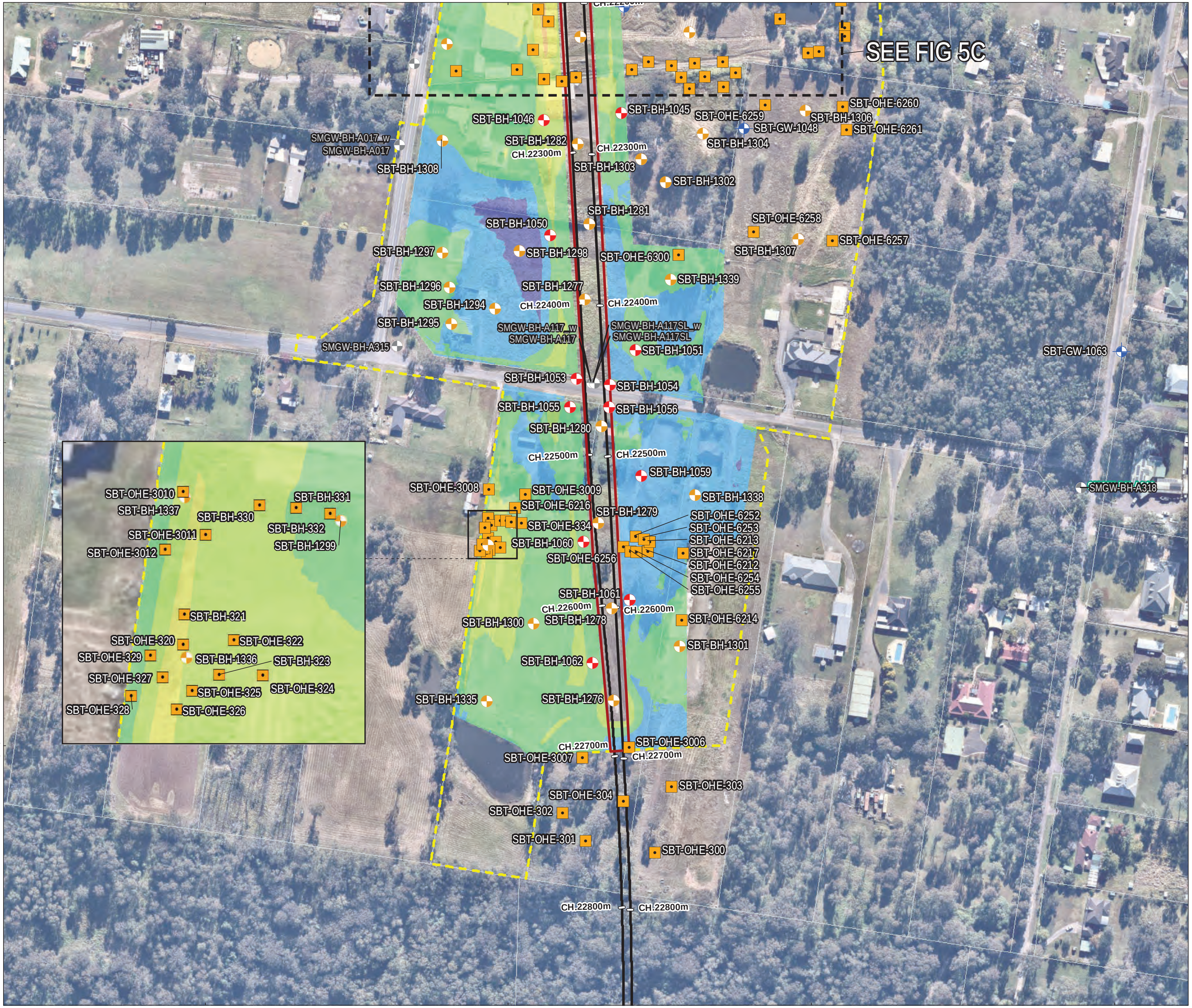
DATE: 17.08.22 PROJECT: 754-SYDGE292575 FILE: 292575_DSI_OH_F004C_GIS

DISCLAIMER: THIS FIGURE HAS BEEN PRODUCED FOR INTERNAL REVIEW ONLY AND MAY CONTAIN INCONSISTENCIES OR OMISSIONS. IT IS NOT INTENDED FOR PUBLICATION.

SAVED BY: EAMMON.MARHA 17.08.22 4:22:39 PM

DOC REFERENCE: \\TT.LOCAL\COPS\72\SIG\286819_SYDGE_CPBG_WSA\SBT\CPBG_WSASBTICPBG_WSASBT_GIS\MXD\SYDGE292575_DSI_OH_GIS004C_REV A.MXD_1

Attachment 4: DSI Investigation Locations Completed On and In the Vicinity of the Stage 1 Site



CPB CONTRACTORS

Ghella 1894 5 Generations of Tunnelers

LEGEND

Additional Contaminated Land Location
- Borehole
- Hand Sample

Additional Geotechnical/Hydrogeological Location
- Borehole
- Monitoring Well

Existing Investigation Location
- Borehole
- Tunnel Alignment
- Tunnel Alignment - Chainage
- Cadastral Boundary
- OH Site Boundary
- Station Box and Portal Dive Structure

Cut and Fill
- -4 m to -3 m
- -3 m to -2 m
- -2 m to -1 m
- -1 m to 0 m
- 0 m to 1 m
- 1 m to 2 m

SOURCE

Contaminated land locations, additional investigations, site boundary, and hand samples from Tetra Tech Coffey. Existing investigations, site layout, station box, cut/fill and alignmentnsupplied by CPBG.
Cadastre from DFSI.
Aerial imagery from Nearmap (capture date 14-06-2022).

N

0 50 100 m

SCALE 1:2,500
PAGE SIZE: A3
PROJECTION: GDA2020 MGA Zone 56

CPB - GHELLA

WESTERN SYDNEY AIRPORT
STATION BOXES AND TUNNELLING WORKS

FIGURE 5B

Site Establishment Works - Orchard Hills Station and Portal Dive Structure

TETRA TECH COFFEY

DATE: 29.08.22 PROJECT: 754-SYDGE292575 FILE: 292575_DSI_OH_F005B_GIS

SAVED BY: EAMMON.MARHA 29.08.22 3:51:33 PM

DOC REFERENCE: \\TT.LOCAL\COFS\772\SIG\S\289919_SYDGE_CPBG_WSASBT_GIS\MXD\SYDGE292575_DSI\292575_DSI_OH_GIS005B_REVA.MXD_3

DISCLAIMER: THIS FIGURE HAS BEEN PRODUCED FOR INTERNAL REVIEW ONLY AND MAY CONTAIN INCONSISTENCIES OR OMISSIONS. IT IS NOT INTENDED FOR PUBLICATION.

Attachment 5: Areas Inspected/Validated by JBS&G

Legend
- Approximate Site Boundary
- Stage 1 Site Boundary

Building Footprints
- Visual Clearance
- Inaccessible
- Validation Area
- Excavated
- Sample Location

Scale 1:1,400

0 10 20
metres

Coord. Sys. GDA 1994 MGA Zone 56

Job No: 63723

Client: CPB Contracting

Version: R06 Rev B | Date 13/07/2023

Drawn By: LJ/PA | Checked By: EH

Kent Road
Orchard Hills, NSW

VALIDATION AREA BF01

FIGURE 5A

JBS&G

File Name: C:\Users\pabhyankar\JBS&G Australia\JBS&G - DCS - Internal - Documents (1)\Projects\CPB Contracting\63723 - Sydney Metro Western Sydney Airport SBT\GIS\ArcGISProTemplate\02_MapProjects\63723_WSA_OrchardHill_R06_RevB.aprx
Reference: Nearmap 21/06/2023

Attachment 5: Areas Inspected/Validated by JBS&G

Legend
- Approximate Site Boundary
- Stage 1 Site Boundary

Building Footprints
- Visual Clearance
- Inaccessible
- Validation Area
- Excavated
- Sample Location

Scale 1:1,400 (0 10 20 metres)

Coord. Sys. GDA 1994 MGA Zone 56

Job No: 63723

Client: CPB Contracting

Version: R06 Rev B | Date 13/07/2023

Drawn By: LJ/PA | Checked By: EH

Kent Road
Orchard Hills, NSW

VALIDATION AREA BF02

FIGURE 5B

JBS&G

File Name: C:\Users\pabhyankar\JBS&G Australia\JBS&G - DCS - Internal - Documents (1)\Projects\CPB Contracting\63723 - Sydney Metro Western Sydney Airport SBT\GIS\ArcGISProTemplate\02_MapProjects\63723_WSA_OrchardHill_R06_RevB.aprx
Reference: Nearmap 21/06/2023

Attachment 5: Areas Inspected/Validated by JBS&G

Legend
- Approximate Site Boundary
- Stage 1 Site Boundary

Building Footprints
- Visual Clearance
- Inaccessible
- Validation Area
- Excavated
- Sample Location

Scale 1:1,400 (0 10 20 metres)

Coord. Sys. GDA 1994 MGA Zone 56

Job No: 63723

Client: CPB Contracting

Version: R06 Rev B | Date 13/07/2023

Drawn By: LJ/PA | Checked By: EH

Kent Road
Orchard Hills, NSW

VALIDATION AREA BF24

FIGURE 5C

JBS&G

File Name: C:\Users\pabhyankar\JBS&G Australia\JBS&G - DCS - Internal - Documents (1)\Projects\CPB Contracting\63723 - Sydney Metro Western Sydney Airport SBT\GIS\ArcGISProTemplate\02_MapProjects\63723_WSA_OrchardHill_R06_RevB.aprx
Reference: Nearmap 21/06/2023

Attachment 5: Areas Inspected/Validated by JBS&G

Legend
- Approximate Site Boundary
- Stage 1 Site Boundary

Building Footprints
- Visual Clearance
- Inaccessible
- Validation Area
- Excavated

Scale 1:1,400

0 10 20
metres

Coord. Sys. GDA 1994 MGA Zone 56

Job No: 63723

Client: CPB Contracting

Version: R06 Rev B | Date 13/07/2023

Drawn By: LJ/PA | Checked By: EH

Kent Road
Orchard Hills, NSW

VALIDATION AREAS - SOUTHERN

FIGURE 4B

JBS&G

File Name: C:\Users\pabhyankar\JBS&G Australia\JBS&G - DCS - Internal - Documents (1)\Projects\CPB Contracting\63723 - Sydney Metro Western Sydney Airport SBT\GIS\ArcGISProTemplate\02_MapProjects\63723_WSA_OrchardHill_R06_RevB.aprx
Reference: Nearmap 21/06/2023

APPENDIX B
SITE AUDIT STATEMENT

NSW Site Auditor Scheme

Site Audit Statement

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

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

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

Part I: Site audit identification

Site audit statement no. TO-095-A2

This site audit is a:

☒ statutory audit

☐ non-statutory audit

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

Site auditor details

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

[redacted] [redacted]

Company: Ramboll Australia Pty Ltd

Address: Level 3, 100 Pacific Highway, North Sydney

Postcode: 2060

Phone: [redacted]

[redacted] [redacted]

Site details

Address: Orchard Hills Station (Sydney Metro Western Sydney Airport), Kent Road and Lansdowne Road, Orchard Hills NSW

Postcode: 2760

Property description

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

Part Lot 47 DP29388 (94-98 Kent Road), Part Lot 48 DP29388 (100-104 Kent Road), Part Lot 49 DP29388 (106-112 Kent Road), Part Lot 50 DP29388 (114-122 Kent Road), Part Lot 81 DP29388 (34-38 Lansdowne Road), Part Lot 82 DP29388 (28-32 Lansdowne Road) and Part Lot 83 DP29388 (22-26 Lansdowne Road). See attachment at the end of Part I of this Site Audit Statement (SAS) for audit site boundaries.

Local government area: Penrith City Council

Area of site (include units, e.g. hectares): Approximately 8.2 hectares

Current zoning: RU4 Primary Production Small Lots and TIN SEPP (Transport and Infrastructure) 2021 under the Penrith Local Environmental Plan 2010.

Regulation and notification

To the best of my knowledge:

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

- ☐ Declaration no.
- ☐ Order no.
- ☐ Proposal no.
- ☐ Notice no.

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

To the best of my knowledge:

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

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

Site audit commissioned by

[redacted]

Company: CPB Contractors Pty Ltd and Ghella Pty Ltd

Address: Level 2, 177 Pacific Highway, North Sydney

Postcode: 2060

[redacted]

[redacted]

Contact details for contact person (if different from above)

[redacted]

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

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

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

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

Critical State Significant Infrastructure approval 10051, issued 23 July 2021 by the Minister for Planning and Public Spaces.

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

Purpose of site audit

☒ **A1** To determine land use suitability

Intended uses of the land: Recreational and open space land use, as well as less sensitive land uses (i.e., commercial/ industrial use for operation of the proposed Sydney Metro train station).

OR

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

Intended uses of the land:

OR

(Tick all that apply)

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

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

- ☐ an investigation plan
- ☐ a remediation plan
- ☐ a management plan

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

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

- ☐ **voluntary management proposal** or
- ☐ **management order** under the *Contaminated Land Management Act 1997*

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

Intended uses of the land:

Information sources for site audit

Consultancies which conducted the site investigations and/or remediation:

CPB Contractors Pty Ltd and Ghella Pty Ltd Joint Venture (CPBG)

Tetra Tech Major Projects Pty Ltd (TTMP)

JBS&G Pty Ltd (JBS&G)

Titles of reports reviewed:

‘Asbestos Management Plan, Sydney Metro Western Sydney Airport Station Boxes and Tunnelling Work’ Revision A, 2 February 2022, CPBG.

‘NSW (Off-Airport) Soil and Water Management Sub-Plan, Sydney Metro Western Sydney Airport Station Boxes and Tunnelling Works’, 19 May 2022, CPBG.

‘Orchard Hills Sampling Analysis Quality Plan, Sydney Metro Western Sydney Airport Station Boxes and Tunnelling Works’, 26 July 2022, TTMP.

‘Technical Memorandum: Preliminary Soil Results Orchard Hills’, 24 August 2022, TTMP.

‘Orchard Hills Station Detailed Site Investigation’, 26 September 2022, TTMP.

‘Detailed Site Investigation – Addendum Orchard Hills Groundwater Monitoring Data’, 24 November 2022, TTMP.

‘Orchard Hills Station Remedial Action Plan, Sydney Metro Western Sydney Airport Station Boxes and Tunnelling Works’, 24 November 2022, TTMP.

‘Orchard Hills Station Box, Open Space / Recreational Characterisation Assessment', 19 July 2023, JBS&G.

‘Orchard Hills Station Box Stage 1, Validation Report', 18 December 2023 (and earlier drafts dated 23 November 2023 and 30 October 2023), JBS&G.

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

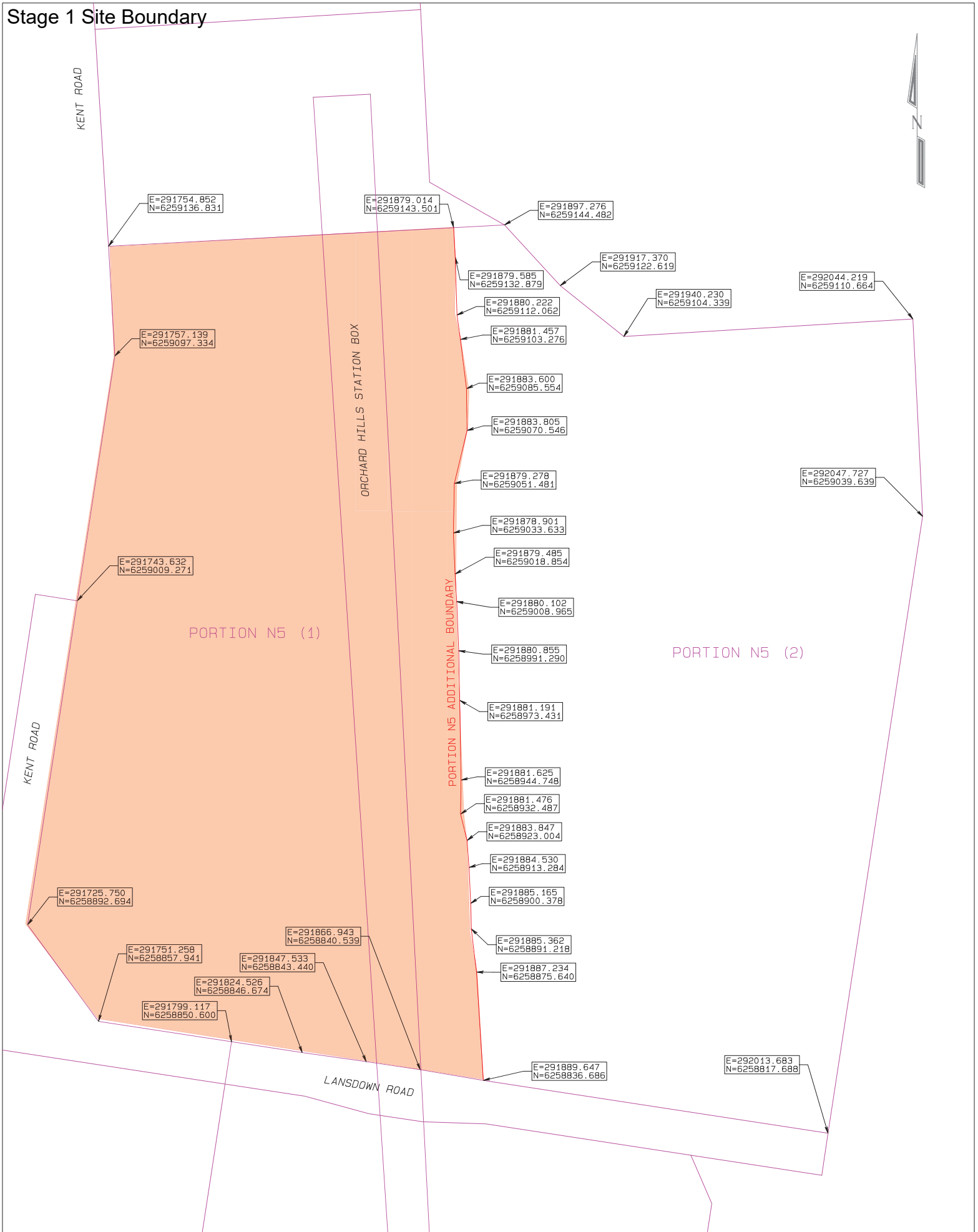
Site Audit Statement (SAS) No. TO-095-A1 and SAR ‘Orchard Hills Stage (Stage 1), Sydney Metro Western Sydney Airport’, 21 July 2023, Ramboll.

Site audit report details

Title: Site Audit Report – Orchard Hills Station (Stage 1), Sydney Metro Western Sydney Airport

Report no.: TO-095-A2 (Ramboll Ref: 318001447-003) Date: 22 December 2023

Stage 1 Site Boundary



Sydney Metro WSA – ORCHARD HILLS

SUREX SURVEYORS

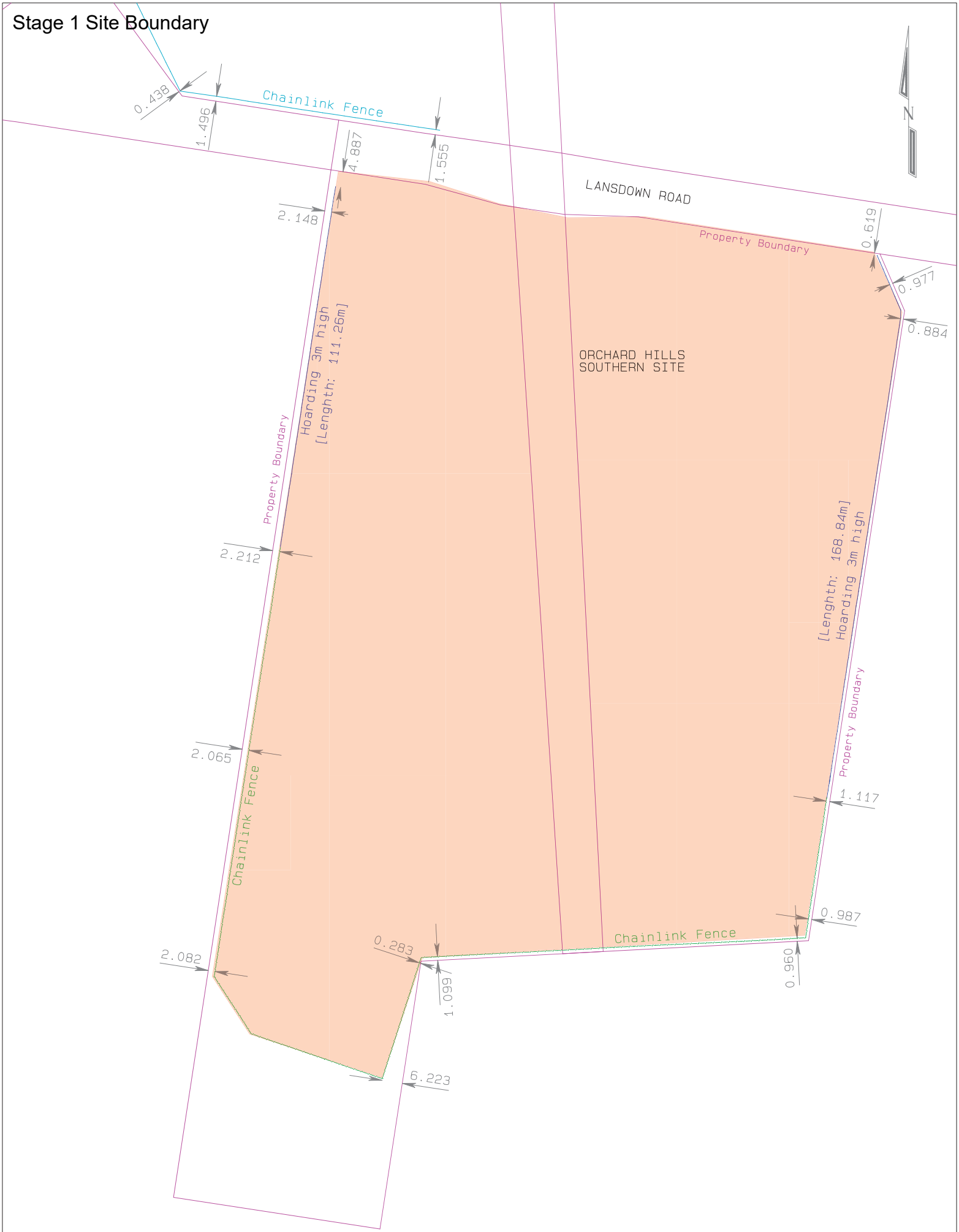
HANDOVER BOUNDARIES

PORTION N5 (1) and PORTION N5 (2)

SURVEYOR : RS	Rev : 3	DATE: 21/06/2023

SURVEY REF: 4159 Portion Boundary Handovers_R1.pro

Stage 1 Site Boundary



Sydney Metro WSA – ORCHARD HILLS		
SUREX SURVEYORS	South of Lansdown Rd – Hoarding/Fencing As–Built Survey (offsets to Site Boundary)	
SURVEYOR : RS	Rev : 1	DATE: 14/06/2023
SURVEY REF: 4156 Orchard Hills Hoarding Asbuilt_R2		

Part II: Auditor's findings

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

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

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

Section A1

I certify that, in my opinion:

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

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

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

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

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

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

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

☐ ~~Secondary school~~

☒ Park, recreational open space, playing field

☒ Commercial/industrial

☐ ~~Other (please specify):~~

~~OR~~

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

Overall comments:

The site has been predominantly used for rural residential purposes, with potential small scale agricultural activities. Historical site activities with the highest potential to cause contamination included hazardous building materials (HBM) associated with the former buildings/structures, use and onsite stockpiling of fill soils with unknown origins, and the use/storage of chemicals (anticipated in small volumes) such as pesticides and herbicides. Most properties within the site appeared to have septic systems and therefore, there was a potential for historical reuse/disposal of effluent onsite.

The DSI and the DSI Addendum did not identify significant contamination requiring remediation, however, controls were required to ensure unforeseen contamination identified during site construction was appropriately dealt with to minimise risks to human health and the environment. It is noted that the DSI was completed prior to the site demolition and soils beneath the former buildings/structures were unable to be accessed at the time.

To satisfy contractual requirements and as per the recommendations in the DSI, TTMP prepared the RAP to outline the requirements for spoil management and validation of soil beneath former buildings/structures and assessment of imported materials during construction works. Validation works were carried out in two stages by CPBG and their representatives in August 2022 and by JBS&G in June 2023. JBS&G collated the outcomes from the staged validation works in a Validation Report and concluded that "*Notwithstanding the minor data gaps due to the inaccessible building footprints and the remaining structure at BF21, there is considered to be sufficient information to conclude there is a low potential for*

risk to site users from contamination and the Stage 1 site is considered suitable for the intended recreational/open space land use".

Based on the information presented in the Validation Report and observations made on site, the Auditor concludes that the site is suitable for the purposes of 'recreational/open space' land use and less sensitive uses. Condition E99 of the development consent requires the implementation of an Unexpected Contaminated Land and Asbestos Finds Procedure throughout construction. The unexpected finds procedures provided in Appendix C of the NSW (Off-Airport) Soil and Water Management Sub-Plan should be implemented during construction. Relevant contract conditions should also be adhered to by future contractor/s.

Should the site be redeveloped for open space/recreational land use with landscaping, then validated topsoil/growing media must be imported and used in areas proposed for landscaping or vegetation growth.

Section A2

I certify that, in my opinion:

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

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

☐ Residential, including substantial vegetable garden and poultry

☐ Residential, including substantial vegetable garden, excluding poultry

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

☐ Day care centre, preschool, primary school

☐ Residential with minimal opportunity for soil access, including units

☐ Secondary school

☐ Park, recreational open space, playing field

☐ Commercial/industrial

☐ Other (please specify):

EMP details

Title:

Author:

Date: No. of pages:

EMP summary

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

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

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

☐ requires maintenance of **passive** control systems only[3].

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

~~Purpose of the EMP:~~

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

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

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

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

~~Overall comments:~~

Section B

Purpose of the plan[4] which is the subject of this audit:

I certify that, in my opinion:

(B1)

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

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

AND/OR (B2)

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

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

AND/OR (B3)

☐ The site testing plan:

☐ **is** appropriate to determine

☐ **is not** appropriate to determine

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

AND/OR (B4)

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

☐ **have** been complied with

☐ **have not** been complied with.

*voluntary management proposal no.

**management order no.

AND/OR (B5)

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

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

☐ Residential, including substantial vegetable garden and poultry

☐ Residential, including substantial vegetable garden, excluding poultry

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

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

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

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

~~☐ Secondary school~~

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

~~☐ Commercial/industrial~~

~~☐ Other (please specify):~~

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

~~*Strike out as appropriate~~

~~Plan title:~~

~~Plan author:~~

~~Plan date: No. of pages:~~

~~SUBJECT to compliance with the following condition(s):~~

~~Overall comments:~~

Part III: Auditor's declaration

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

Accreditation no. 1505

I certify that:

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

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

Signed 

Date 22 December 2023

Part IV: Explanatory notes

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

How to complete this form

Part I

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

Part II

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

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

Section A1

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

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

Section A2

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

Environmental management plan

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

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

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

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

Active or passive control systems

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

Auditor's comments

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

Section B

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

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

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

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

Part III

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

Where to send completed forms

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

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

  AND

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

APPENDIX C
INTERIM AUDIT ADVICE

RAMBOLL

ENVIRONMENT
& HEALTH

29 September 2022

CPB Contractors Pty Ltd and Ghella Pty Ltd
[redacted]
Level 2, 177 Pacific Highway
North Sydney NSW 2060

[redacted]

Dear [redacted]

RE: INTERIM AUDIT ADVICE LETTER NO.6 - REVIEW OF DETAILED SITE INVESTIGATION, PROPOSED SYDNEY METRO WESTERN SYDNEY AIRPORT ORCHARD HILLS STATION, ORCHARD HILLS NSW

Ramboll Australia Pty Ltd
Level 3, 100 Pacific Highway
PO Box 560
North Sydney NSW 2060

T +61 2 9954 8100
www.ramboll.com

Ref: 318001447-003

Audit Number: TO-095

1. INTRODUCTION AND OBJECTIVE

As a NSW Environment Protection Authority (EPA) accredited Contaminated Sites Auditor, on behalf of CPB Contractors Pty Ltd and Ghella Pty Ltd (CPBG), I am conducting an Audit (TO-095) under the NSW *Contaminated Land Management Act 1997* (CLM Act) in relation to the proposed Orchard Hills Station (OHS, also referred to as 'the site') for the Sydney Metro - Western Sydney Airport (SMWSA) Rail Project (the SMWSA rail project).

The site is primarily located on the eastern side of Kent Road (Lot 10 in Deposited Plan (DP) 1195473, Lot 1 in DP 576160, Lot 104 in DP 128821, Lots 43, 44, 49, 50 and 97 in DP 29388, and Lots 45, 46, 47 and 48 in DP29388 (in part)). Portions of Kent Road, Lansdowne Road and rural-residential properties on the southern side of Lansdowne Road (Lot 81 in DP 29388, and Lots 82 and 83 in DP 29388 (in part)) are also within the site. The site occupies an area of approximately 25.8 hectares (ha). The site locality is shown on Attachment 1.

The SMWSA rail project includes construction of new stations, a train stabling and maintenance facility, rail infrastructure facilities, tunnels, bridges, viaducts and associated ancillary infrastructure along the railway alignment. Construction activities proposed at the OHS will include demolition of existing buildings/structures, ground levelling via cutting and filling, establishment of temporary construction work facilities such as a water treatment plant, offices, car parking and access roads, piling and excavation of the station box and dive structure. As per Attachment 2, the required cut for ground levelling will be up to 4 metres below ground level (mbgl) in some areas. The station box and dive structure will be approximately 300 metres (m) long, 20 m wide and 10 m deep (to approximately 27 m Australian Height Datum (mAHD)).

The Audit is required under Conditions E94, E96 and E97 of Critical State Significant Infrastructure (CSSI) approval 10051, issued on 23 July 2021 by the Minister for Planning and Public Spaces. The Audit is therefore statutory. The overall objective of the Audit is to enable a Section A1 or A2 Site Audit

Ramboll Australia Pty Ltd
ACN 095 437 442
ABN 49 095 437 442

Statement (SAS) and supporting Site Audit Report (SAR) to be prepared that confirms the site is suitable for the proposed development.

The objective of this Interim Audit Advice (IAA) letter (IAA6) is to provide an independent review of the detailed site investigation (DSI) completed at the site. IAA6 has been prepared to satisfy Conditions 12.19 (c) (vi and vii) of the deed agreed between Transport for NSW and CPBG.

2. SCOPE OF WORK

The following reports were reviewed:

- '*Orchard Hills Sampling Analysis Quality Plan, Sydney Metro Western Sydney Airport Station Boxes and Tunnelling Works*', dated 26 July 2022, Tetra Tech Major Projects Pty Ltd (TTMP) (*the SAQP*).
- '*Technical Memorandum: Preliminary Soil Results Orchard Hills*', dated 24 August 2022, TTMP (*the Memo*).
- '*Orchard Hills Station Detailed Site Investigation'*, dated 26 September 2022, TTMP (*the DSI*).

The SAQP was for a DSI specific to the construction activities at the site and did not consider the post-construction use of the site. I provided review comments on the draft version of the SAQP (dated 29 April 2022) which were considered in the final version dated 26 July 2022.

The DSI was commenced by TTMP in May 2022. At the time the DSI report was prepared, the soil assessment component has been completed, however, characterisation of the site groundwater is ongoing. TTMP will prepare an addendum to the DSI once assessment of the site groundwater has been completed. Review of DSI groundwater data is therefore not included in this IAA (IAA6).

I provided review comments on previous versions of the DSI (Rev A01 dated 9 August 2022, Rev A02 dated 29 August 2022 and Rev A04 dated 15 September 2022) via email correspondences to CPBG. The final version of the DSI (Rev C01) was prepared by TTMP dated 26 September 2022.

Prior to issuing the DSI report, TTMP prepared the Memo to present a preliminary review of the soil analytical results. I subsequently prepared a letter dated 25 August 2022 reviewing the Memo and confirming that preparatory construction related works can commence at the site, contingent on identified controls.

Additionally, to achieve the intended environmental performance outcomes of the SMWSA rail project and address the requirements of the CSSI approval, CPBG have prepared *Asbestos Management Plan* (the AMP) (Rev A dated 2 February 2022) and *NSW (Off-Airport) Soil and Water Management Sub-Plan* (the Sub-Plan) (Rev A dated 19 May 2022). The AMP provides a documented process to control the risk of exposure to asbestos during soil disturbance, demolition and other activities, whilst the Sub-Plan includes a Contamination and PASS Management Procedure for management of unexpected finds and potential acid sulfate soils (PASS). The Auditor has reviewed and provided feedback on these plans. Overall, the Auditor found them to be adequate.

I reviewed the SAQP and the DSI against the requirements of the following:

- ANZG (2018) '*Australian and New Zealand Guidelines for Fresh and Marine Water Quality'*. Australian and New Zealand Governments and Australian state and territory governments, Canberra ACT, Australia.
- Chapter 4 Remediation of Land in the *Resilience and Hazards State Environment Planning Policy (SEPP) 2021* (formerly known as SEPP 55) and NSW Department of Urban Affairs and Planning and NSW EPA (1998) '*Managing Land Contamination, Planning Guidelines SEPP 55 – Remediation of Land'.*

- HEPA (2020) *'PFAS National Environmental Management Plan, Version 2.0 – January 2020'.*
- National Environment Protection Council (NEPC) '*National Environment Protection (Assessment of Site Contamination) Measure 1999',* as Amended 2013 (NEPM, 2013).
- NSW EPA (1995) '*Sampling Design Guideline'*[1].
- NSW EPA (2017) '*Guidelines for the NSW Site Auditor Scheme (3rd Edition)'.*
- NSW EPA (2020) '*Contaminated Land Guidelines, Consultants Reporting on Contaminated Land'.*

3. BACKGROUND

The SAQP included a summary of the site history and findings from previous intrusive investigations. The SAQP noted the following:

- Twenty areas of the OHS were classified as medium to high risk Areas of Environmental Concern (AECs) in the '*Sydney Metro – Western Sydney Airport Technical Paper 8 Contamination*' (*the EIS Technical Paper*). These AECs are denoted as AEC 11 to AEC 30 in Attachment 3a.
- Individual lots comprising the site were privately owned dating back to 1949.
- Between 1947 and 1955 the northern portion of the site was characterised by sparsely vegetated areas and agricultural/pastoral land, whilst the southern half of the site was largely vegetated/forested. The surrounding properties was characterised by agricultural land use and forested areas.
- Between 1955 and 1965 portions of the site appeared to have undergone some development with houses constructed on some lots. The site continued to be used for agricultural purposes or remained forested.
- Between 1965 and 2022 the site and surrounding areas appeared largely unchanged. Shed and dam structures were constructed on some lots.
- Findings from the previous investigations by Cardno and Golder & Douglas Partners indicated:
    - No significant soil contamination was observed and contaminant concentrations in fill and in natural soil samples were below the adopted guideline values. Trace concentrations of perfluoroalkyl and polyfluoroalkyl substances (PFAS) were reported in selected fill and natural soil samples.
    - No indication of significant groundwater contamination was identified. The reported contaminant concentrations were below the adopted guideline values, except for dissolved metals (aluminium, cadmium, copper, lead, manganese, nickel, selenium and zinc), ammonia and perfluorooctanesulfonic acid (PFOS). The reported metal, ammonia and PFOS concentrations exceeded the adopted ecological criteria for 95% (metal and ammonia) or 99% (PFOS) freshwater species protection. Previous soil investigation locations were predominantly within the road reserve including Kent Road and Lansdowne Road and were unlikely to be representative of the areas to be disturbed. Further investigation of groundwater was also required to establish the quality of the site groundwater and to inform groundwater management during dewatering.
- A site inspection, including revisiting the identified AECs (where access permitted), was completed by TTMP in March 2022. The inspection noted that:

[1] The Auditor notes that the NSW EPA (1995) *Sampling Design Guidelines* were superseded by updated guidelines on 19 August 2022. As the SAQP and DSI were completed prior to this date, compliance with the updated guidelines was not considered.

- The site comprised a number of rural-residential properties.
- Asbestos containing material (ACM) largely in the form of fibre cement sheeting were suspected of being present within numerous structures (mainly houses) at the site.
- A potential cattle or sheep dip, disused drums, septic tanks, fuel cans, discarded electronics equipment, chemical storage, indicators of use of fertilisers, automotive workshop, metal pipes of unknown nature protruding from a concrete pad, and small stockpiles/fill mounds were observed on the site. Additionally, potential ACM (PACM) was observed on bare soil within a shed on Lot 47 DP 29388 and within a small skip bin located near the north-eastern corner of Lot 97 DP 29388. Key observations from the site inspection, including locations with potential contamination indictors, are shown on Attachment 3b.

4. REVIEW OF DSI

4.1. DSI Scope of Work

The DSI included test pitting (16 locations), borehole drilling (72 locations) and surficial soil sampling (79 locations). As it was completed prior to site demolition and vegetation clearance, the DSI was conducted in accessible areas where soil disturbance has been proposed and where potential contamination indictors were observed. The DSI sampling locations are shown on Attachment 4.

Soil sampling targeted fill soils, with a limited number of samples being recovered from the underlying natural soils and bedrock. Fill soil samples were generally collected from near surface (0 – 0.1 mbgl) and then at 0.5 m intervals. Natural soil samples were collected from directly beneath the fill profile and then at 1 m intervals until target depth. Sampling of bedrock was generally conducted at 2 m intervals. Recovered samples were screened in the field for the presence of ionisable volatile organic compounds (VOCs) using a calibrated photo-ionisation detector (PID).

Selected soil samples were submitted for laboratory analysis for metals, total recoverable hydrocarbons (TRH), benzene, toluene, ethylbenzene and total xylenes (BTEX), polycyclic aromatic hydrocarbons (PAH), phenolic compounds, organochlorine pesticides (OCPs), organophosphorus pesticides (OPPs), polychlorinated biphenyls (PCBs), PFAS, VOCs, semi-VOCs (SVOCs) and/or asbestos (presence/absence, and/or asbestos fines/fibrous asbestos (AF/FA)).

As noted in Section 2, groundwater assessment is ongoing.

Auditor's Opinion: The scope of investigation completed to date was generally consistent with the SAQP although the following key deviations were noted:

- The SAQP states that "*Bulk 10 L samples will be collected where visible ACM is observed at the sample location for subsequent screening and analysis by the laboratory*". PACM were observed at isolated areas during TTMP's site inspection in March 2022, however bulk 10 L samples were not collected.
- The SAQP states that "*Laboratory provided 500 g sample bags for samples for asbestos analysis will be collected in fill materials*". However, a review of the laboratory certificates provided in the DSI showed that the weight of the asbestos samples submitted for laboratory analysis was less than 500 g, with the majority of the samples being less than 250 g.

The Auditor notes that potential for asbestos to be present at the site cannot be precluded given the low sample volumes, absence of 10 L samples, use of boreholes, presence of fill material and small stockpiles and presence of vegetation, hardstand and structures. The Auditor further notes that soils beneath the existing structures, hardstand and vegetated areas have not yet been assessed due to accessibility and as such, there is a potential for encountering unforeseen contamination during construction. These require further consideration/management.

4.2. DSI Results

Key findings from the soil investigation, as reported in the DSI, are as follows:

- Ground conditions generally comprised limited fill/topsoil (clay, silty clay and sandy clay topsoil/fill to up to 0.4 mbgl), followed by natural soils (clay, silty clay and silt to depths of between 4.2 mbgl and 8.8 mbgl) and bedrock (siltstone and sandstone). Visual and olfactory signs of contamination were not observed, with the exception of the PACM noted within the shed on Lot 47 in DP 29388 and in the small skip bin located on Lot 97 DP 29388.
- Soil headspace PID readings were typically below 5 parts of per million (ppm), indicating a low likelihood for significant VOC contamination in the sampled soils.
- The reported contaminant concentrations were below the laboratory detection limits and/or the adopted health criteria, except for surficial soil sample SBT-BH-1336/0–0.1 mbgl. This sample reported a benzene concentration at 4.8 milligrams per kilogram (mg/kg), exceeding the adopted health creation of 3 mg/kg. As BTEX were not reported in the deeper sample (0.5 mbgl) from the same location, nor in the confirmatory samples collected in the vicinity of this sample location, TTMP concluded that benzene in SBT-BH-1336/0-0.1 mbgl was localised.
- The reported contaminant concentrations were lower than the adopted ecological criteria with the exception of copper and zinc concentrations in four samples. Given the intended commercial/industrial land uses, TTMP concluded that the potential risk to ecological receptors was low.
- Asbestos was detected in fill/topsoil sample SBT-BH-1295/0.1-0.2 mbgl. This sample was located immediately adjacent to a shed on Lot 50 DP 29388 and contained AF/FA exceeding the adopted health criterion.

4.3. DSI Conclusions and Recommendations

Based on the field observations, geological borehole logs and available soil analytical results, TTMP concluded that the DSI did not identify sources of contamination that could pose a significant risk to potential receptors and that "*where assessed, the soil within the site poses a low risk of contamination to the project*" and that "*the site can be made suitable as per the requirements of State Environmental Planning Policy (Hazards and Resilience) 2021*".

TTMP recommended that:

- *"Competent person is present during disturbance of soil materials to monitor for signs of potential contamination (e.g. stained or odourous soils, buried wastes, etc) and potential ACM. Where these materials are encountered, the materials should be stockpiled separately for subsequent investigation by TTMP in line with the unexpected finds protocol. The competent person must be experienced in the undertaking of excavation/remediation works and have the necessary experience to identify soil materials containing ACM and unforeseen contamination.*
- *The DSI was completed prior to demolition. There is a potential risk from ACM post-demolition, and it is recommended that an asbestos clearance certificate be obtained post demolition and prior to the commencement of Preliminary Works.*
- *Topsoil and fill materials are stockpiled separately to natural soils, and stockpiles are managed in accordance with the requirements of the CEMP.*
- *CPBG is to maintain a record of where materials have been cut and placed as fill within the OHE site.*
- *Soil materials removed from the site as waste should be classified in accordance with the NSW EPA Waste Classification Guidelines (2014) which includes the preparation of a Waste Classification Report and/or a Material Classification Report.*

- *Groundwater samples should be collected from the monitoring wells which have been installed and not sampled at the time of writing and the results are to be included as an addendum to the DSI for inclusion in the RAP.*
- *Six-monthly construction groundwater monitoring be carried out to detect changes in groundwater quality as outlined in the Groundwater Monitoring Plan (TTMP ref: SMWSASBTCPG-SWD-SW000-GE-RPT-040404). This monitoring would also confirm the inferred groundwater flow direction.*
- *Fill soil at AEC26 (sample location ref: SBT-BH-1295), where detections of FA/AF were identified should be managed in accordance with CPG's AMP (ref: SMWSASBT-CPG -1NL-NL000-SFPLN-000024).*
- *In order to satisfy the requirements of the Deed, a remedial action plan (RAP) should be prepared to inform the management of excavated spoil, additional soil characterisation, unexpected finds (if encountered) and the management of water associated with excavation and dewatering."*

Auditor's Opinion: The findings of the DSI were consistent with the previous investigations and indicated minimal contamination in site fill and natural soils.

The Auditor considers that the scope of the DSI soil investigation was adequate given that:

- Soil sampling provided reasonable characterisation of the site fill soils, which are considered as the key risk driver to the site construction.
- The majority of the investigation locations was terminated in natural soils at 1 mbgl (shallower than the depth of excavation (up to 4 mbgl) proposed in some areas) and only a limited number of natural soil samples were collected. Based on the site history and the contaminant concentrations reported in fill soils, natural soils at the site are not expected to be grossly impacted. Therefore, limited sampling in nature soils is considered appropriate.

As per the Auditor's opinion as discussed in Section 4.1, the assessment of asbestos in the DSI was not undertaken in accordance with the SAQP and there is a potential to encounter asbestos and other unforeseen contamination during construction. These uncertainties can be appropriately mitigated via implementing the following controls as recommended in the DSI:

1. *Areas with existing buildings/structures*: Asbestos clearance certificate/s will be issued post-demolition and prior to ground disturbance.
2. Post-demolition and site vegetation clearance:
    - *Shed on Lot 47 in DP 29388 where PACM was observed*: Soil to be scraped down to natural ground, followed by confirmatory sampling of the exposed soils to confirm their suitability for retention on the site.
    - *Areas where structures have been demolished (with the exception of the shed on Lot 47 in DP 29388), areas where waste materials are present and require removal, areas where fill materials containing anthropogenic materials are encountered, and/or areas where potential ACM materials have been previously observed*: Soil to be scraped down to 300 millimetres (mm) or to natural ground, followed by visual inspection of exposed soil surfaces. If fill remains or indicators of potential contamination are noted, confirmatory sampling of the exposed soils will be performed to confirm their suitability for being retained on the site.
    - *Currently vegetated areas*: Following vegetation clearance, a walkover to observe surface conditions will be undertaken. If visual indications of potential contamination are identified, confirmatory sampling of the exposed soils will be carried out to confirm their suitability for being retained on the site.

3. *Wider site areas:* Visual inspection following the scrape-back of fill/topsoil to assess for indications of potential contamination. Where indications of potential contamination are noted, implementation of Unexpected Contaminated Finds Protocol (UFP) included in the Project construction environmental management plan (CEMP). A copy of the UFP was not sighted by the Auditor. However, for the purposes of this IAA (IAA6), the Auditor has assumed it would be similar to Contamination and PASS Management Procedure as proposed in the Sub-Plan (Attachment 5).
4. *For area where asbestos was detected (i.e., sample location SBT-BH-1295)*: Soils will be managed in accordance with the AMP.

The Auditor notes that the AMP is not appropriate for widespread asbestos impact (i.e., not unexpected), nor ensuring the site is ultimately suitable for site use under the CLM Act. The Auditor also notes that bulk excavation below the groundwater table should not commence until groundwater assessment has been concluded, and the associated findings and the recommended RAP process are complete and approved by the Auditor.

5. CONCLUSION AND RECOMMENDATIONS

Overall, in the Auditor's opinion, the DSI adequately assessed the site soil and informed the soil management requirements during construction. The DSI recommendations (Section 4.3) are appropriate for managing the potential soil-related risks during construction.

Bulk excavation below the groundwater table should not commence until groundwater assessment has been concluded, and the associated findings and the recommended RAP process are complete and approved by the Auditor.

Based on the historical data set, dewatering management should consider the potential for extracted groundwater to be impacted by heavy metals, PFAS and ammonia. Groundwater discharged from the site will need to undergo further testing and treatment to meet appropriate discharge criteria, if required.

6. LIMITATIONS

This interim audit advice was conducted on behalf of CPBG for the purpose of assessing the suitability and appropriateness of a DSI. This summary report may not be suitable for other uses.

The Auditor has relied on the documents referenced in Section 2 in preparing the Auditor's opinion. The consultants included limitations in their reports. This interim audit advice must also be subject to those limitations. The Auditor has prepared this document in good faith but is unable to provide certification outside of areas over which the Auditor had some control or is reasonably able to check. If the Auditor is unable to rely on any of those documents, the conclusions of this interim audit advice could change.

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

* * *

Consistent with the NSW EPA requirement for staged 'signoff' of sites that are the subject of progressive assessment, remediation and validation, I advise that:

- This advice letter does not constitute a Site Audit Report or Site Audit Statement.

- At the completion of the remediation and validation I will provide a Site Audit Statement and supporting documentation.
- This interim advice will be documented in the Site Audit Report.

Yours faithfully
Ramboll Australia Pty Ltd

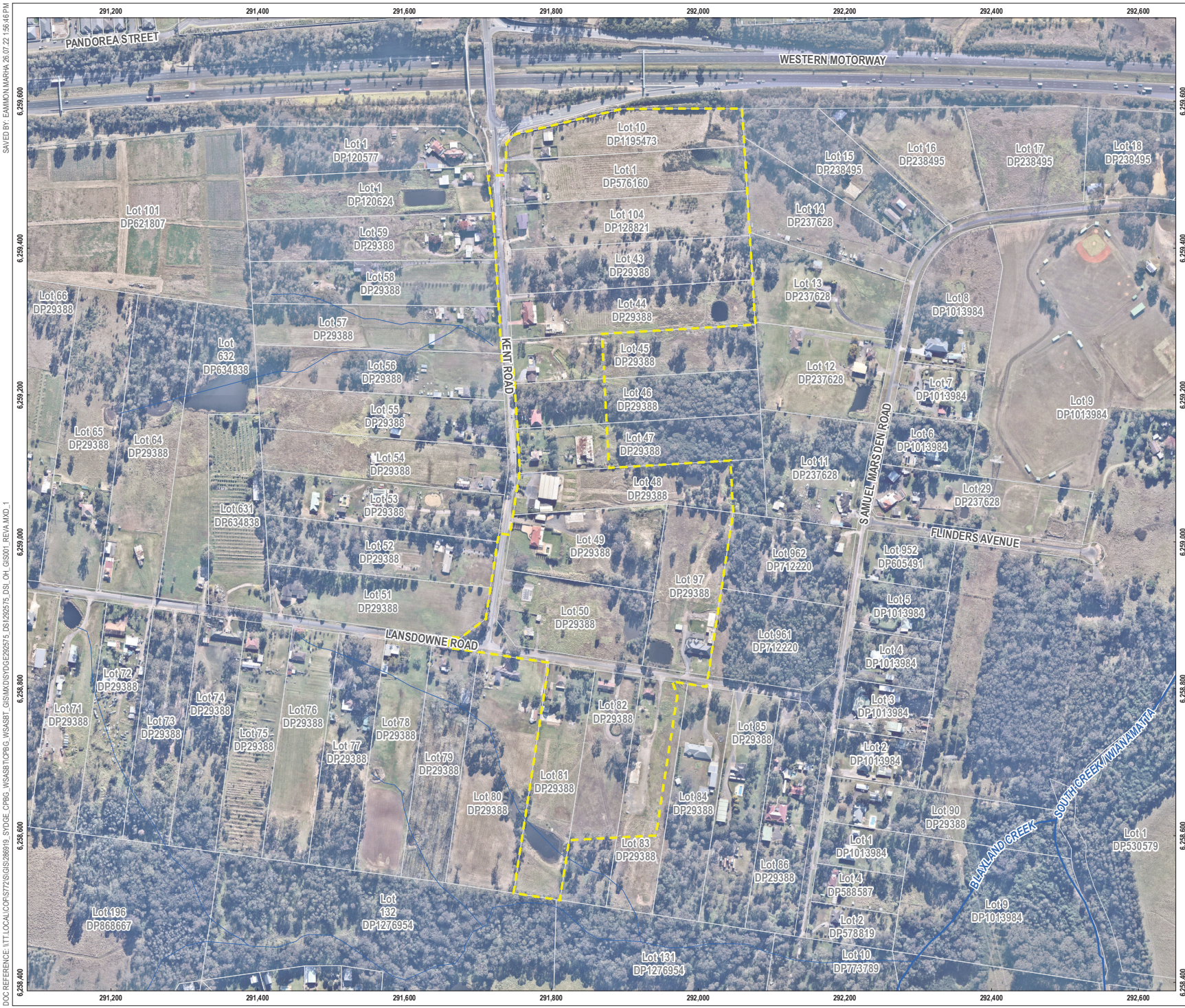
[redacted]

[redacted]
EPA Accredited Site Auditor 1505

[redacted]

Attachments: 1 Site Layout
2 Cut and Fill Plan
3a Identified AECs
3b Key Observations from the DSI
4 DSI Investigation Locations
5 Contamination and PASS Management Procedure

Attachment 1: Site Layout



CPB CONTRACTORS

Ghella 1894 5 Generations of Tunnelers

LEGEND

- Perennial Watercourse
- Non-perennial Watercourse
- Cadastral Boundary
- OH Site Boundary

SOURCE
Site boundary from Tetra Tech Coffey.
Watercourses and cadastre from DFSI.
Aerial imagery from Nearmap (capture date 14-06-2022).

N

0 100 200 m

SCALE **1:5,000**
PAGE SIZE: **A3**
PROJECTION: **GDA2020 MGA Zone 56**

CPB - GHELLA

WESTERN SYDNEY AIRPORT
STATION BOXES AND TUNNELLING WORKS

FIGURE 1

Site Location Plan -Orchard Hills Station and Portal Dive Structure

TETRA TECH COFFEY

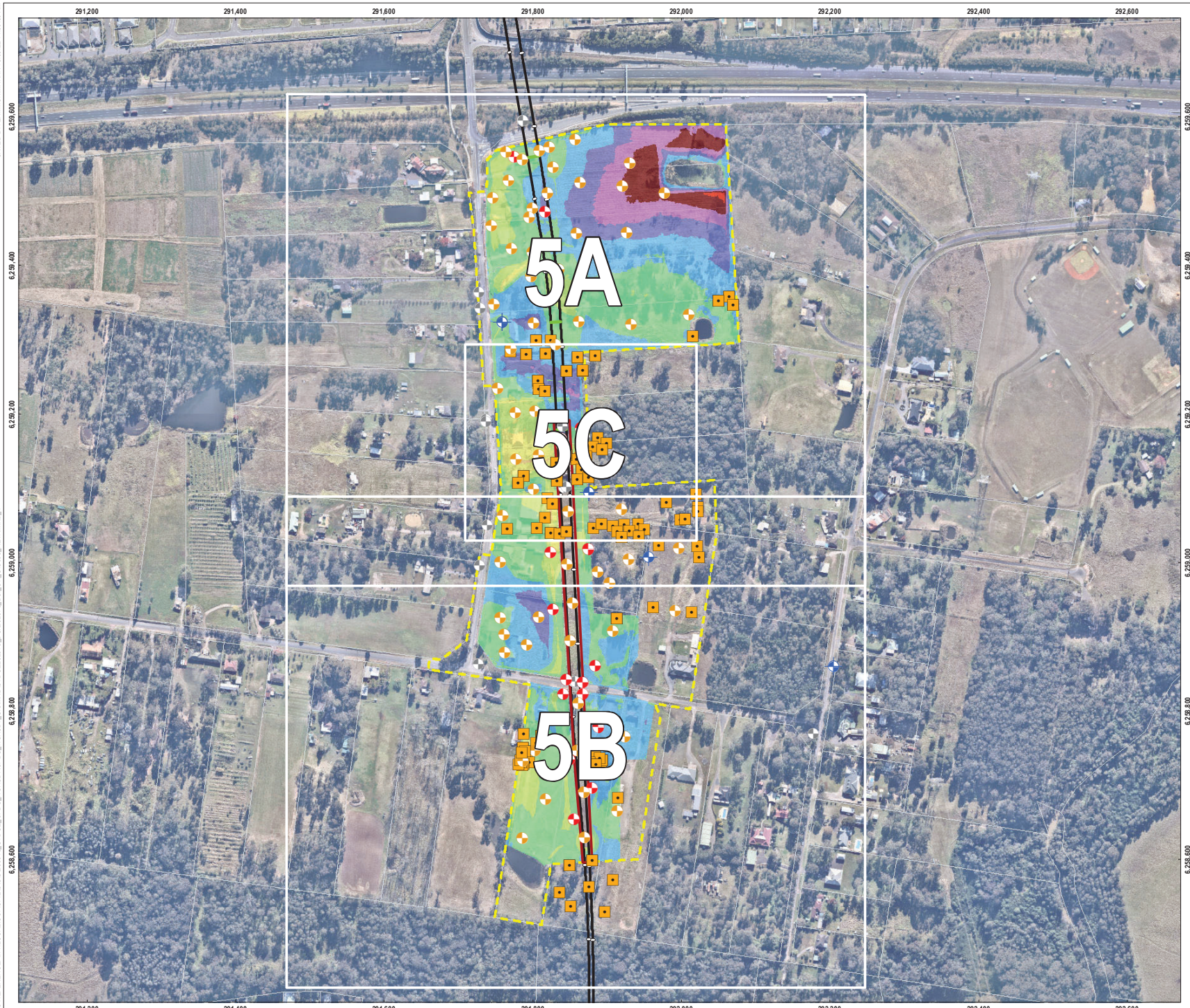
DATE: **26.07.22** PROJECT: **754-SYDGE292575** FILE: **292575_DSI_OH_F001_GIS**

SAVED BY: EAMMON.MARHA 26.07.22 1:56:46 PM

DOC REFERENCE: \\TT.LOCAL\COR\S772\SIG\S286919_SYDGE_CPBG_WSA\SBT\CPBG_WSASBT\GIS\MXD\SYDGE292575_DSI_OH_GIS001_REVA.MXD_1

DISCLAIMER: THIS FIGURE HAS BEEN PRODUCED FOR INTERNAL REVIEW ONLY AND MAY CONTAIN INCONSISTENCIES OR OMISSIONS. IT IS NOT INTENDED FOR PUBLICATION.

Attachment 2: Cut and Fill Plan



CPB CONTRACTORS

Ghella 1894 5 Generations of Tunnelers

LEGEND

Additional Contaminated Land Location
- Borehole
- Hand Sample

Additional Geotechnical/Hydrogeological Location
- Borehole
- Monitoring Well

Existing Investigation Location
- Borehole
- Tunnel Alignment
- Tunnel Alignment - Chainage
- Tunnel Alignment - Cross Passage
- Cadastral Boundary
- OH Site Boundary
- Station Box and Portal Dive Structure

Cut and Fill
- -4 m to -3 m
- -3 m to -2 m
- -2 m to -1 m
- -1 m to 0 m
- 0 m to 1 m
- 1 m to 2 m
- 2 m to 3 m
- 3 m to 4 m
- 4 m to 5 m

SOURCE
Contaminated land locations, additional investigations, site boundary, and hand samples from Tetra Tech Coffey.
Existing investigations, site layout, station box, cut/fill and alignment supplied by CPBG.
Cadastre from DFSI.
Aerial imagery from Nearmap (capture date 14-06-2022).

N

0 100 200 m

SCALE **1:5,000**
PAGE SIZE: **A3**
PROJECTION: **GDA2020 MGA Zone 56**

CPB - GHELLA

WESTERN SYDNEY AIRPORT
STATION BOXES AND TUNNELLING WORKS

FIGURE 5

Site Establishment Works - Orchard Hills Station and Portal Drive Structure

TETRA TECH COFFEY

DATE: **18.08.22** PROJECT: **754-SYDGE292575** FILE: **292575_DSI_OH_F005_GIS**

DISCLAIMER: THIS FIGURE HAS BEEN PRODUCED FOR INTERNAL REVIEW ONLY AND MAY CONTAIN INCONSISTENCIES OR OMISSIONS. IT IS NOT INTENDED FOR PUBLICATION.

SAVED BY: EAMMON.MARHA 18.08.22 11:09:59 AM
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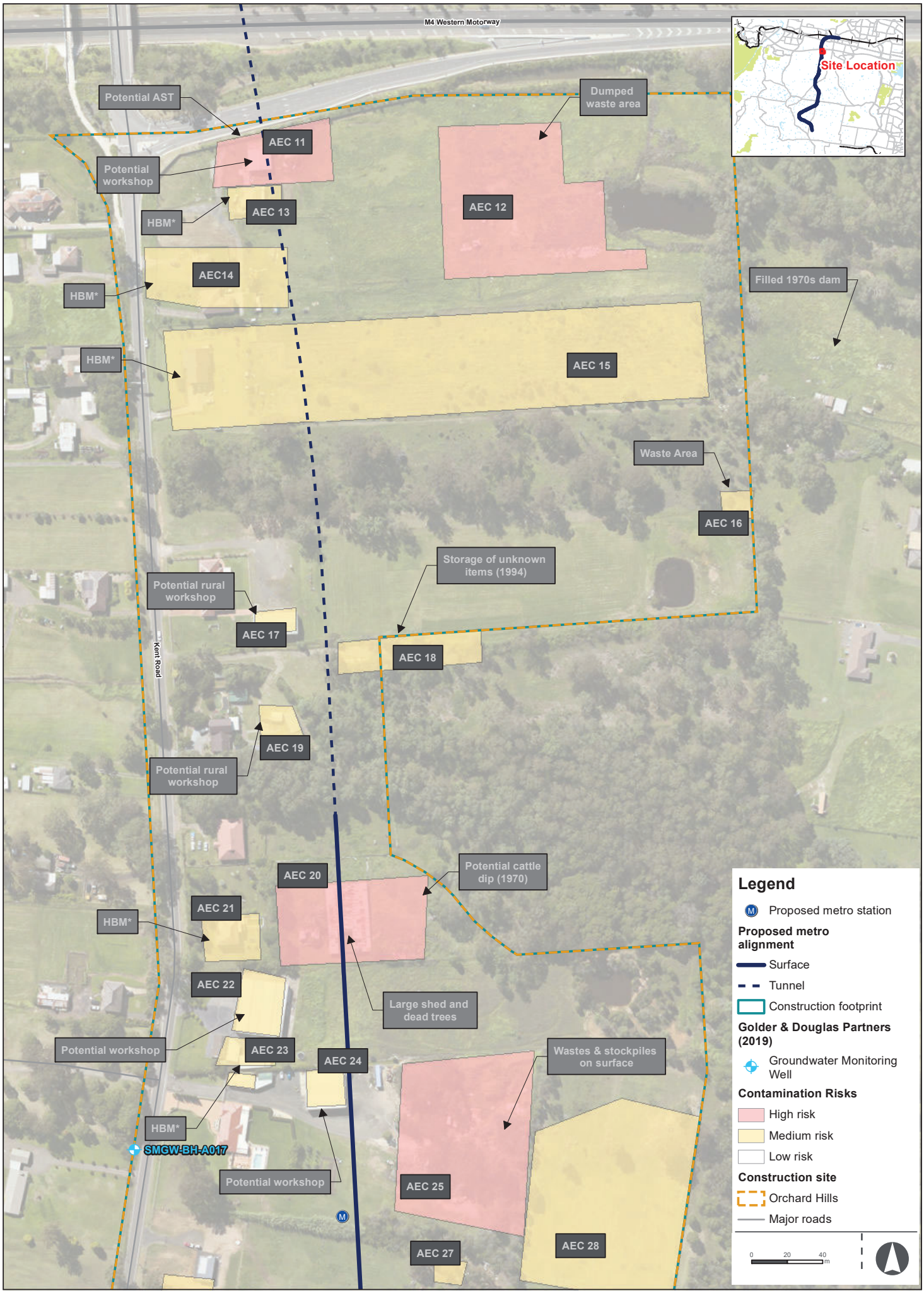
Attachment 3a: Identified AECs



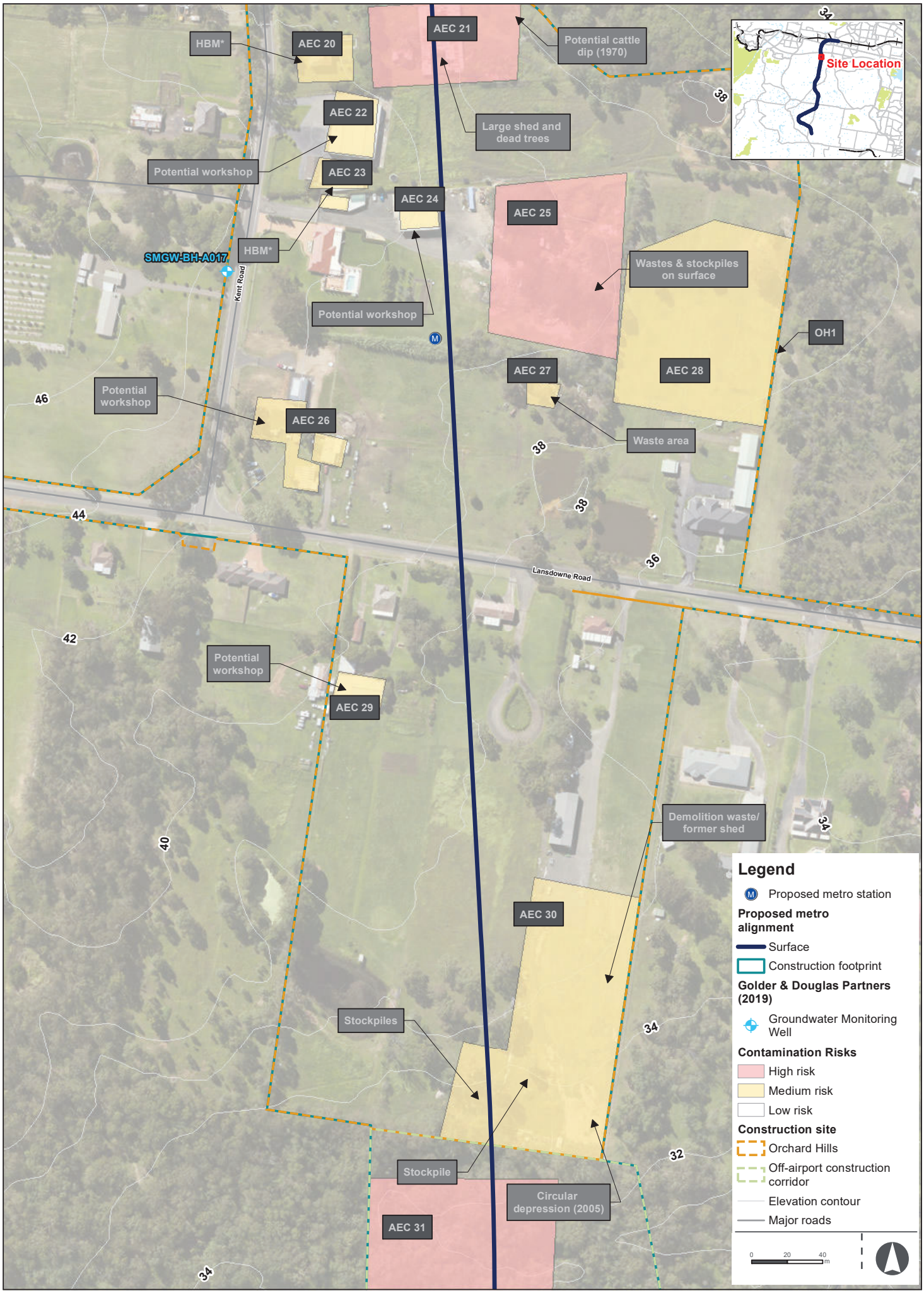
Sydney Metro - Western Sydney Airport

Orchard Hills construction footprint contamination sources and risk ranking

*HBM - Potential hazardous building materials
Indicative only, subject to design development

Figure A5

Attachment 3a: Identified AECs

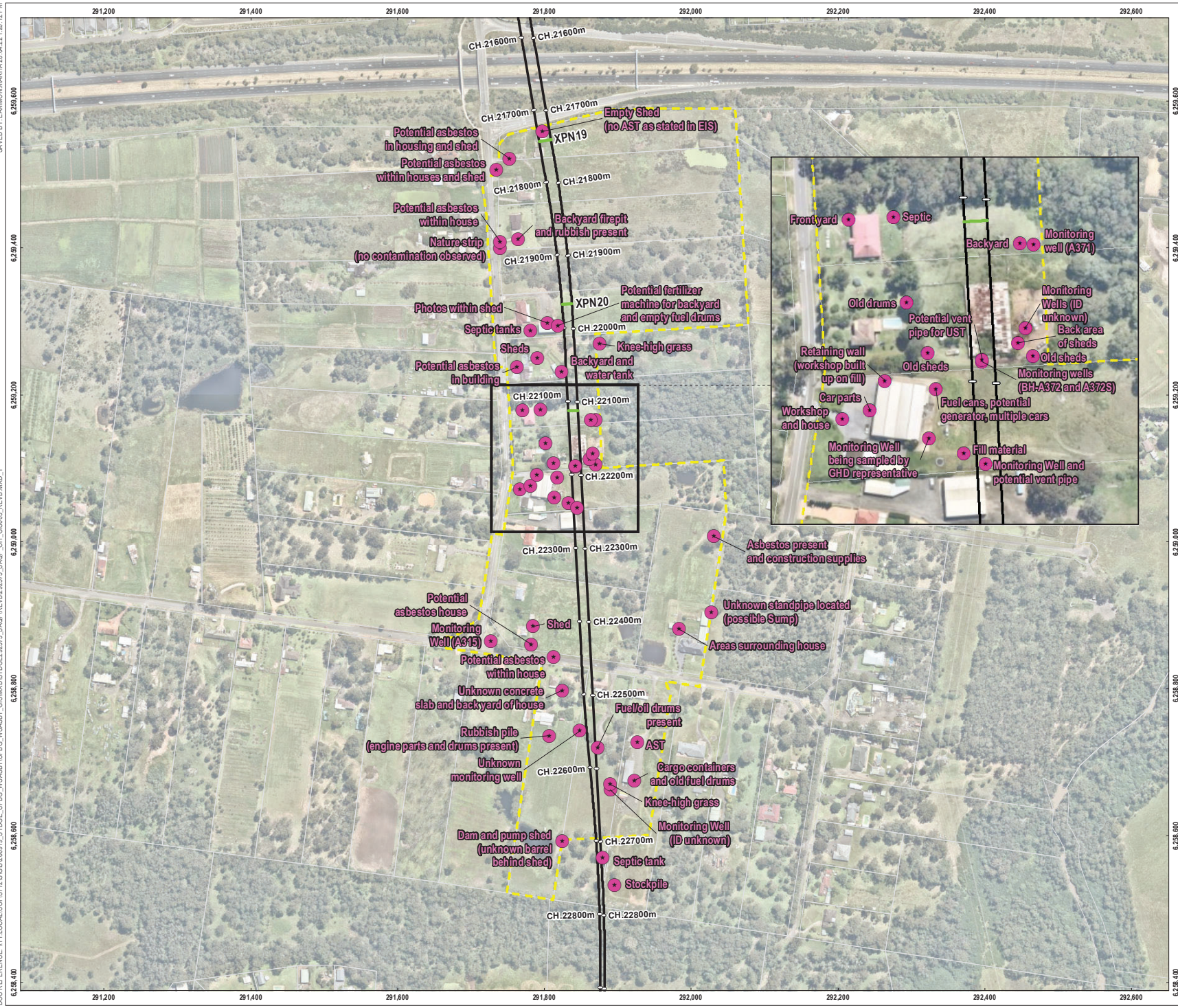


Orchard Hills construction footprint contamination sources and risk ranking

*HBM - Potential hazardous building materials
Indicative only, subject to design development

Figure A6

Attachment 3b: Key Observations from the DSI



CPB CONTRACTORS

Ghella 1894 5 Generations of Tunnelers

LEGEND

- Site Observation
- Tunnel Alignment
- Tunnel Alignment - Chainage
- Tunnel Alignment - Cross Passage
- Cadastral Boundary
- OHEPDS Site Boundary

SOURCE
Site observations and boundary from Tetra Tech Coffey.
Alignment supplied by CPBG.
Cadastre from DFSI.
Aerial imagery from Nearmap (capture date 18-02-2022).

N

0 100 200 m

SCALE **1:5,000**
PAGE SIZE: **A3**
PROJECTION: **GDA2020 MGA Zone 56**

CPB - GHELLA

WESTERN SYDNEY AIRPORT
STATION BOXES AND TUNNELLING WORKS

FIGURE 3

Site Observations - Orchard Hills Station and Portal Dive Structure

TETRA TECH COFFEY

DATE: **28.04.22** PROJECT: **754-SYDGE292575** FILE: **292575_SAQP_OH_F003_GIS**

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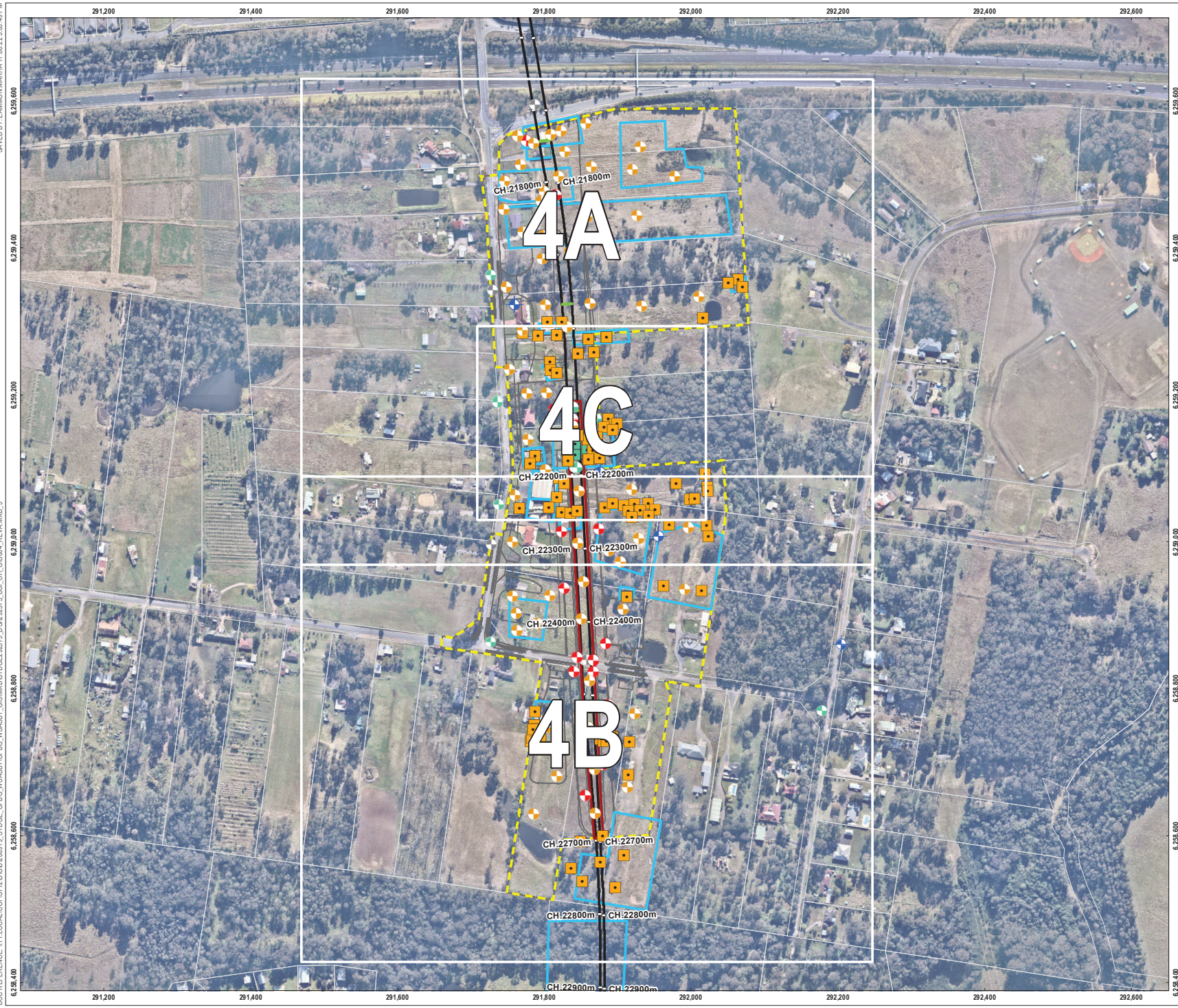
SAVED BY: EAMMON.MARHA 28.04.22 1:20:12 PM
DOC REFERENCE: \\TTLOCALICOFS72\SYDGE\286919_SYDGE_CPBG_WSASBT\CPBG_WSASBT\OPBG_WSASBT_GIS\MXD\SYDGE292575_SAQP\REV\B\292575_SAQP_OH_GIS003_REVB.MXD_1

Attachment 4: DSI Investigation Locations



CPB CONTRACTORS

Ghella 1894 5 Generations of Tunnelers

LEGEND

Additional Contaminated Land Location
- Borehole
- Hand Sample

Additional Geotechnical/Hydrogeological Location
- Borehole
- Monitoring Well

Existing Investigation Location
- Borehole

Investigation Location - Cardno
- Borehole
- Hand Auger
- Tunnel Alignment
- Tunnel Alignment - Chainage
- Tunnel Alignment - Cross Passage
- Orchard Hills and Portal Dive Structure Site Layout
- Cadastral Boundary
- Areas of Environmental Concern
- OH Site Boundary
- Station Box and Portal Dive Structure

SOURCE
Contaminated land locations, additional investigations, site boundary, and hand samples from Tetra Tech Coffey.
Existing investigations, site layout, station box and alignment supplied by CPBG.
Investigation locations from Cardno.
Cadastre from DFSI.
Aerial imagery from Nearmap (capture date 14-06-2022).

N

0 100 200 m

SCALE **1:5,000**
PAGE SIZE: **A3**
PROJECTION: **GDA2020 MGA Zone 56**

CPB - GHELLA

WESTERN SYDNEY AIRPORT
STATION BOXES AND TUNNELLING WORKS

FIGURE 4

Contaminated Land Locations -Orchard Hills Station and Portal Dive Structure

TETRA TECH COFFEY

DATE: **17.08.22** PROJECT: **754-SYDGE292575** FILE: **292575_DSI_OH_F004_GIS**

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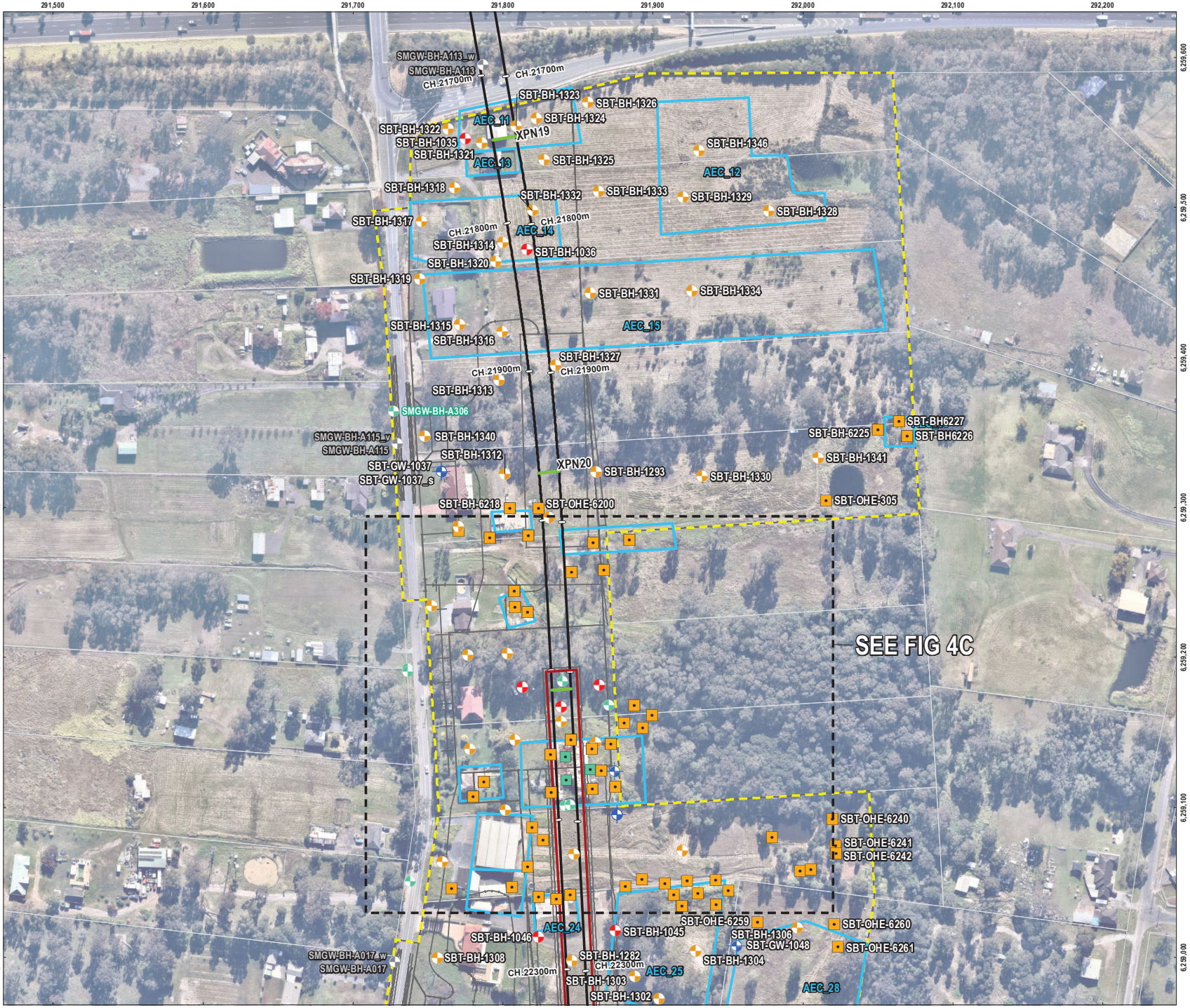

LEGEND

Additional Contaminated Land Location
- Borehole
- Hand Sample

Additional Geotechnical/Hydrogeological Location
- Borehole
- Monitoring Well

Existing Investigation Location
- Borehole

Investigation Location - Cardno
- Borehole
- Hand Auger
- Tunnel Alignment
- Tunnel Alignment - Chainage
- Tunnel Alignment - Cross Passage
- Orchard Hills and Portal Dive Structure Site Layout
- Cadastral Boundary
- Areas of Environmental Concern
- OH Site Boundary
- Station Box and Portal Dive Structure

SOURCE
Contaminated land locations, additional investigations, site boundary, and hand samples from Tetra Tech Coffey.
Existing investigations, site layout, station box and alignment supplied by CPBG.
Investigation locations from Cardno.
Cadastre from DFSI.
Aerial imagery from Nearmap (capture date 14-06-2022).

N

0 50 100 m

SCALE **1:2,500**
PAGE SIZE: **A3**
PROJECTION: **GDA2020 MGA Zone 56**

CPB - GHELLA

WESTERN SYDNEY AIRPORT
STATION BOXES AND TUNNELLING WORKS

FIGURE 4A

Contaminated Land Locations -Orchard Hills Station and Portal Dive Structure

TETRA TECH COFFEY

DATE: 17.08.22 PROJECT: 754-SYDGE292575 FILE: 292575_DSI_OH_F004A_GIS

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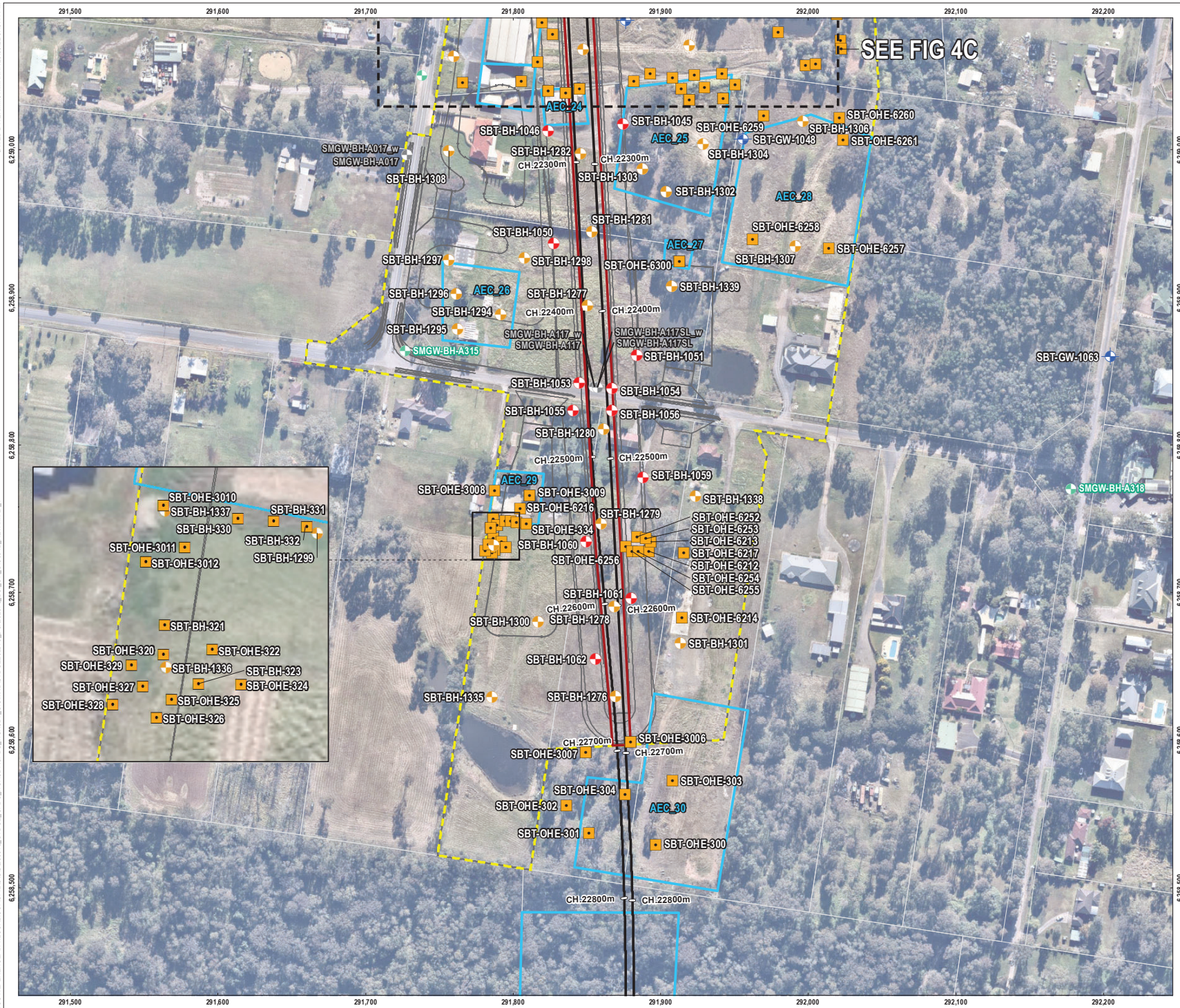

LEGEND

- Additional Contaminated Land Location
  - Borehole
  - Hand Sample
- Additional Geotechnical/Hydrogeological Location
  - Borehole
  - Monitoring Well
- Existing Investigation Location
  - Borehole
- Investigation Location - Cardno
  - Borehole
  - Tunnel Alignment
  - Tunnel Alignment - Chainage
  - Orchard Hills and Portal Dive Structure Site Layout
  - Cadastral Boundary
  - Areas of Environmental Concern
  - OH Site Boundary
  - Station Box and Portal Dive Structure

SOURCE
Contaminated land locations, additional investigations, site boundary, and hand samples from Tetra Tech Coffey.
Existing investigations, site layout, station box and alignment supplied by CPBG.
Investigation locations from Cardno.
Cadastre from DFSI.
Aerial imagery from Nearmap (capture date 14-06-2022).

N

0 50 100 m

SCALE **1:2,500**
PAGE SIZE: **A3**
PROJECTION: **GDA2020 MGA Zone 56**

CPB - GHELLA

WESTERN SYDNEY AIRPORT
STATION BOXES AND TUNNELLING WORKS

FIGURE 4B

Contamination Land Locations -Orchard Hills Station and Portal Dive Structure

TETRA TECH COFFEY

DATE: 29.08.22 PROJECT: 754-SYDGE292575 FILE: 292575_DSI_OH_F004B_GIS

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CPB CONTRACTORS

Ghella 1894 5 Generations of Tunnelers

LEGEND

Additional Contaminated Land Location
- Borehole
- Hand Sample

Additional Geotechnical/Hydrogeological Location
- Borehole
- Monitoring Well

Investigation Location - Cardno
- Borehole
- Hand Auger
- Tunnel Alignment
- Tunnel Alignment - Chainage
- Tunnel Alignment - Cross Passage
- Orchard Hills and Portal Dive Structure Site Layout
- Cadastral Boundary
- Areas of Environmental Concern
- OH Site Boundary
- Station Box and Portal Dive Structure

SOURCE
Contaminated land locations, additional investigations, site boundary, and hand samples from Tetra Tech Coffey.
Existing investigations, site layout, station box and alignment supplied by CPBG.
Investigation locations from Cardno.
Cadastre from DFSI.
Aerial imagery from Nearmap (capture date 14-06-2022).

N

0 20 40 m

SCALE **1:1,000**
PAGE SIZE: **A3**
PROJECTION: **GDA2020 MGA Zone 56**

CPB - GHELLA

WESTERN SYDNEY AIRPORT
STATION BOXES AND TUNNELLING WORKS

FIGURE 4C

Contaminated Land Locations -Orchard Hills Station and Portal Dive Structure

TETRA TECH COFFEY

DATE: 17.08.22 PROJECT: 754-SYDGE292575 FILE: 292575_DSI_OH_F004C_GIS

SAVED BY: EAMMON.MARHA 17.08.22 4:22:38 PM

DOC REFERENCE: \\TT.LOCAL\COF\S72\SYD\E\286919_SYDGE_CPBG_WSA\SBT\CPBG_WSASBT\CPBG_WSASBT_GIS\MXD\SYDGE292575_DSI_OH_GIS004C_REV A.MXD_1

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RAMBOLL

ENVIRONMENT
& HEALTH

29 September 2022

CPB Contractors Pty Ltd and Ghella Pty Ltd
Attn: [redacted]
Level 2, 177 Pacific Highway
North Sydney NSW 2060

[redacted]

Dear [redacted]

RE: INTERIM AUDIT ADVICE LETTER NO.7 - PROPOSED PREPARATORY WORKS, SYDNEY METRO WESTERN SYDNEY AIRPORT, ORCHARD HILLS STATION, ORCHARD HILLS NSW

Ramboll Australia Pty Ltd
Level 3, 100 Pacific Highway
PO Box 560
North Sydney NSW 2060

T +61 2 9954 8100
www.ramboll.com

Ref: 318001447-003

Audit Number: TO-095

Introduction

As a NSW Environment Protection Authority (EPA) accredited Contaminated Sites Auditor, on behalf of CPB Contractors Pty Ltd and Ghella Pty Ltd (CPBG), I am conducting an Audit (TO-095) under the NSW *Contaminated Land Management Act 1997* (CLM Act) in relation to the proposed Orchard Hills Station (OHS, also referred to as 'the site') for the Sydney Metro - Western Sydney Airport (SMWSA) Rail Project (the SMWSA rail project).

The site is primarily located on the eastern side of Kent Road (Lot 10 in Deposited Plan (DP) 1195473, Lot 1 in DP 576160, Lot 104 in DP 128821, Lots 43, 44, 49, 50 and 97 in DP 29388, and Lots 45, 46, 47 and 48 in DP29388 (in part)). Portions of Kent Road, Lansdowne Road and rural-residential properties on the southern side of Lansdowne Road (Lot 81 in DP 29388, and Lots 82 and 83 in DP 29388 (in part)) are also within the site. The site occupies an area of approximately 25.8 hectares (ha). The site locality is shown on Attachment 1.

The Audit is a requirement of Conditions E94, E96 and E97 of Critical State Significant Infrastructure (CSSI) approval 10051, issued on 23 July 2021 by the Minister for Planning and Public Spaces. The Audit is therefore statutory. The overall objective of the Audit is to enable a Section A Site Audit Statement (SAS) and supporting Site Audit Report (SAR) to be prepared that confirms the site is suitable for the proposed development.

It is understood that preparatory construction activities at OHS will include demolition of existing buildings/structures, ground levelling via cutting and filling, establishment of temporary construction work facilities such as a water treatment plant, offices, car parking and access roads, and piling and excavation of the station box and dive structure. Attachments 2, 3 and 4 show the proposed cut and fill plan, the proposed site establishment plan and the proposed piling works plan, respectively. As per Attachment 2, the required cut for ground levelling will be up to 4 metres below ground level (mbgl) in some areas. The station box and dive structure will be approximately 300 metres (m)

Ramboll Australia Pty Ltd
ACN 095 437 442
ABN 49 095 437 442

long, 20 m wide and 10 m deep (or approximately 27 m Australian Height Datum (mAHD)). The station box will be tanked (undrained) upon completion.

To achieve the intended environmental performance outcomes of the SMWSA rail project and address the requirements of the CSSI approval, CPBG have prepared an *Asbestos Management Plan* (the AMP) (Rev A dated 2 February 2022) and *NSW (Off-Airport) Soil and Water Management Sub-Plan* (the Sub-Plan) (Rev A dated 19 May 2022). The AMP provides a documented process to control the risk of exposure to asbestos during soil disturbance, demolition and other activities, whilst the Sub-Plan includes a Contamination and PASS Management Procedure for management of unexpected finds and potential acid sulfate soils (PASS). The Auditor has previously reviewed and provided feedback on these plans. Overall, the Auditor found them to be adequate.

Scope of Preparatory Construction Works

CPBG are proposing to undertake preparatory construction related works including:

- Demolition of existing buildings and associated infrastructure, and site clearance activities.
- Clearing and grubbing of vegetation and surface soils.
- Site levelling.
- Piling and excavation of portal, station box and dive structures using rippers and rock hammers.
- Construction of temporary construction work facilities.

Attachments 3 and 4 show the proposed site establishment and the proposed piling staging works, respectively.

CPBG have provided a Waste and Recycling Management Procedure for the classification, management and disposal of waste spoil (Attachment 5). CPBG have indicated that any groundwater from dewatering activities will be captured, treated and disposed of in accordance with internal permits until the water treatment plant is operational.

The purpose of this Interim Audit Advice (IAA) letter (IAA7) is to confirm that preparatory construction related works can commence, subject to the controls listed in the conclusions and recommendations below. This IAA should be read in conjunction with my previous IAA titled "*Interim Audit Advice Letter No.6 - Review of Detailed Site Investigation, Proposed Sydney Metro Western Sydney Airport Orchard Hill Station, Orchard Hill NSW*" (IAA6) dated 27 September 2022.

Known Extent of Contamination and Implications for Preparatory Construction Works

The site has been subject to intrusive investigations of soil and groundwater. More recently a detailed site investigation (DSI) was undertaken by Tetra Tech Major Projects Pty Ltd (TTMP). The DSI (dated 26 September 2022) was reviewed by the Auditor in IAA6, however, did not include the results for groundwater investigation which will be provided as an addendum to the DSI at a later date.

Analysis of the soil samples during the DSI generally did not identify concentrations of contaminants above the human health and/or ecological criteria. On this basis, TTM concluded that sources of contamination that could pose a significant risk to potential receptors have not been identified and that "*where assessed, the soil within the site poses a low risk of contamination to the project*" and "*the site can be made suitable as per the requirements of State Environmental Planning Policy (Hazards and Resilience) 2021*".

As the DSI was completed prior to demolition of existing structures and vegetation clearance, TTMP noted the potential to encounter asbestos and other unforeseen contamination in areas which were inaccessible during the DSI such as beneath concrete slabs, sheds, septic tanks and heavily vegetated areas. TTMP listed a number of measures in the DSI to mitigate potential risks associated with these uncertainties. The recommended measures included obtaining asbestos clearance certificates post-demolition and prior to the commencement of the preparatory construction related works; engaging a

competent person during ground disturbance to monitor for signs of potential contamination; and preparation of a remedial action plan (RAP) to inform the management of excavated spoil, additional soil characterisation, unexpected finds (if encountered) and the management of water associated with excavation and dewatering.

Auditor's Opinion

The Auditor generally agrees that soil within the preparatory construction works area does not present a risk to human health or the environment based on the results of the DSI.

Fill soils excavated during the preparatory construction works which are to be reused at the site or in the larger Airport site will need to be assessed to ensure suitability for reuse, alternatively these soils should be classified and disposed offsite in accordance with the Waste and Recycling Management Procedure in Attachment 5. In the event asbestos or other unforeseen contamination is identified, the procedures within the AMP and/or within the Contamination and PASS Management Procedure in the Sub-Plan (Attachment 6) should be implemented.

Bulk excavation below the groundwater table should not commence until groundwater assessment has been concluded, and the associated findings and the recommended RAP process are complete and approved by the Auditor.

The Auditor understands that Condition E94 of the CSSI approval requires a Section B SAS to be prepared by a NSW EPA accredited Site Auditor reviewing the RAP prior to commencing remediation. In the Auditors opinion, the preparatory construction related works proposed by CPBG are development/construction related activities requiring spoil management, and do not constitute remediation. Therefore, the requirements outlined in condition E94 would not prevent the preparatory construction related works from being undertaken.

Conclusions and Recommendations

Preparatory construction works are not considered to constitute remediation works because significant contamination has not been identified in site soils. However, the following actions (and those recommended in the DSI) are required to ensure any contamination identified during the works is dealt with appropriately to minimise risks to human health and the environment:

- Fill and topsoil is appropriately assessed prior to on-site reuse or off-site disposal.
- As per the DSI, a competent person is present during disturbance of fill and topsoil to monitor for signs of potential contamination and potential ACM.
- Implementation of the AMP and/or the Contamination and PASS Management Procedures (Attachment 6) where required.
- Bulk excavation below the groundwater table should not commence until groundwater assessment has been concluded, and the associated findings and the recommended RAP process are complete and approved by the Auditor.

Limitations

This IAA (No.7) was conducted on behalf of CPBG for the purpose of confirming that preparatory construction related works can commence at OHS, subject to the controls listed in the Conclusions and Recommendations. This summary report may not be suitable for other uses.

The Auditor has relied on the documents referenced in this IAA in preparing the Auditor's opinion. The consultants included limitations in their reports. This IAA must also be subject to those limitations. The Auditor has prepared this document in good faith but is unable to provide certification outside of areas over which the Auditor had some control or is reasonably able to check. If the Auditor is unable to rely on any of those documents, the conclusions of this IAA could change.

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

* * *

Consistent with the NSW EPA requirement for staged 'signoff' of sites that are the subject of progressive assessment, remediation and validation, I advise that:

- This advice letter does not constitute a Site Audit Report or Site Audit Statement.
- At the completion of the remediation and validation I will provide a Site Audit Statement and supporting documentation.
- This interim advice will be documented in the Site Audit Report.

Yours faithfully
Ramboll Australia Pty Ltd

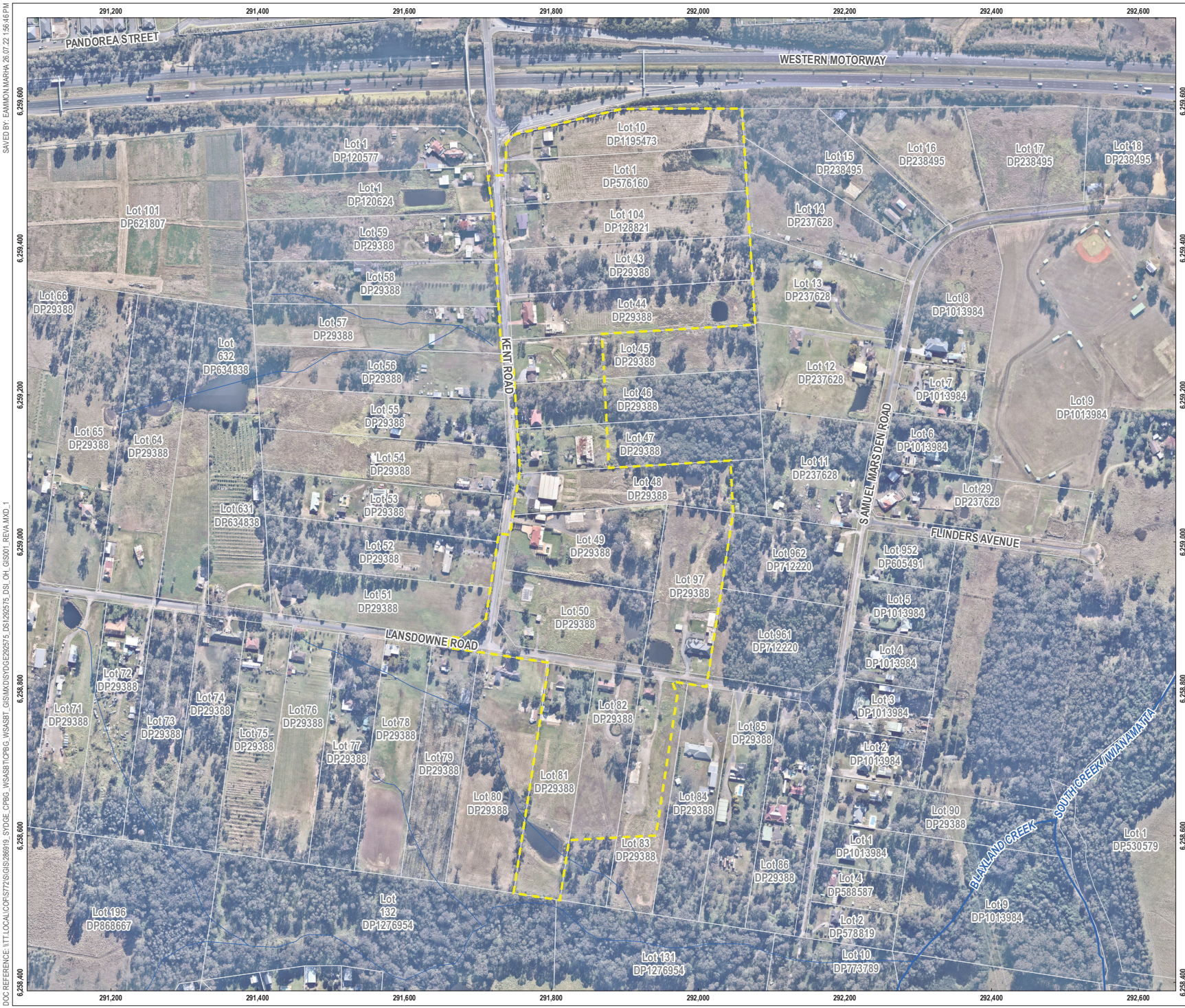
[redacted]

[redacted]
EPA Accredited Site Auditor 1505

[redacted]

Attachments: 1 Site Location
2 Proposed Cut and Fill Plan
3 Proposed Site Establishment Works
4 Proposed Piling Works
5 Waste and Recycling Management Procedure
6 Contamination and PASS Management Procedures

Attachment 1: Site Location Plan



LEGEND

- Perennial Watercourse
- Non-perennial Watercourse
- Cadastral Boundary
- OH Site Boundary

SOURCE
Site boundary from Tetra Tech Coffey.
Watercourses and cadastre from DFSI.
Aerial imagery from Nearmap (capture date 14-06-2022).

0 100 200 m

SCALE **1:5,000**
PAGE SIZE: **A3**
PROJECTION: **GDA2020 MGA Zone 56**

CPB - GHELLA

WESTERN SYDNEY AIRPORT
STATION BOXES AND TUNNELLING WORKS

FIGURE 1

Site Location Plan -Orchard Hills Station and Portal Dive Structure

TETRA TECH COFFEY

DATE: 26.07.22 PROJECT: 754-SYDGE292575 FILE: 292575_DSI_OH_F001_GIS

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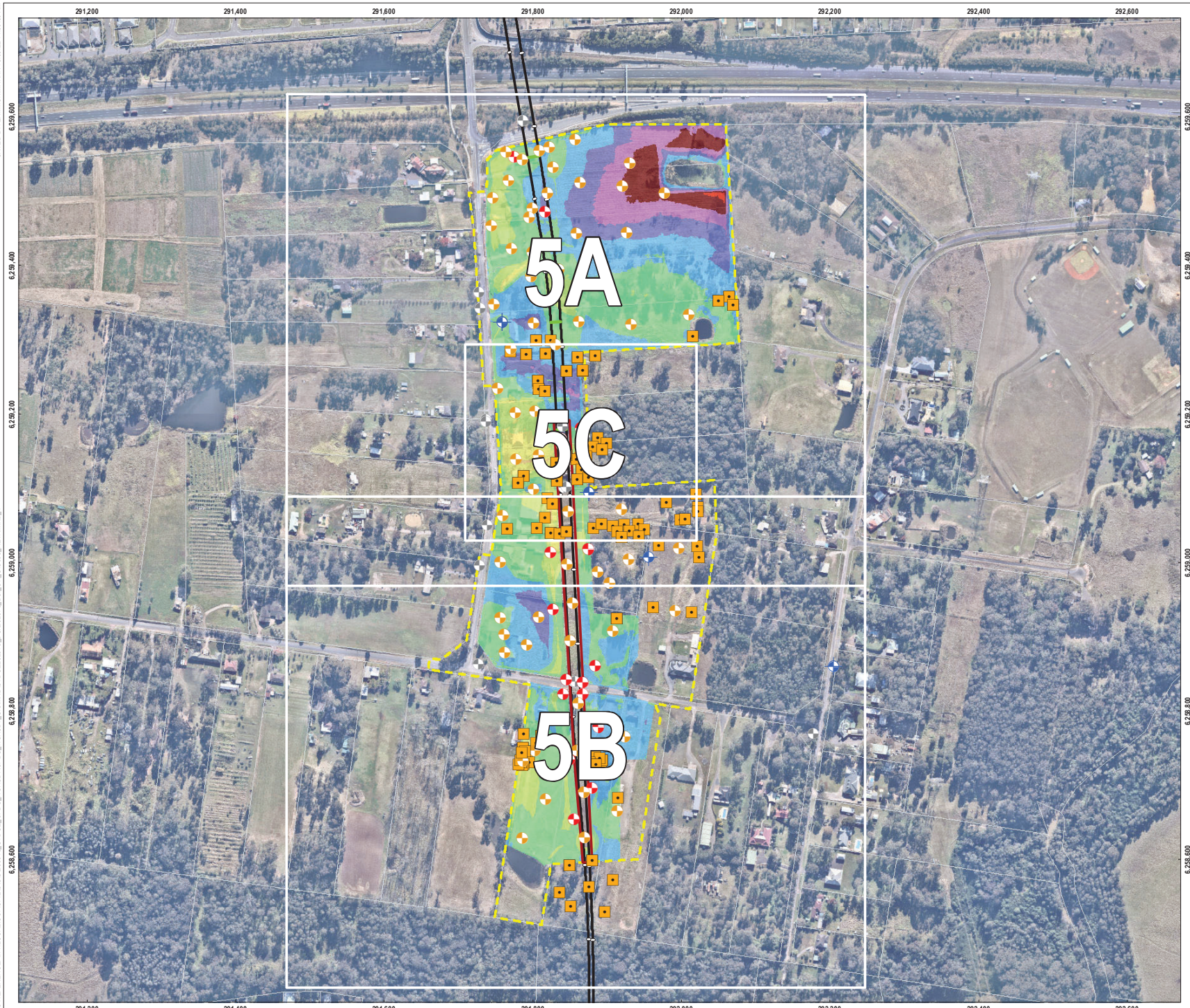
Attachment 2: Cut and Fill Plan



CPB CONTRACTORS

Ghella 1894 5 Generations of Tunnelers

LEGEND

Additional Contaminated Land Location
- Borehole
- Hand Sample

Additional Geotechnical/Hydrogeological Location
- Borehole
- Monitoring Well

Existing Investigation Location
- Borehole
- Tunnel Alignment
- Tunnel Alignment - Chainage
- Tunnel Alignment - Cross Passage
- Cadastral Boundary
- OH Site Boundary
- Station Box and Portal Dive Structure

Cut and Fill
- -4 m to -3 m
- -3 m to -2 m
- -2 m to -1 m
- -1 m to 0 m
- 0 m to 1 m
- 1 m to 2 m
- 2 m to 3 m
- 3 m to 4 m
- 4 m to 5 m

SOURCE
Contaminated land locations, additional investigations, site boundary, and hand samples from Tetra Tech Coffey.
Existing investigations, site layout, station box, cut/fill and alignment supplied by CPBG.
Cadastre from DFSI.
Aerial imagery from Nearmap (capture date 14-06-2022).

N

0 100 200 m

SCALE **1:5,000**
PAGE SIZE: **A3**
PROJECTION: **GDA2020 MGA Zone 56**

CPB - GHELLA

WESTERN SYDNEY AIRPORT
STATION BOXES AND TUNNELLING WORKS

FIGURE 5

Site Establishment Works - Orchard Hills Station and Portal Drive Structure

TETRA TECH COFFEY

DATE: **18.08.22** PROJECT: **754-SYDGE292575** FILE: **292575_DSI_OH_F005_GIS**

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SAVED BY: EAMMON.MARHA 18.08.22 11:09:59 AM
DOC REFERENCE: \\TT-LOCAL\COF\S72\SYD\E286919_SYDGE_CPBG_WSA\SBT\CPBG_WSASBT\CPBG_WSASBT_GIS\MXD\SYDGE292575_DSI_OH_GIS005_REVA.MXD_1

Attachment 3 Proposed Site Establishment Works

REV.	AMENDMENT DESCRIPTION	Design by	Verified by	Approved by	Date
					09.03.22

SCALE: NOT TO SCALE

Original Co-ordinate System: | Height Datum: | This sheet may be prepared using colour and may be incomplete if copied | NOTE: Do not scale from this drawing.

CLIENT: NSW GOVERNMENT | sydney METRO

Engineering Design Solutions

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CIVIL		
STRUCTURAL		
BRIDGES		
OTHER		
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CONFIRMED		

WORK IN PROGRESS

SYDNEY METRO - WESTERN SYDNEY AIRPORT – STATION BOXES AND TUNNELLING WORKS
ORCHARD HILLS

FILE No: | SHEET: 1 OF 1 | ©
STATUS: FOR INFORMATION | EDMS No:
DRG No: SMWSASBT-STM-SN100-MB-SKE-030004 | REV 0 | VER 0

10mm AT FULL SIZE

Plot Date: 10/03/22 - 00:39

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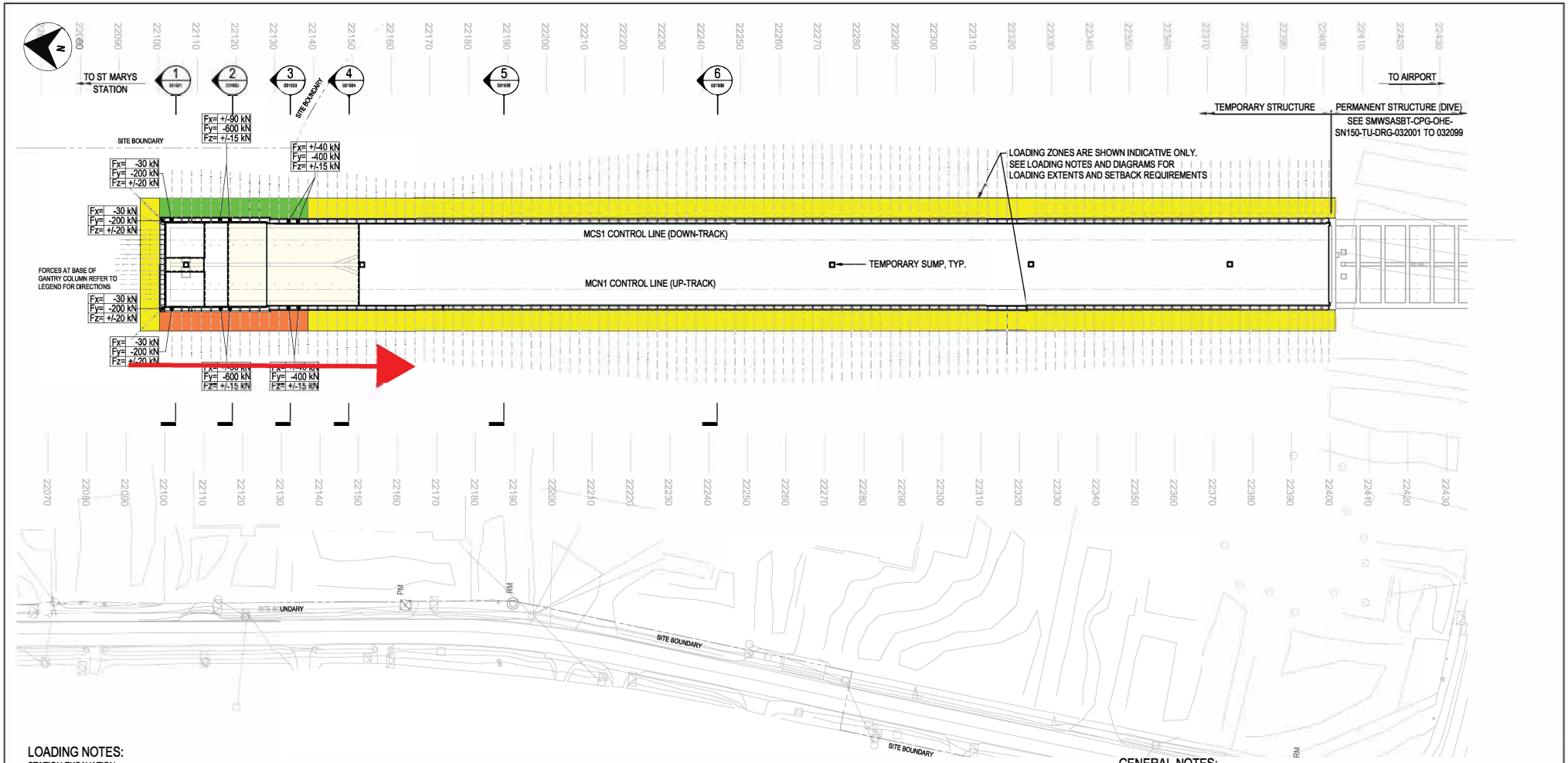
File Path: \\bge.int\dfs\Syd\Projects\BGE\SYD\SS202951\100 Draw\100.2 Civil\AutoCAD\Detailed Design\Working\WIP Orchard Hills (MEL).dwg

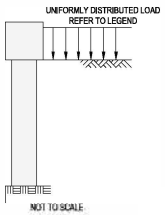
Attachment 4: Proposed Piling Works



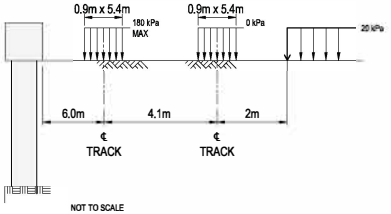
LOADING NOTES:

STATION EXCAVATION:

1. THE EXCAVATION SUPPORT HAS BEEN DESIGNED FOR THE FOLLOWING SUPERIMPOSED LOADS ACTING SEPARATELY:
   i) UNIFORMLY DISTRIBUTED LOAD AT SITE ESTABLISHMENT LEVEL. REFER PLAN FOR LOCATIONS AND INTENSITY.



   ii) 110 TONNE CRANE LOAD (MANITOWOX 12000 MAXIMUM GROUND PRESSURE (WORKING) AT SITE ESTABLISHMENT LEVEL.



   iii) HYDROSTATIC PRESSURES ON WALL:
   STRUCTURE DESIGNED AS DRAINED WITH ALLOWANCE FOR HYDROSTATIC MOUNDING PRESSURE OF:
   7.5 kPa UP TO 5m FROM BASE OF EXCAVATION AND 5.0 kPa MORE THAN 5m ABOVE BASE OF EXCAVATION

   CAPPING BEAM AND WALLS:

   VEHICLE IMPACT LOAD:
   40 kN OVER 1.5m LENGTHAT 800mm ABOVE SITE ESTABLISHMENT LEVEL

   EARTHQUAKE LOADING:

   HAZARD FACTOR: Z = 0.08
   IMPORTANCE LEVEL 4
   ANNUAL PROBABILITY OF EXCEEDENCE: P=1/1500 YEAR
   PROBABILITY FACTOR Kp = 1.5
   DESIGN DUCTILITY FACTOR u: 2.0

OVERALL SITE PLAN

SCALE 1 : 500

LEGEND

- 20 kPa
- 25 kPa OR WITH 110 TONNE CRANE LOAD
- 20 kPa OR WITH 110 TONNE CRANE LOAD
- FORCE DIRECTION GANTRY SHED COLUMNS: Fy IN VERTICAL DIRECTION (POSITIVE UPWARDS) Fx IN NORTH - SOUTH Fz IN EAST - WEST

GENERAL NOTES:

1. ALL DIMENSIONS ARE SHOWN IN MILLIMETERS U.N.O.
2. ALL LEVELS ARE SHOWN IN METRES.
3. TEMPORARY STRUCTURE DESIGN LIFE: 10 YEARS.
4. FOR GENERAL NOTES SEE PROJECT WIDE DRAWINGS SMWSASBT-CPG-SWD-SW000-TU-DRG-010710 TO 010712.
5. FOR PROJECT WIDE TYPICAL DETAILS SEE DRAWINGS SMWSASBT-CPG-SWD-SW000-TU-DRG-010715 TO 010760.
6. ALL EXCAVATION AND SHORING SUPPORT WORKS SHALL COMPLY WITH THE PROJECTWIDE SPECIFICATION SMWSASBT-CPG-SWD-SW000-TU-SPC-010901
7. ALL CONCRETE SHALL COMPLY WITH THE PROJECTWIDE CONCRETE INSITU SPECIFICATION SMWSASBT-CPG-SWD-SW000-TU-SPC-010801.
8. ALL SHOTCRETE SHALL COMPLY WITH THE PROJECTWIDE SHOTCRETE (TEMPORARY) SPECIFICATION SMWSASBT-CPG-SWD-SW000-TU-SPC-060201.
9. GANTRY COLUMN LOCATIONS SHOWN ON PLAN HAVE A POSITIONAL FLEXIBILITY OF +/- 3m ALONG THE EASTERN AND WESTERN SIDE CAPPING BEAMS.

OFFICIAL

FOR REVIEW AND COMMENT

REV.	AMENDED DESCRIPTION	Design by	Verified by	Approved by	Date
C	FOR AFC STAGE APPROVAL	R.J	C.M	C.L	25.08.22
B	STAGE 3 DESIGN	R.J	C.M	C.L	14.07.22
A	STAGE 1 & 2 DESIGN	R.J	C.M	C.L	13.04.22

SCALES: 1:500
1:500 @ A1

A1 Original | Co-ordinate System: GDA2020/MGAZone56 | Height Datum: A.H.D | This sheet may be prepared using colour and may be incomplete if copied | NOTE: Do not scale from this drawing.

CLIENT: NSW GOVERNMENT | sydney METRO

The information shown on this drawing is for the purposes of the Sydney Metro Project only. No warranty is given or implied as to its suitability for any other purpose. The Service Providers accept no liability arising from the use of this drawing and the information shown thereon for any purpose other than the Sydney Metro Project.

BG&E | CPB | Ghella

Guy Knight
STRUCTURE

DRAWN	GUY KNIGHT	25.08.2022
DESIGNED	RAMI JEANTANI	25.08.2022
DRG CHECK	ARAJ LAL	25.08.2022
DESIGN CHECK	CHRIS MCLELLAND	25.08.2022
APPROVED	CHRIS LAWTON	25.08.2022

SYDNEY METRO - WESTERN SYDNEY AIRPORT – STATION BOXES AND TUNNELLING WORKS
ORCHARD HILLS STATION
TUNNEL STRUCTURES
OVERALL SITE PLAN
FILE No: SMWSASBT-CPG-OHE-SN150-TU-M3D-031901 SHEET: 3 OF 48
STATUS: FOR AFC STAGE APPROVAL EDMS No:
DRG No.SMWSASBT-CPG-OHE-SN150-TU-DRG-031905 REV C VER

100mm AT FULL SIZE Plot Date & Time 25/08/2022 9:46:02 PM

File Path: Autodesk Docs://CPB_SHAWSA-SBT Delivery/SMWSASBT-CPG-OHE-SN150-TU-M3D-031901.rvt

RAMBOLL

ENVIRONMENT
& HEALTH

6 December 2022

CPB Contractors Pty Ltd and Ghella Pty Ltd
Attn: [redacted]
Level 2, 177 Pacific Highway
North Sydney NSW 2060

[redacted]

Dear [redacted]

RE: INTERIM AUDIT ADVICE LETTER NO.13 - REVIEW OF REMEDIATION ACTION PLAN, SYDNEY METRO WESTERN SYDNEY AIRPORT ORCHARD HILLS STATION, ORCHARD HILLS NSW

Ramboll Australia Pty Ltd
Level 3, 100 Pacific Highway
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North Sydney NSW 2060

T +61 2 9954 8100
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Ref: 318001447-003

Audit Number: TO-095

1. Introduction and Objective

As a NSW Environment Protection Authority (EPA) accredited Contaminated Sites Auditor, on behalf of CPB Contractors Pty Ltd and Ghella Pty Ltd (CPBG), I am conducting an Audit (TO-095) under the NSW *Contaminated Land Management Act 1997* (CLM Act) in relation to the proposed Orchard Hills Station (OHS, also referred to as 'the site') for the Sydney Metro - Western Sydney Airport (SMWSA) Rail Project (the SMWSA rail project).

The site is primarily located on the eastern side of Kent Road (Lot 10 in Deposited Plan (DP) 1195473, Lot 1 in DP 576160, Lot 104 in DP 128821, Lots 43, 44, 49, 50 and 97 in DP 29388, and Lots 45, 46, 47 and 48 in DP29388 (in part)). Portions of Kent Road, Lansdowne Road and rural-residential properties on the southern side of Lansdowne Road (Lot 81 in DP 29388, and Lots 82 and 83 in DP 29388 (in part)) are also within the site. The site occupies an area of approximately 25.8 hectares (ha). The site locality and layout are shown on Attachment 1.

The SMWSA rail project includes construction of new stations, a train stabling and maintenance facility, rail infrastructure facilities, tunnels, bridges, viaducts and associated ancillary infrastructure. It is understood that preparatory construction activities[1] at OHS will include demolition of existing buildings/structures, ground levelling via cutting and filling, establishment of temporary construction work facilities such as a water treatment plant, offices, car parking and access roads, piling and excavation of the station box and dive structure. As per Attachment 2, the required cut for ground levelling will be up to 4 metres below ground level (mbgl) in some areas. The excavation of the station box and dive structure will be approximately 300 metres (m) long, 20 m wide and 10 m deep (to approximately 27 m Australian Height Datum (mAHD)) and will be drained. A decision on whether or not the station box and dive

[1] Referred to as "construction activities" or "construction works" in some reports.

Ramboll Australia Pty Ltd
ACN 095 437 442
ABN 49 095 437 442

structure is to be undrained (tanked) during future operation has not been made yet.

Based on the findings of a detailed site investigation (the DSI) and DSI addendum, remediation of OHS was not deemed to be warranted, and as such, preparation of a remediation action plan (RAP) was not required. However, a RAP has been prepared by Tetra Tech Major Projects Pty Ltd (TTMP) to satisfy the requirements of the Deed.

This Interim Audit Advice (IAA) letter (IAA13) was prepared to document an independent review of the TTMP RAP. The review and preparation of the IAA were a requirement of Clause 12.20(c)(ix) of the Deed (*Sydney Metro (2022) Sydney Metro - Western Sydney Airport, Station Boxes and Tunnelling Works Design and Construction)* between Transport for NSW and CPBG (discussed in Section 5).

2. Background on the DSI

The DSI was undertaken by TTMP and included test pitting, borehole drilling, surficial soil sampling, groundwater monitoring well installation and sampling. At the time of writing the DSI in September 2022, some groundwater monitoring wells were unable to be sampled and as such, an addendum to the DSI was prepared in November 2022 consolidating groundwater monitoring data acquired during and after the DSI. This section discusses the soil results from the DSI. Evaluation of the site groundwater quality is presented in Section 4.

Key findings from the soil investigation, as reported in the DSI, are as follows:

- Numerous former structures were suspected to contain asbestos-containing building materials. Fragments of potential asbestos containing material (PACM) were observed in a small skip bin on Lot 97 DP 29388 and on bare soil within a shed on Lot 47 in DP 29388.
- Ground conditions generally comprised limited fill/topsoil (clay, silty clay and sandy clay topsoil/fill to up to 0.4 mbgl), followed by natural soils (clay, silty clay and silt to depths of between 4.2 mbgl and 8.8 mbgl) and bedrock (siltstone and sandstone). Visual and olfactory signs of contamination were not observed.
- Soil headspace photoionisation detector (PID) readings were typically below 5 parts of per million (ppm), indicating a low likelihood for significant volatile organic compound (VOC) contamination in the sampled soils.
- The reported contaminant concentrations were below the laboratory detection limits and/or the adopted health criteria, except for surficial soil sample SBT-BH-1336/0–0.1 mbgl. This sample reported a benzene concentration at 4.8 milligrams per kilogram (mg/kg), exceeding the adopted health criterion of 3 mg/kg. As BTEX (benzene, toluene, ethylbenzene and xylene) were not reported in the deeper sample (0.5 mbgl) from the same location, nor in the confirmatory samples collected in the vicinity of this sample location, TTMP concluded that benzene in SBT-BH-1336/0-0.1 mbgl was localised.
- The reported contaminant concentrations were lower than the adopted ecological criteria, with the exception of copper and zinc concentrations in four samples. Given the intended commercial/industrial land uses, TTMP concluded that the potential ecological risk was low.
- Asbestos was detected in fill/topsoil sample SBT-BH-1295/0.1-0.2 mbgl. This sample was located immediately adjacent to a shed on Lot 50 DP 29388 and contained asbestos fines/fibrous asbestos (AF/FA) exceeding the adopted health criterion (0.001 %w/w).

TTMP concluded that the DSI did not identify sources of contamination that could pose a significant risk to potential receptors and that "…*where assessed, the soil within the site poses a low risk of contamination to the project*" and that "*the site can be made suitable as per the requirements of State Environmental Planning Policy (Hazards and Resilience) 2021*".

TTMP recommended that:

- *"Competent person is present during disturbance of soil materials to monitor for signs of potential contamination (e.g. stained or odourous soils, buried wastes, etc) and potential ACM. Where these materials are encountered, the materials should be stockpiled separately for subsequent investigation by TTMP in line with the unexpected finds protocol. The competent person must be experienced in the undertaking of excavation/remediation works and have the necessary experience to identify soil materials containing ACM and unforeseen contamination.*
- *The DSI was completed prior to demolition. There is a potential risk from ACM post-demolition, and it is recommended that an asbestos clearance certificate be obtained post demolition and prior to the commencement of Preliminary Works.*
- *Topsoil and fill materials are stockpiled separately to natural soils, and stockpiles are managed in accordance with the requirements of the [Construction Environmental Management Plan].*
- *CPBG is to maintain a record of where materials have been cut and placed as fill within the [Orchard Hills] site.*
- *Soil materials removed from the site as waste should be classified in accordance with the NSW EPA Waste Classification Guidelines (2014) which includes the preparation of a Waste Classification Report and/or a Material Classification Report.*
- *Groundwater samples should be collected from the monitoring wells which have been installed and not sampled at the time of writing and the results are to be included as an addendum to the DSI for inclusion in the RAP.*
- *Six-monthly construction groundwater monitoring be carried out to detect changes in groundwater quality as outlined in the Groundwater Monitoring Plan (TTMP ref: SMWSASBTCPG-SWD-SW000-GE-RPT-040404). This monitoring would also confirm the inferred groundwater flow direction.*
- *Fill soil at AEC26 (sample location ref: SBT-BH-1295), where detections of FA/AF were identified should be managed in accordance with CPG's AMP [Asbestos Management Plan] (ref: SMWSASBT-CPG -1NL-NL000-SFPLN-000024).*
- *In order to satisfy the requirements of the Deed, a remedial action plan (RAP) should be prepared to inform the management of excavated spoil, additional soil characterisation, unexpected finds (if encountered) and the management of water associated with excavation and dewatering."*

The Auditor conducted an independent review of the DSI and documented review outcomes in IAA6 dated 29 September 2022. IAA6 concluded that the DSI adequately assessed the site soil and informed the soil management requirements during construction; and the DSI recommendations were appropriate for managing the potential soil-related risks during construction.

The Auditor also prepared IAA7 dated 29 September 2022 which reviewed the DSI results with respect to the proposed preparatory construction works. The Auditor noted in IAA7 that preparatory construction works were not considered to constitute remediation works because significant contamination was not identified in site soils. However, the following actions (plus those recommended by TTMP in the DSI) were required to ensure any contamination identified during the works was dealt with appropriately to minimise risks to human health and the environment:

- Fill and topsoil are appropriately assessed prior to on-site reuse or off-site disposal.
- A competent person is present during disturbance of fill and topsoil to monitor for signs of potential contamination and potential ACM.

- Implementation of the AMP and/or Contamination and Potential Acid Sulfate Soils (PASS) Management Procedures where required.
- Bulk excavation below groundwater table should not commence until groundwater assessment has been concluded, and the associated findings and the recommended RAP process are completed and reviewed by the Auditor.

3. Scope of Work

The following reports prepared by TTMP were reviewed for this IAA13:

- '*Detailed Site Investigation – Addendum Orchard Hills Groundwater Monitoring Data*' (Rev A02) dated 24 November 2022 (the DSI Addendum).
- '*Orchard Hills Station Remedial Action Plan, Sydney Metro Western Sydney Airport Station Boxes and Tunnelling Works*' (Rev A03) dated 24 November 2022 (the RAP).

I provided review comments on previous versions of the DSI Addendum (A01 dated 2 November 2022) and RAP (A02 dated 2 November 2022) via email and received the above revised reports.

I reviewed the DSI Addendum and RAP against the requirements of the following:

- ANZG (2018) '*Australian and New Zealand Guidelines for Fresh and Marine Water Quality*'. Australian and New Zealand Governments and Australian state and territory governments, Canberra ACT, Australia.
- Chapter 4 Remediation of Land in the Resilience and Hazards State Environment Planning Policy (SEPP) 2021 (formerly known as SEPP 55) and NSW Department of Urban Affairs and Planning and NSW EPA (1998) *'Managing Land Contamination, Planning Guidelines SEPP 55 - Remediation of Land'*.
- HEPA (2020) '*PFAS National Environmental Management Plan, Version 2.0 – January 2020*' (NEPM, 2020).
- National Environment Protection Council (NEPC) '*National Environment Protection (Assessment of Site Contamination) Measure 1999'*, as Amended 2013 (NEPM, 2013).
- NSW EPA (2017) '*Contaminated Land Management, Guidelines for the NSW Site Auditor Scheme (3rd Edition)*'.
- NSW EPA (2020) '*Contaminated Land Guidelines, Consultants Reporting on Contaminated Land'.*
- NSW EPA (2022) '*Contaminated Land Guidelines, Sampling design Part 1- application*' and '*Sampling design Part 2- interpretation*'.

4. Review of the DSI Addendum

The Sampling Analysis Quality Plan prepared for the DSI[2] (the SAQP) required installation of six groundwater monitoring wells (SBT-GW-1037[3], SBT-GW-1042, SBT-GW-1043, SBT-GW-1048, SBT-GW-1063 and SBT-GW-1064) and sampling of four (SBT-GW-1037, SBT-GW-1042, SBT-GW-1043 and SBT-GW-1048) for chemical analysis. SBT-GW-1063 and SBT-GW-1064 were proposed to be monitored for groundwater level and electrical conductivity only. The SAQP also required sampling of pre-existing on- and off-site wells including SMGW-BH-A017, SMGW-BH-A113, SMGW-BH-A117, SMGW-BH-A117S, SMGW-BH-B319 [*sic*, as noted in Table 1]. Locations of the groundwater monitoring wells including DSI soil sampling locations are shown on Attachment 3.

[2] Titled '*Orchard Hills Sampling Analysis Quality Plan, Sydney Metro Western Sydney Airport Station Boxes and Tunnelling Works*' dated 26 July 2022 (TTMP, 2022).

[3] Incorrectly listed as a pre-existing well in the SAQP.

The DSI Addendum identified several deviations from the SAQP for the groundwater scope completed in the DSI, which is reproduced as Table 1.

Table 1: Groundwater Scope Completed in Comparison to SAQP (Source: The DSI Addendum)

Location ID	Location Type	Sampled in DSI
SMGW-BH-A017	Existing monitoring well. Monitoring water quality to west of station within drawdown zone	Well not re-sampled during DSI. Refer Note 1. Data from previous sampling events was referred to in the DSI. Groundwater sampling was undertaken from groundwater monitoring wells installed for the DSIs in this area and down-gradient of this monitoring well including: SBT-GW-1048 and SBT-GW-1043.
SMGW-BH-A113	Existing monitoring well located north of the station and within the drawdown zone.	Well not re-sampled during DSI. Refer Note 1. Data from previous sampling events was referred to in the DSI. Groundwater sampling from the northern end of the station box was undertaken from SBT-GW-1037.
SMGW-BH-A117	Existing monitoring well. Monitoring water quality in vicinity of station at depth	Well not re-sampled during DSI. Refer Note 1. Data from previous sampling events was referred to in the DSI.
SMGW-BH-A117S	Monitoring water quality in vicinity of station at water table (early in construction only)	Well not re-sampled during DSI. Refer Note 1. Data from previous sampling events was referred to in the DSI.
SMGW-BH-B319	Existing monitoring well. Provide further baseline monitoring data.	Location included in SAQP as an error. Borehole is not located at the Orchard Hills Project Area
SBT-BH-A372 / SBT-BH-A372s	Existing monitoring wells in the vicinity of AEC20	Yes These monitoring wells were not included in the SAQP and are located on the southern side of AEC20
SBT-GW-1037	New monitoring well. Provide further baseline monitoring data.	Yes
SBT-GW-1042	New monitoring well. GDE monitoring (continuous) and six monthly water quality monitoring downgradient of potential former cattle dip on alignment at Orchard Hills station, and provide water quality data for this area.	Yes
SBT-GW-1043	New monitoring well in the vicinity of AEC 20.	Yes
SBT-GW-1048	New monitoring well. Downgradient of AEC25 where uncontrolled filling has occurred close to Orchard Hill station site	Yes
SBT-GW-1063	New monitoring well. Level and groundwater EC monitoring to assess potential impact to GDE to east	No. Well not sampled as part of DSI. The primary purpose of this monitoring well was to assess groundwater levels and salinity in relation to potential impacts on a Groundwater Dependent Ecosystem located to the east. The location was not critical to the DSI and was not included in groundwater monitoring undertaken for the DSI. The location is to be sampled as part of the implementation of the Groundwater Monitoring Plan for the SBT Works.
SBT-GW-1064	New monitoring well. Level and groundwater EC monitoring to assess potential impact to GDE to east	No. Well not sampled as part of DSI. As noted in Section 10.5 in TTMP (2022) Orchard Hills Station Detailed Site Investigation. SMWSASBT-CPG-SWD-SW000-GE-RPT-040514. Rev A.05, SBT-GW-1064 was removed due to land access constraints. The primary purpose of this monitoring well was to assess groundwater levels and salinity in relation to potential impacts on a Groundwater Dependent Ecosystem located to the east. The location was not critical to the DSI.

Note 1: An attempt to locate the monitoring wells by TTMP and CPBG was undertaken in July 2022. The monitoring wells could not be located.

In summary, and as per Table 1, during the DSI five groundwater monitoring wells were installed (SBT-GW-1037, SBT-GW-1042, SBT-GW-1043, SBT-GW-1048 and SBT-GW-1063) and four (SMGW-BH-A372, SBT-GW-1037, SBT-GW-1042 and SBT-GW-1048) were sampled for chemical analysis. As the new groundwater well SBT-GW-1043 could not be accessed at the time of the DSI, nearby pre-existing groundwater monitoring wells SMGW-BH-A372 and SMGW-BH-A372-S were sampled in place of SBT-GW-1043. See Attachment 3 for the well locations.

The DSI Addendum reported the following key findings:

- No visual or olfactory signs of contamination was observed. No detections of light non-aqueous phase liquid (LNAPL) were identified.
- Dissolved metals including lead, nickel and zinc were detected at concentrations exceeding the adopted ecological criteria. The reported concentrations were representative of background conditions for the area.
- Total recoverable hydrocarbons (TRH), BTEX, polynuclear aromatic hydrocarbons (PAH), phenols, organochlorine pesticides (OCP) and organophosphorus pesticides (OPPs) were not detected, except for low concentrations of TRH $>C_{10}$-C_{16} (380 micrograms per litre (µg/L) and $>C_{16}$-C_{34} (300 µg/L) in SMGW-BH-A372.
- Ammonia was detected and the reported concentrations exceeded the adopted ecological screening criterion.
- PFAS were not detected in any of the sampling locations, except for a low 6:2 Fluorotelomer sulfonic acid concentration in SBT-GW-1037.

TTMP concluded in the DSI Addendum that:

> *"TTMP concluded in the DSI that the site can be made suitable for commercial/industrial land use as per the requirements of State Environmental Planning Policy (Hazards and Resilience) 2021.*
>
> *The additional groundwater collected for the site has not altered this conclusion. The additional groundwater further supports the findings of the DSI that there is a low risk from contamination in groundwater which requires management and/or remediation during construction.*
>
> *Groundwater dewatered during construction is to be treated to comply with Planning Condition E129 or an Environmental Protection License (EPL) approved by the NSW EPA. Groundwater abstracted during construction is to be managed in accordance with CPBGs Construction EMP and Soil and Water Management Plan".*

Auditor's Opinion: The Auditor makes the following additional observations on the DSI sampling results:

- The new groundwater monitoring wells were installed at 8 mbgl or 11 mbgl. The depth of installation was similar to the excavation depth proposed for the station box and dive structure excavation (10 mbgl).
- VOCs and semi-VOCs were also analysed in the DSI, and no detections were made above the laboratory detection limits.
- Although the existing wells SMGW-BH-A017, SMGW-BH-A113, SMGW-BH-A117 and SMGW-BH-A117S could not be located and therefore were not sampled during the DSI, they were sampled at least once in 2019, 2020 and/or 2021 and reported similar analytical results to the DSI. Based on the local land setting (a mixed residential and agricultural land use), the Auditor is of the opinion that significant changes in the groundwater conditions are unlikely to have occurred in these locations and monitoring results from the previous sampling events are expected to be representative of the current conditions.

- The laboratory detection limit adopted for perfluorooctane sulfonate (PFOS) in the DSI/DSI Addendum was greater than the HEPA (2020) criterion for 99% (0.00023 µg/L) but below the criterion for 95% (0.13 µg/L) freshwater species protection. Historically, PFOS concentrations exceeding the HEPA (2020) criterion for 99% freshwater species protection (and below 95% freshwater species protection) were reported in monitoring wells SMGW-BH-A310, SMGW-BH-A315 and SMGW-BH-A315S. These wells were located to the immediate west of the site (Figure 1, assumed up hydraulic gradient), which indicates that it is likely that the site groundwater contains PFAS. In consideration of the DSI monitoring results, the PFAS concentrations (if present) in site groundwater are likely to be low (above 99% but below 95% species protection criteria).
- Given the nearest surface water receptors (Blaxland Creek and South Creek) are not of high ecological conservation value, adopting the HEPA (2020) criterion for 99% freshwater species protection to assess PFAS concentrations in groundwater is likely to be conservative.

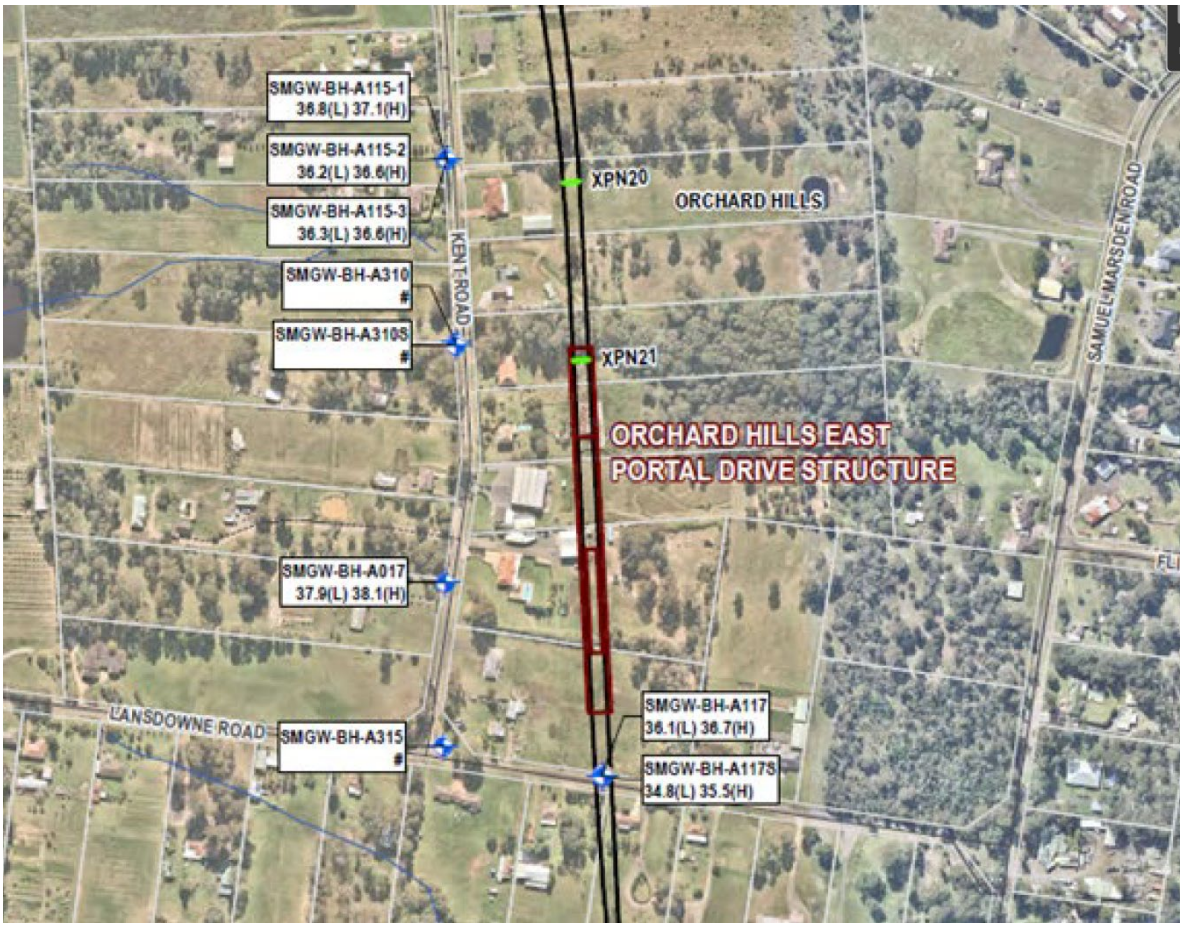


Figure 1: Locations of historical groundwater monitoring wells SMGW-BH-A310, SMGW-BH-A315/SMGW-BH-A315S (Source: the SAQP)

In summary, it is the opinion of the Auditor that the findings from the DSI Addendum were consistent with the historical monitoring data and indicated groundwater is unlikely to pose unacceptable risk to the environment. The proposed six-monthly groundwater monitoring, including monitoring of the newly installed wells SBT-GW-1043 and SBT-GW-1063, during construction will allow ongoing assessment of such risks.

The site groundwater is not expected to pose a potential risk to human health during construction. Implementation of standard work and safety procedures during construction will further minimise potential risks associated with groundwater if any.

5. Review of RAP

TTMP noted that the RAP was specific to the station box, portal dive and surface construction activities. The objectives of the RAP were to outline the requirements for spoil management and soil validation; and supplement controls covered under the existing project specific management plans including Soil and Water Management Sub-Plan, Waste and Recycling Management Sub-Plan, Spoil Management Sub-Plan and AMP. The Soil and Water Management Sub-Plan also includes an unexpected finds procedure if observations during earthworks indicate the presence of potential contamination.

The RAP identified the following aspects requiring management during the preparatory construction works and provided relevant management actions:

- Management of spoil excavated from the footprints of demolished structures (Section 5.3 of the RAP).
- Surplus spoil requires classification to enable beneficial reuse, or off-site disposal to a licensed landfill (Section 5.5 of the RAP).
- Soil validation requirements such as validation of soil exposed beneath former structures (Section 6.2 of the RAP).
- Assessment of imported materials (Section 7 of the RAP).

The RAP also required preparation of a Validation Report to document site suitability (Section 8 of the RAP).

The RAP did not include a remedial options assessment and remediation strategy as the DSI and DSI Addendum did not identify a remediation requirement.

Auditor's Opinion: The RAP has adequately met the requirements of the NSW EPA (2020) '*Contaminated Land Guidelines, Consultants Reporting on Contaminated Land'* with respect to the RAP objectives and noting that contamination requiring remediation has not been identified at the site. The management approach recommended in the RAP is considered adequate. If adequately implemented, the RAP should render the site suitable for generic commercial/industrial land use, however, successful validation of preparatory construction works will be required to confirm this.

5.1. Deed Compliance Summary

Table 2 has been prepared by the Auditor to document compliance with Clause 12.20 of the Deed. It is noted that a copy of the Deed has not been provided to the Auditor and Deed items in Table 5.1 are sourced from the RAP.

Table 2: Clause 12.20 Deed Compliance Assessment

Deed Clause	Deed Item	Auditor's Comments
12.20(a)	The SBT [Station Boxes and Tunnelling Works] Contractor must prepare and submit to the Principal's Representative and Independent Certifier a RAP in respect of the DSI performed in accordance with clause 12.19 prior to commencing any excavation activities (except in relation to Preliminary Works).	Outside Auditor's scope, however it is noted that a DSI and a RAP have been prepared.
12.20(b)	Except in relation to the RAP in respect of Orchard Hills East Station, the SBT Contractor may not submit a RAP unless and until the DSI report for the relevant area has been submitted to the Principal's Representative and has not been the subject of 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.	Outside Auditor's scope, however it is noted that a DSI and a RAP have been prepared.

Deed Clause	Deed Item	Auditor's Comments
12.20(c)(i)	Each RAP must describe the nature and extent of contamination based on the DSI, the Information Documents and any other relevant information which is necessary to characterise risk to the construction, operation and maintenance of Sydney Metro – Western Sydney Airport.	Section 3 of the RAP included a summary of previous site investigations, including the DSI.
12.20(c)(ii)	Each RAP must describe the manner in which the SBT Contractor will remediate contamination within the proposed areas of excavation and/or disturbance.	Section 4 of the RAP stated that '*Based on the findings of the DSI and nature of the Project, a remedial options assessment and remediation strategy is not considered relevant or warranted'*. The Auditor concurs with this. Sections 5-7 of the RAP included actions required for managing/validating surplus spoil, site soil and imported materials during construction.
12.20(c)(iii)	Each RAP must 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 areas 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 areas of excavation or disturbance	Not discussed in the RAP. However, Section 13 of the DSI presented a conceptual site model which identified contamination source, pathway and receptor linkages at the site and provided an adequate assessment of risks.
12.20(c)(iv)	Each RAP must present a preferred remediation option based on: A. Whole of life costs B. To the extent practicable, maintaining the overall D&C program C. Benefits (as far as is practicable based on available infrastructure design information) D. Compliance with this deed	Not applicable. Section 4 of the RAP noted that previous investigations completed within the site did not identify contamination that would trigger the need to undertake remediation at the site.
12.20(c)(v)	Each RAP must define what will constitute Remediation Practical Completion of the Remediation	Not explicitly stated, however Section 8 of the RAP noted that a validation report is to be completed following completion of site construction to confirm site suitability.
12.20(c)(vi)	Each RAP must 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 environmental risk assessment and any other requirement of this deed	Section 1.4 of the RAP outlined applicable legislation, guidelines, codes of practice and standards which were applicable to the RAP. A list of references was also provided in Section 9.
12.20(c)(vii)	Each RAP must be reviewed and approved by a certified contaminated land consultant	The version history page of the RAP indicated that the internal reviewer is a certified contaminated land consultant.
12.20(c)(viii)	Each RAP must be reviewed and endorsed by an Accredited Site Auditor	RAP has been reviewed and is considered appropriate.
12.20(c)(ix)	Each RAP must be accompanied by an interim site audit advice prepared by the accredited Site Auditor when submitted to the Principal's Representative and the Independent Certifier in accordance with clause 1.1(a)	RAP has been reviewed and endorsed as documented in this IAA. Submission is outside Auditor's scope of works.

Deed Clause	Deed Item	Auditor's Comments
12.20(c)(x)	Each Remediation Action Plan must include details of any Remediation completed during the performance of any Preliminary Works.	Previous investigations completed within the site did not identify contamination that triggered the need to implement remediation at the site prior to the commencement of Preliminary/Preparatory Works. To maintain/minimise the risks to human health and the environment during construction, the RAP outlined actions required for managing/validating site soil, surplus spoil and imported materials.
12.20(c)(xi)	Each Remediation Action Plan must consider and plan to mitigate the migration of Contamination from the Construction Site.	Sections 5 to 7 of the RAP included actions required for managing/validating site soil, surplus spoil and imported materials during construction. These actions if successfully implemented are expected to mitigate the migration of contamination from the site.
12.20(d)(i)	In addition to the requirements set out in clause 1.1(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: A. 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. 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 *Protection of the Environment Operations Act 1997* [POEO Act] including resource recovery exemptions and orders across the relevant area the subject of a 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.	Figures 2A, 2B and 2C in Appendix 1 of the RAP presented historical sampling locations completed at the site. The RAP also noted that: • Fill soils would be preliminary classified as General Solid Waste (non-putrescible) or Special Waste (Asbestos Waste). Natural soils would be provisionally classified as General Solid Waste (non-putrescible). • Surplus spoil was to be assessed to enable beneficial reuse or off-site disposal. The associated records are to be included in the Validation Report. • Plans which show waste classification of materials have been provided in TTMP (2022) *Material Classification Assessment: Orchard Hills Station Box* (Ref. SMWSASBT-CPG-SWD-SW000-GE-RPT-040533) 12 October 2022. This document, however, was not sighted by the Auditor.
12.20(d)(ii)	In addition to the requirements set out in clause 1.1(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 a detailed excavation plan that is consistent with the ACC Classification and Excavation Map prepared under clause 1.1(d)(i) describing the quantities in tonnes and cubic metres of each material, including a register in estimated tonnes and cubic metres of each waste classification of Solid Waste, proposed to be excavated and to be reused and/or disposed offsite (ACC Excavation Quantity Register);	Figure 3 in Appendix 1 of the RAP illustrated the Construction Footprint. The RAP also required the validation report to include: • Details on waste classification, tracking and off-site disposal. • Details on the reuse of materials on site.

Deed Clause	Deed Item	Auditor's Comments
12.20(d)(iii)	In addition to the requirements set out in clause 1.1(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 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.	Sections 5 to 7 of the RAP included actions required for managing soil, surplus spoil and imported materials during construction.
12.20(d)(iv)	In addition to the requirements set out in clause 1.1(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 precise details of how the validation of Remediation will be achieved and demonstrated.	Section 8 of the RAP noted that a Validation Report was to be developed following completion of site construction to confirm the site suitability.

Auditor's Opinion: As indicated in Table 5.1, the RAP contents have generally satisfied the relevant Deed requirements, noting that the required waste related documentation will be provided in the proposed Validation Report.

6. Conclusions and Recommendations

Overall, in the Auditor's opinion, investigation of the site has not identified the need for specific remediation of soil or groundwater, however, management actions are required to ensure any contamination identified during the construction works is dealt with appropriately to minimise risks to human health and the environment. The management approach recommended in the RAP is considered adequate. If adequately implemented, the RAP should render the site suitable for generic commercial/industrial land use, however, successful validation of preparatory construction works will be required to confirm this.

7. Limitations

This interim audit advice (IAA13) was conducted on behalf of CPBG for the purpose of assessing the suitability and appropriateness of a remedial action plan (RAP). This summary report may not be suitable for other uses.

The Auditor has relied on the documents referenced in Section 3 in preparing the Auditor's opinion. The consultants included limitations in their reports. This interim audit advice must also be subject to those limitations. The Auditor has prepared this document in good faith but is unable to provide certification outside of areas over which the Auditor had some control or is reasonably able to check. If the Auditor is unable to rely on any of those documents, the conclusions of this interim audit advice could change.

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

* * *

Consistent with the NSW EPA requirement for staged 'signoff' of sites that are the subject of progressive assessment, remediation and validation, I advise that:

- This advice letter does not constitute a Site Audit Report or Site Audit Statement.
- At the completion of the remediation and validation I will provide a Site Audit Statement and supporting documentation.

- This interim advice will be documented in the Site Audit Report.

Yours faithfully
Ramboll Australia Pty Ltd

[redacted]
EPA Accredited Site Auditor 1505

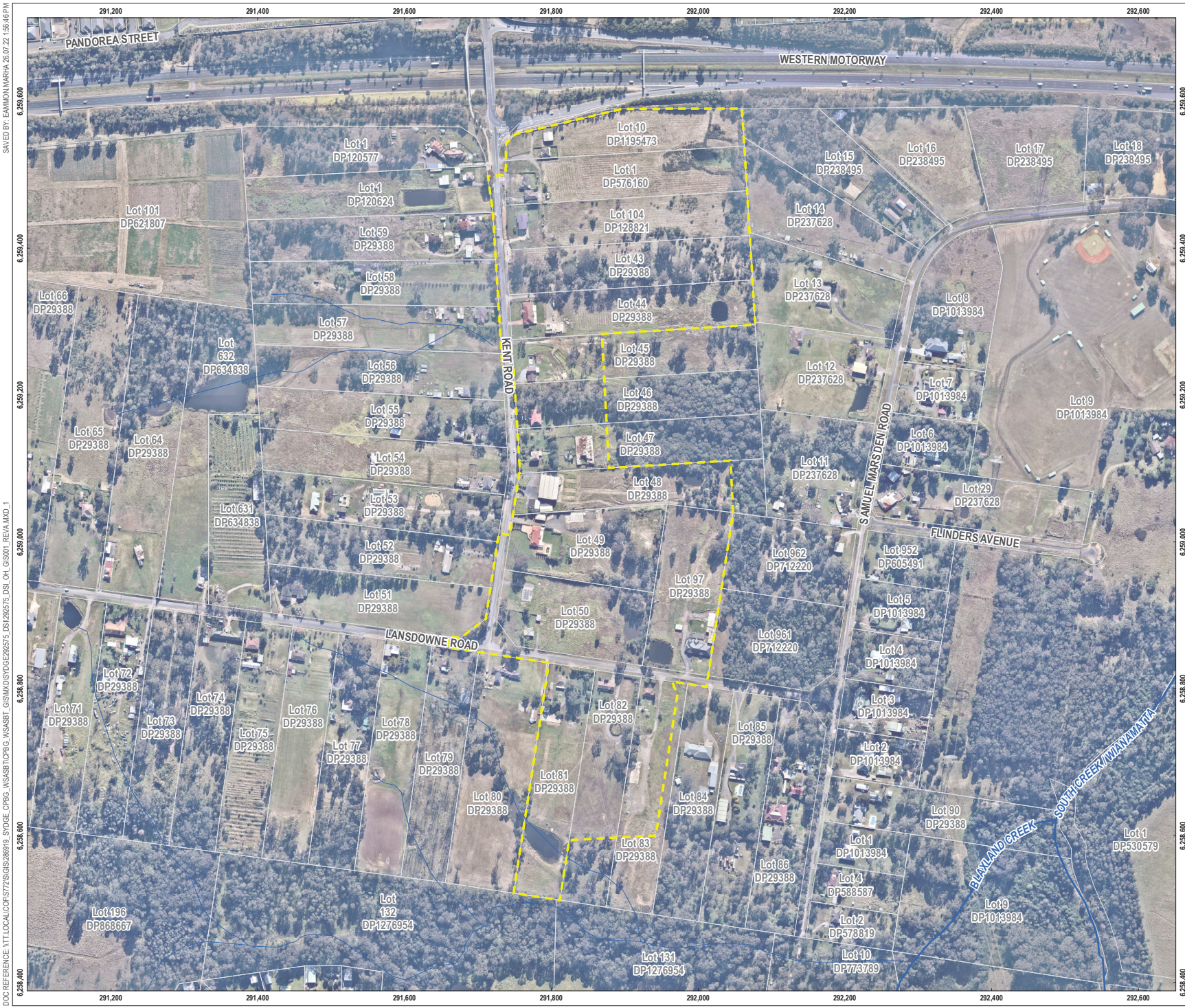
[redacted]

Attachment: 1 Site Locality and Layout

2 Cut and Fill Plan

3 Groundwater Monitoring Locations

Attachment 1: Site Locality and Layout



LEGEND

- Perennial Watercourse
- Non-perennial Watercourse
- Cadastral Boundary
- OH Site Boundary

SOURCE
Site boundary from Tetra Tech Coffey.
Watercourses and cadastre from DFSI.
Aerial imagery from Nearmap (capture date 14-06-2022).

0 100 200 m

SCALE **1:5,000**
PAGE SIZE: **A3**
PROJECTION: **GDA2020 MGA Zone 56**

CPB - GHELLA

WESTERN SYDNEY AIRPORT
STATION BOXES AND TUNNELLING WORKS

FIGURE 1

Site Location Plan -Orchard Hills Station and Portal Dive Structure

TETRA TECH COFFEY

DATE: 26.07.22 PROJECT: 754-SYDGE292575 FILE: 292575_DSI_OH_F001_GIS

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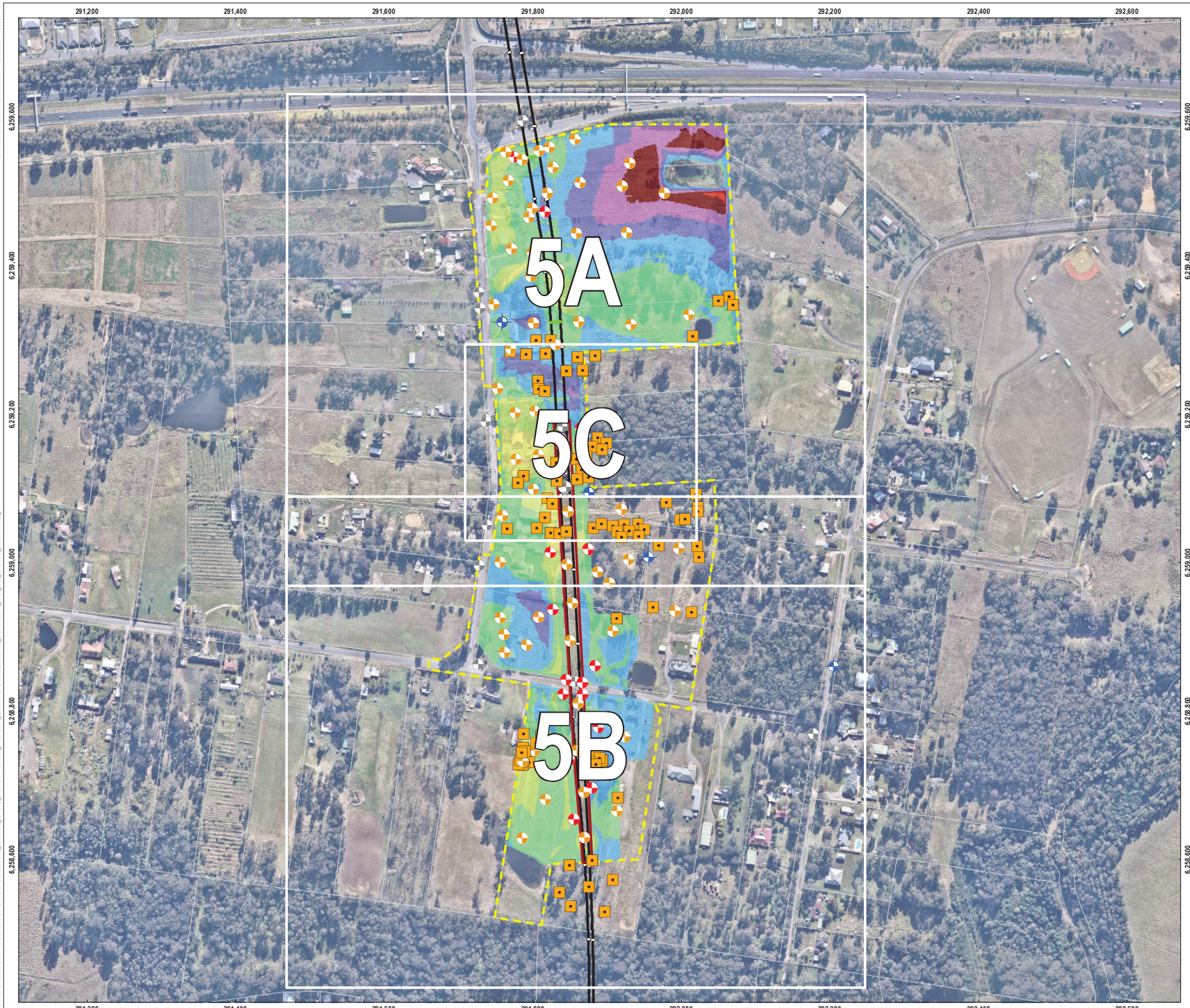
Attachment 2: Cut and Fill Plan



CPB CONTRACTORS

Ghella 1894 5 Generations of Tunnelers

LEGEND

Additional Contaminated Land Location
- Borehole
- Hand Sample

Additional Geotechnical/Hydrogeological Location
- Borehole
- Monitoring Well

Existing Investigation Location
- Borehole
- Tunnel Alignment
- Tunnel Alignment - Chainage
- Tunnel Alignment - Cross Passage
- Cadastral Boundary
- OH Site Boundary
- Station Box and Portal Dive Structure

Cut and Fill
- -4 m to -3 m
- -3 m to -2 m
- -2 m to -1 m
- -1 m to 0 m
- 0 m to 1 m
- 1 m to 2 m
- 2 m to 3 m
- 3 m to 4 m
- 4 m to 5 m

SOURCE
Contaminated land locations, additional investigations, site boundary, and hand samples from Tetra Tech Coffey.
Existing investigations, site layout, station box, cut/fill and alignment supplied by CPBG.
Cadastre from DFSI.
Aerial imagery from Nearmap (capture date 14-06-2022).

N

0 100 200 m

SCALE **1:5,000**
PAGE SIZE: **A3**
PROJECTION: **GDA2020 MGA Zone 56**

CPB - GHELLA

WESTERN SYDNEY AIRPORT
STATION BOXES AND TUNNELLING WORKS

FIGURE 5

Site Establishment Works - Orchard Hills Station and Portal Drive Structure

TETRA TECH COFFEY

DATE: **18.08.22** PROJECT: **754-SYDGE292575** FILE: **292575_DSI_OH_F005_GIS**

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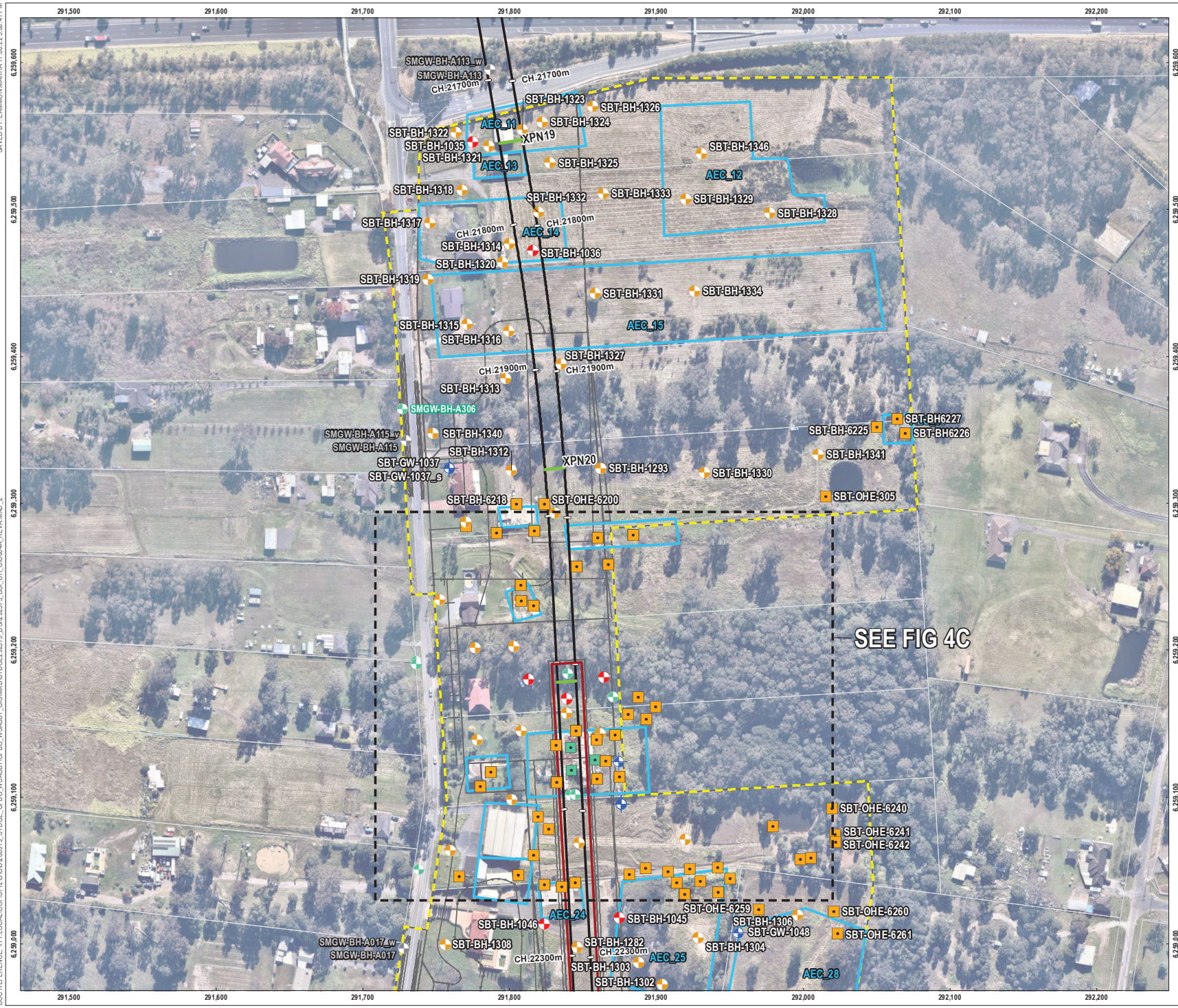
Attachment 3: Groundwater Monitoring Well Locations



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CPB CONTRACTORS

Ghella 1894 5 Generations of Tunnelers

LEGEND

Additional Contaminated Land Location
- Borehole
- Hand Sample

Additional Geotechnical/Hydrogeological Location
- Borehole
- Monitoring Well

Existing Investigation Location
- Borehole

Investigation Location - Cardno
- Borehole
- Hand Auger
- Tunnel Alignment
- Tunnel Alignment - Chainage
- Tunnel Alignment - Cross Passage
- Orchard Hills and Portal Dive Structure Site Layout
- Cadastral Boundary
- Areas of Environmental Concern
- OH Site Boundary
- Station Box and Portal Dive Structure

SOURCE
Contaminated land locations, additional investigations, site boundary, and hand samples from Tetra Tech Coffey.
Existing investigations, site layout, station box and alignment supplied by CPBG.
Investigation locations from Cardno.
Cadastre from DFSI.
Aerial imagery from Nearmap (capture date 14-06-2022).

N

0 50 100 m

SCALE **1:2,500**
PAGE SIZE: **A3**
PROJECTION: **GDA2020 MGA Zone 56**

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WESTERN SYDNEY AIRPORT
STATION BOXES AND TUNNELLING WORKS

FIGURE 4A

Contaminated Land Locations -Orchard Hills Station and Portal Dive Structure

TETRA TECH COFFEY

DATE: 17.08.22 PROJECT: 754-SYDGE292575 FILE: 292575_DSI_OH_F004A_GIS

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CPB CONTRACTORS

Ghella 1894 5 Generations of Tunnelers

LEGEND

Additional Contaminated Land Location
- Borehole
- Hand Sample

Additional Geotechnical/Hydrogeological Location
- Borehole
- Monitoring Well

Investigation Location - Cardno
- Borehole
- Hand Auger
- Tunnel Alignment
- Tunnel Alignment - Chainage
- Tunnel Alignment - Cross Passage
- Orchard Hills and Portal Dive Structure Site Layout
- Cadastral Boundary
- Areas of Environmental Concern
- OH Site Boundary
- Station Box and Portal Dive Structure

SOURCE
Contaminated land locations, additional investigations, site boundary, and hand samples from Tetra Tech Coffey.
Existing investigations, site layout, station box and alignment supplied by CPBG.
Investigation locations from Cardno.
Cadastre from DFSI.
Aerial imagery from Nearmap (capture date 14-06-2022).

N

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SCALE **1:1,000**
PAGE SIZE: **A3**
PROJECTION: **GDA2020 MGA Zone 56**

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WESTERN SYDNEY AIRPORT
STATION BOXES AND TUNNELLING WORKS

FIGURE 4C

Contaminated Land Locations -Orchard Hills Station and Portal Dive Structure

TETRA TECH COFFEY

DATE: 17.08.22 PROJECT: 754-SYDGE292575 FILE: 292575_DSI_OH_F004C_GIS

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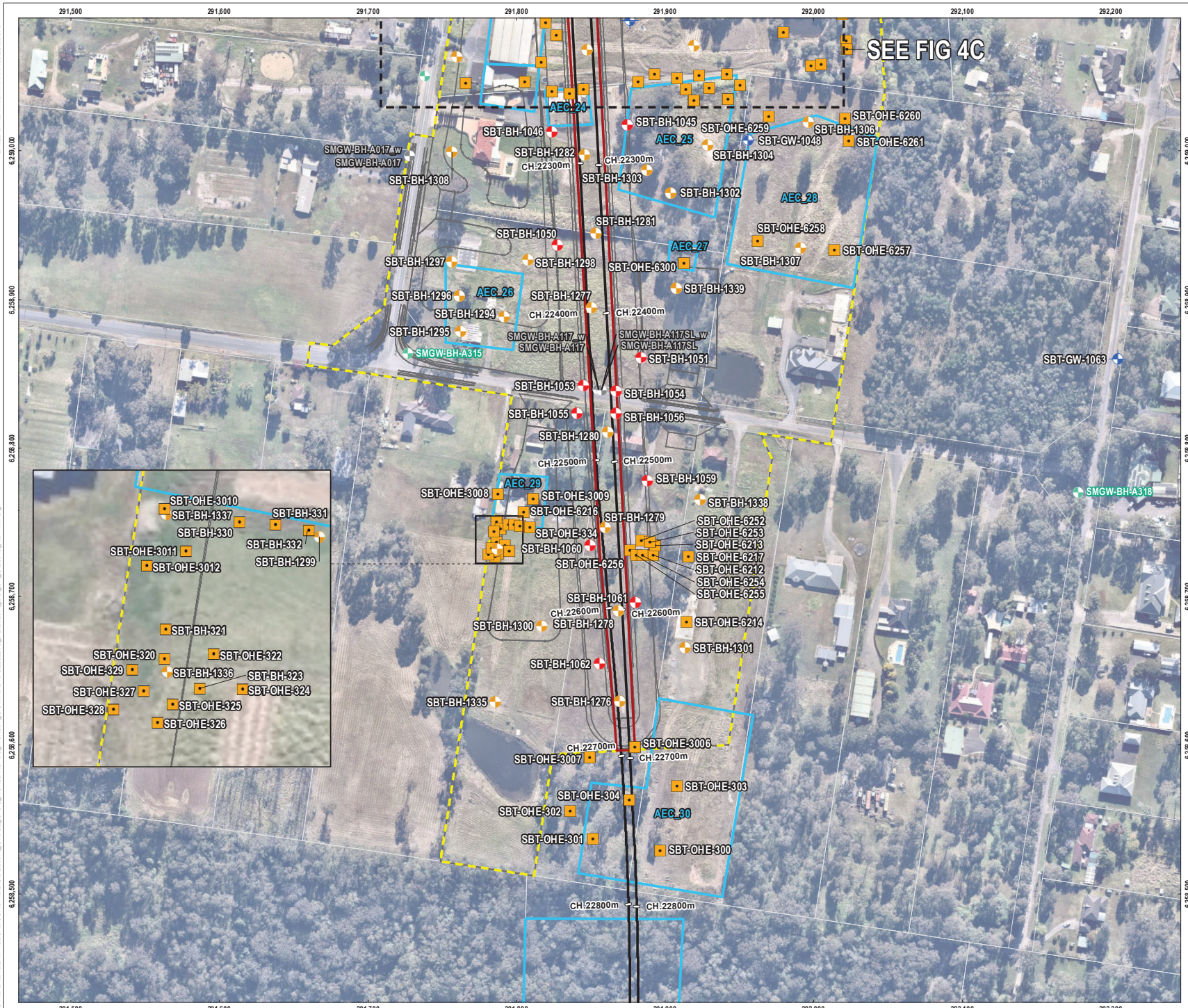

CPB CONTRACTORS

Ghella 1894 5 Generations of Tunnelers

LEGEND

Additional Contaminated Land Location
- Borehole
- Hand Sample

Additional Geotechnical/Hydrogeological Location
- Borehole
- Monitoring Well

Existing Investigation Location
- Borehole

Investigation Location - Cardno
- Borehole
- Tunnel Alignment
- Tunnel Alignment - Chainage
- Orchard Hills and Portal Dive Structure Site Layout
- Cadastral Boundary
- Areas of Environmental Concern
- OH Site Boundary
- Station Box and Portal Dive Structure

SOURCE
Contaminated land locations, additional investigations, site boundary, and hand samples from Tetra Tech Coffey.
Existing investigations, site layout, station box and alignment supplied by CPBG.
Investigation locations from Cardno.
Cadastre from DFSI.
Aerial imagery from Nearmap (capture date 14-06-2022).

N

0 50 100 m

SCALE **1:2,500**
PAGE SIZE: **A3**
PROJECTION: **GDA2020 MGA Zone 56**

CPB - GHELLA

WESTERN SYDNEY AIRPORT
STATION BOXES AND TUNNELLING WORKS

FIGURE 4B

Contaminated Land Locations -Orchard Hills Station and Portal Dive Structure

TETRA TECH COFFEY

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