

Upper South Creek

Advanced Water Recycling Centre and Pipelines

Soils & Contamination
CEMP Sub-plan

Document Number: USCP-JHG-MPL-ENV-0003
Revision: B



Revisions and Distribution

Recommend Documents to be Read in Conjunction

This management plan is to be read in conjunction with the Construction Environmental Management Plan (USCP-JHG-MPL-ENV-0008), Surface Water & Groundwater CEMP Sub-plan (USCP-JHG-MPL-ENV-0001) and Air Quality CEMP Sub-plan (USCP-JHG-MPL-ENV-0009).

Distribution

There are no restrictions on the distribution or circulation of this CEMP Sub-plan within John Holland.

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Authorised By:	Richard Ioffrida (Project Director)
Date:	
Prepared and reviewed by:	Peter Lavelle (CEnvP SC (EIANZ))
Date:	

Revisions

Draft issues of this document shall be identified as Revision 01, 02, 03 etc. Upon initial issue (generally Contract Award) this shall be changed to a sequential number commencing at Revision A. Revision numbers shall commence at Rev. A, B etc.

Date	Rev	Remarks	Section	Prepared By	Reviewed By & Approved By
27.01.2023	01	Initial draft for John Holland and Sydney Water review	All	SM	AH
22.02.2023	02	Updated to incorporate SWC review comments	All	BD / NR / IB	AH
06.03.2023	03	Updated to incorporate SWC final review comments	All	AH	AH
11.03.2023	04	Updated to incorporate SWC final review comments	All	AH	AH
14.04.2023	05	Updated to incorporate ER and Auditor comments	All	DOB	AH
04.05.2023	06	Updated to incorporate ER, Auditor and agency consultation	All	MS	AH
08.05.2023	07	Updated to incorporate ER comments and CEnvP SC endorsement	All	PL / MS	AH / PL
23.06.2023	08	Updated to incorporate DPE comments	All	MS	AH
12.07.2023	09	Updated to incorporate DPE comments	Section 7	MS	AH
02.08.2023	10	Updated to incorporate Commonwealth review	All	AH	AH
22.08.2023	A	Issued for construction	All	MS	DOB
19.08.2024	B	Annual Review Update	All	BD / RM / PL	AH / PL

3 December 2024



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Dear Cheryl,

Subject: Environmental Representative (ER) review and approval – Revised Soils and Contamination CEMP Sub-plan, Revision B

SSI-8609189 – Upper South Creek Advanced Water Recycling Centre

Pursuant to SSI-8609189 Condition A28(j), I have reviewed the revised Soils and Contamination Construction Environmental Management Plan (CEMP) Sub-plan (SCCSP) which has been updated following an annual review. Changes include updated figures / site mapping, references to relevant conditions of the Environment Protection Licence (EPL 21800), including the most recent changes as per EPL 21800 variation dated 11/04/2024, and other minor administrative changes.

Complete details of the reviewed documents as follows:

- Upper South Creek Advanced Water Recycling Centre and Pipelines – Soils and Contamination CEMP Sub-plan Document No: USCP-JHG-MPL-ENV-0003, Revision B, dated 19/08/2024.

It is noted that the SCCSP Revision B was reviewed by the Site Auditor, engaged under SSI-8609189 Condition E74, who had no comments and found the document to be adequate (email correspondence dated 25/11/2024).

As the approved Environmental Representative (ER) for the Upper South Creek Advanced Recycling Centre Project, I am satisfied the amendments are administrative in nature and are consistent with the terms of the Project Approval (SSI-8609189) and the CEMP, CEMP Sub-plans and monitoring programs approved by the Planning Secretary. I therefore approve the minor amendments to the above listed documentation.

Please feel free to contact me if you require anything further or would like to discuss.

Yours sincerely,

A handwritten signature in blue ink, appearing to read "Ben Bracken", written over a light blue circular stamp.

Ben Bracken

Environmental Representative
Upper South Creek Advanced Water Recycling Centre Project
BBEnviro Pty Ltd

Phone: 0410 409 897 Email: ben.bracken@bbenviro.com.au

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Glossary & Abbreviations

Abbreviations	Meaning
ACM	Asbestos Containing Materials
AEC	Area of Environmental Concern
AEP	Annual Exceedance Probability
Amendment Report	Upper South Creek Advanced Water Recycling Centre Amendment Report (March 2022)
Amendment RtS	Upper South Creek Advanced Water Recycling Centre Submissions Report – project amendments (April 2022)
ASS	Acid Sulfate Soil
AWRC	Advanced Water Recycling Centre
BC Act	Biodiversity <i>Conservation Act</i> 2016
BoM	Bureau of Meteorology
BTEX	Benzene, Toluene, Ethylbenzene and Xylene
CEMP	Construction Environmental Management Plan
CPESC	Certified Professional in Erosion and Sediment Control
CSEP	Community & Stakeholder Engagement Plan (project-specific compliance tool to address the requirements of MCoA B1 and B2)
CSSI	Critical State Significant Infrastructure
CoA	Minister's Conditions of Approval
COPC	Chemicals of Potential Concern
DPHI	NSW Department of Planning, Housing and Infrastructure
DPI	NSW Department of Primary Industries
EA	Environmental Assessment
ESCP	Erosion and Sediment Control Plan
EEC	Endangered Ecological Community
EHG	Environment and Heritage Group (a division of the NSW Department of Planning and Environment)
EIS	Upper South Creek Advanced Water Recycling Centre Environmental Impact Statement (September 2021)
EIS RtS	Upper South Creek Advanced Water Recycling Centre Submissions Report (March 2022)
Environmental aspect	Defined by AS/NZS ISO 14001:2015 as an element of an organisation's activities, products or services that can interact with the environment.
Environmental impact	Defined by AS/NZS ISO 14001:2015 as any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organisation's environmental aspects.
Environmental objective	Defined by AS/NZS ISO 14001:2015 as an overall environmental goal, consistent with the environmental policy, that an organisation sets itself to achieve.
Environmental target	Defined by AS/NZS ISO 14001:2015 as a detailed performance requirement, applicable to the organisation or parts thereof, that arises from the environmental objectives and that needs to be set and met in order to achieve those objectives.
EPA	NSW Environment Protection Authority
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EPBC Act	<i>Environmental Protection and Biodiversity Conservation Act 1999</i>
ER	Environmental Representative
EWMS	Environmental Work Method Statements
Feasible and reasonable	Consideration of best practice taking into account the benefit of proposed measures and their technological and associated operational application in the NSW and Australian context. Feasible relates to engineering considerations and what is practical to build. Reasonable relates to the application of judgement in arriving at a decision, taking into account mitigation benefits and cost of mitigation versus benefits provided, community views and nature and extent of potential improvements.
m bgl	Meters below ground level
OCP	Organochlorine Pesticides
OPP	Orthophenylphenol

Abbreviations	Meaning
PAH	Polycyclic Aromatic Hydrocarbons
PCB	Polychlorinated Biphenol
PESCP	Progressive Erosion and Sediment Control Plan
PFAS	Per and Polyfluoroalkyl substances
PIRMP	Pollution Incident Response Management Plan
PMF	Probable Maximum Flood
POEO Act	<i>Protection of the Environment Operations Act 1997</i>
Project, the	Upper South Creek – Advanced Water Recycling Centre and Pipelines Project
RUSLE	Revised Universal Soil Loss Equation
SCCSP	Soils and Contamination CEMP Sub-Plan (this document)
SMART principles	Specific, Measurable, Achievable, Realistic and Timely principles
SWC	Sydney Water Corporation (the client and Proponent)
TRH	Total Recoverable Hydrocarbons
TW	Treated Water
UMM	Updated Management Measures
USC	Upper South Creek

1 Introduction

1.1 Context

This Soils and Contamination CEMP Sub-plan (SCCSP) forms part of the Construction Environmental Management Plan (CEMP) for Upper South Creek Advanced Water Recycling Centre (AWRC) and Pipelines project (refer to herein as the project).

This SCCSP has been prepared to address the requirements of:

- Minister's Conditions of Approval (CoA),
- *Upper South Creek Advanced Water Recycling Centre Environmental Impact Statement* (EIS) (September 2021)
- *Upper South Creek Advanced Water Recycling Centre Submission Report* (March 2022)
- *Upper South Creek Advanced Water Recycling Centre Amendment Report* (March 2022)
- *Upper South Creek Advanced Water Recycling Centre Submissions Report – Project Amendments* (April 2022)
- Response to DPHI RFI 1, regarding responses to advice received on the Response to Submissions Report (dated 01 June 2022, 01 July 2022 and 11 July 2022)
- Response to DPHI RFI 2, regarding additional information on Flood Impact Assessment (dated 11 July 2022)
- Modification of Infrastructure Approval CSSI 8609189, 26 May 2023 (herein referred to as Mod 1)
- Infrastructure Sustainability Council Technical Manual version 2.1 (ISC 2.1) requirements
- Commonwealth Activity Approval (EPBC 2020/8816)
- Modification of Infrastructure Approval CSSI 8609189, 10 October 2023 (herein referred to as Mod-2)
- Environmental Protection License (EPL 21800) including approved variations on 24/11/2023 and 11/04/2024; and
- All applicable legislation.

The USC project will be built in stages, consisting of:

Stage 1

- building and operating the AWRC to treat a daily wastewater flow, known as the average dry weather flow (ADWF), of up to 50 megalitres per day (ML/day); and
- building the treated water and brine pipelines to cater for up to 100 ML/day flow coming through the AWRC (but only operating them to transport and release volumes produced by Stage 1).

Future Stages

It is expected that the AWRC will ultimately require expansion to treat wastewater flows up to 100 ML/day. Sydney Water will remain flexible on the size and timing of these future upgrades to accommodate changes in population projections over time. Future stages will be subject to further environmental assessment.

Further detail on project staging is provided in the EIS. This SCCSP applies to Stage1 detailed design, construction and commissioning only. John Holland has been appointed by Sydney Water to deliver the USC project works, including detailed design and construction for treating an operational daily wastewater flow of up to 35ML/day. Greater flow capacities (including up to 50ML/day and 100ML/day), as explored in the EIS, are not covered in this SCCSP.

1.2 Background and Project Description

A comprehensive project description, including staging of the project, is outlined in Sections 1.1 to 1.3 of the CEMP which includes an overview of the project site and associated pipelines. Figures 1.1a, 1.2b and 1.2 includes an overview of the AWRC site.

As part of the EIS development, a detailed assessment was undertaken to identify the key issues related to the potential soils and contamination impacts of the construction and operation of the project.

The assessment is included in section 9.5 of the EIS and in Appendix N (Soils and Contamination Land Impact Assessment). No additional soils and contamination impact assessments were included in the scope of the Amendment Report.

Previous investigations undertaken by Aurecon as part of the EIS did not identify widespread contamination within the project area. A total of 16 low and moderate areas of environmental concern (AEC) were identified. A summary of identified AECs and associated contamination is presented within Section 4.2.

Based on information from previous assessments, the primary contaminant of concern is asbestos, which has been found in localised areas on the AWRC site (around current and former structures), and in several other locations within the vicinity of the pipeline alignments.

Other sources of potential contaminants near project infrastructure includes landfills and service stations, however, as detailed within previous assessments the interaction between these and the project is limited or non-existent. It is also possible that other unexpected contamination could be found during construction. Details of potential and identified contamination is provided in Section 4.2.

It is noted that prior to the commencement of works, a Sampling and Analysis Quality Plan (SAQP) detailing the requirements for a subsequent Detailed Site Investigation (DSI) is to be prepared and implemented. It is further noted that the SAQP, DSI report, this SCCSP and other required updates to site management / remedial works plans, etc require review and endorsement by the NSW EPA accredited Site Auditor (Andrew Lau – NSW EPA Accreditation No. 0503) engaged for the project.

1.3 Purpose

The purpose of this SCCSP is to outline the Project's approach to implement measures to minimise and manage soil and contamination risks during construction in accordance with the Project's legal, planning, and contractual requirements. Potential soil and contamination impacts resulting from project activities requiring management during construction (including cumulative impacts), as identified through ongoing environmental risk analysis, will be managed through **SMART** principles:

- **Specific** – mitigation and management measures explored in Section 6 of this Plan specifically speak to JH's approach to managing soils and contamination risks during construction.
- **Measurable** – Inspection and monitoring requirements detailed in Section 7 of this Plan include specific measures or indicators for which inspection and monitoring requirements will be triggered.
- **Achievable** – Ongoing compliance with relevant CoAs and UMM requirements (sections 3.2 and 3.3, respectively), is achievable throughout the delivery of the USC construction work and represents the minimum requirements to be implemented by JH.
- **Relevant** - The management measures outlined in Section 6 of this Plan represent JH's approach to monitoring and tracking against the objectives, targets and environmental performance outcomes (which are identified in Section 2 of this Plan).
- **Time-bound** – On a broader scale, the management measures set out within Section 6 of this Plan are required to be implemented for the duration of construction, setting a clear and defined time frame and includes reference to other temporal applications, including during *detailed design, pre-construction, post-construction and/or operation*.

1.4 SCCSP Development and Approval

Peter Lavelle of Environmental Resources Management Australia Pty Ltd (ERM) has been involved in the preparation, oversight and review of this SCCSP. Peter is a Contaminated Land Consultant certified under the Environment Institute of Australia and New Zealand's Certified Environmental Practitioner scheme as a Site Contamination specialist (CEnvP (SC)).

A NSW Environment Protection Authority (EPA) accredited Site Auditor has been engaged by Sydney Water for the project. Following review of the SCCSP, the Site Auditor will issue an interim audit advice or a relevant site audit statement stating that the SCCSP is considered adequate for the construction of the project. Relevant outcomes or recommendations from the review process will be incorporated into the SCCSP.

As per CoA C3, The SCCSP must be endorsed by the ER and then submitted to DPE for approval no later than one month before the commencement of construction. Construction must not commence until the SCCSP has been approved by DPE.

1.5 Relationship to Other Plans

The SCCSP details measures and requirements to manage soils and contamination during the construction phase of the project works. Measures and requirements to manage surface water and groundwater quality and potential impacts of the project are documented within the Surface Water and Groundwater CEMP Sub-plan (SWGCSPP). Soil management for the project is included within this plan, however detailed erosion and sediment control requirements and measures are included within the SWGCSP. Measures and requirements to manage waste, including contaminated waste are documented within the Waste and Resource Use CEMP Sub-plan (WRUCSP). The identification of opportunities and risks related to the minimisation and beneficial reuse of project soils (where appropriate and legally permissible), including contaminated material is documented and managed within the Resource Efficiency Strategy and Action Plan (RES-AP). The mechanisms for managing contaminated material remain the purpose of the SCCSP.



Figure 1-1a Indicative overview of the project site (AWRC) and treated water pipeline

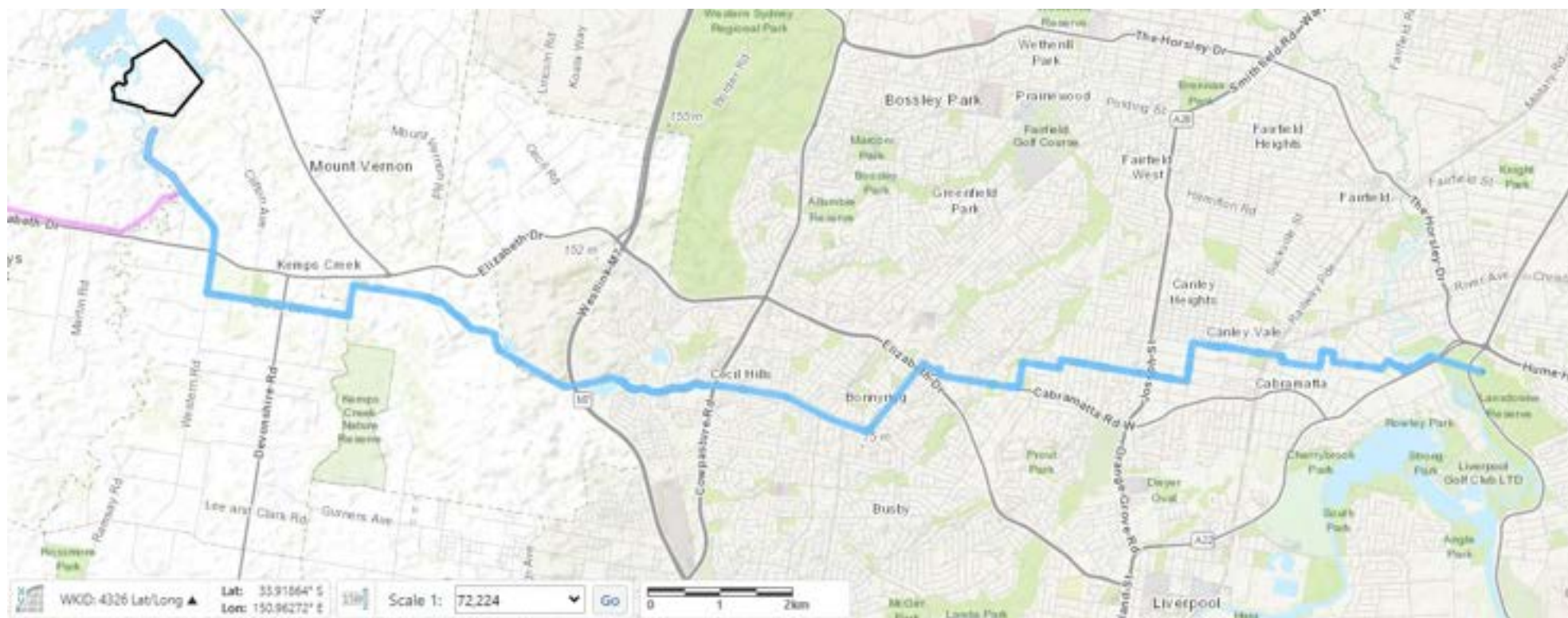


Figure 1-1b Indicative overview of the project site (AWRC) and brine pipe



2.1 Objectives

- Ensure that all avoidance, mitigation and management measures relevant to soils and contamination risks during construction referred to in the planning approvals (Section 1.1) are adopted and implemented.
- Document the procedures to manage construction work activities to avoid or minimise potential contamination and soil impacts, including management of acid sulfate soils and sodic and saline soils.
- Ensure that potentially contaminated sites are identified, assessed and managed in accordance with legislative and project specific requirements.
- Ensure that migration of contamination off the project site does not occur as a result of construction activities associated with the project.
- Define a pathway to manage identified moderate to high risk areas of contamination and make suitable for the final intended land use.
- Manage any unexpected finds of contaminated material in a manner that minimises risk to human health and the environment.

- The Environmental Impact Statement (EIS) prepared for the Upper South Creek Advanced Water Recycling Centre Project
- The Response to Submissions (RtS) Report prepared for the Upper South Creek Advanced Water Recycling Centre Project
- The Amendment Report prepared for the Upper South Creek Advanced Water Recycling Centre Project
- The Relevant Response to RFI (44447594) – flooding (11 July 2022)
- The relevant Minister’s Conditions of Approval and Updated Management Measures (UMMs)
- Commonwealth Controlled Activity Approval (EPBC 2020/8816)
- Environmental Protection License (EPL 21800)
- Sydney Water Management Specification
- Infrastructure Sustainability Council Technical Manual version 2.1 (ISC 2.1) requirements
- Legislative requirements detailed in Section 3 of this SCCSP.

2.2 Targets

The following targets have been established for the management of potential soils and contamination impacts during the construction of the project:

- Ensure no non-compliance with the relevant legislative requirements, CoA, UMMs and Commonwealth approval.
- No pollution events caused by the mobilisation of soils. Achieved through implementing controls and remediation strategies to reduce impacts from soil and contamination disturbance on the environment.
- Training to be provided in the form of inductions and toolboxes to all project personnel on soils and contaminated land risks and unexpected finds procedures before they begin work on site.
- No non-compliance with John Holland Global Mandatory Requirements.

2.3 Environmental Performance Outcomes

Environmental performance outcomes have been developed that are consistent with the various project approval documents. Only the environmental performance outcomes specific to this SCCSP have been presented in Table 2.1 below.

Table 2.1 Environmental performance outcomes relevant to the SCCSP.

Desired Performance Outcome (Early and Enabling Works)	How Performance Outcomes Would be Achieved	Measurement Tool
<p>Soils and contamination</p> <p>The environmental values of land, including soils, subsoils and landforms, are protected.</p> <p>Risks arising from the disturbance and excavation of land and disposal of soil are minimised, including disturbance to acid sulfate soils (ASS), saline and sodic soils and site contamination.</p>	<p>Manage ASS, saline and sodic soils in accordance with guidelines presented in this plan.</p> <p>Manage contamination to protect environmental values and human health.</p> <p>Erosion and sediment controls will be implemented as per the Surface Water and Groundwater CEMP sub-plan, including in accordance with the 'Blue Book'.</p>	<p>Construction activities will be managed in accordance with this plan to meet the project's soils and contamination performance outcomes.</p> <p>Further detail is provided in Section 6 of this SCCSP in regard to environmental mitigation and management measures; Section 7.3 monitoring and inspections.</p>

3 Legislative and Guidance Requirements

3.1 Relevant Legislation and Guidelines

3.1.1 Legislation

All legislation relevant to this SCCSP is included in Appendix A3 of the CEMP.

3.1.2 Guidelines and Standards

The main guidelines, specifications and policy documents relevant to this plan include:

- Acid Sulfate Soil Manual (ASSMAC 1998).
- Assessment and Management of Hazardous Ground Gases (NSW EPA 2020).
- National Acid Sulfate Soils Guidance: National acid sulfate soils sampling and identification methods manual (Water Quality Australia, 2018).
- Guidelines for the Assessment and Management of Groundwater Contamination (NSW EPA 2007).
- Guidelines for the Assessment and Management of Sites Impacted by Hazardous Ground Gases (NSW EPA 2012).
- Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997 (NSW EPA 2015).
- Guidelines for the NSW Site Auditor Scheme (Third Edition) (NSW EPA 2017).
- Guidelines for Consultants Reporting on Contaminated Land (NSW EPA 2020).
- Guidelines for developments adjoining land and water managed by the Department of Environment, Climate Change and Water (DECCW 2010c).
- Managing Urban Stormwater: Soils and Construction Volume 1 and Volume 2 (A. Installation of Services; B. Waste Landfills; C. Unsealed Roads; D. Main Roads; E. Mines and Quarries), (Landcom, 2004)
- National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013).
- Salinity Training Handbook and NSW guidelines for salinity management (NSW DPI 2014).
- Sampling Design Guidelines for Contaminated Land (NSW EPA 2020).
- The land and soil capability assessment scheme: Second approximation (OEH 2012).
- Technical Guidance for Achieving Wianamatta South Creek Stormwater Management Targets (DPE 2022)
- Waste Classification Guidelines – Part 1 to Part 4 (NSW EPA 2014).
- Western Sydney Aerotropolis Development Control Plan – Phase 2 (October 2021)
- Australian Spill Control Industry Standard for Spill Response Kits (ASCIS 2695)
- Water Quality Guidelines, ANZG 2018
- Fairfull, S. and Witheridge, G. (2003) Why do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings. NSW Fisheries, Cronulla, 16 pp.
- *NSW Fisheries, November 2003. Fishnote – Policy and Guidelines for Fish Friendly Waterway Crossings* (Ref: NSWFW – 1181)
- Stockpile Site Management Guideline (Roads and Maritime 2011)
- Environmental Best Management Practice Guideline for Concreting Contractors, DEC, 2004
- *NSW Water Quality Objectives*
- Guidelines for controlled activities on waterfront land Riparian corridors, NSW Department of Industry, 2018

The CoAs relevant to this Plan are listed in Table 3.1 below. A cross reference is also included to indicate where the condition is addressed in this Plan or other project management documents.

CoA No.	Condition Requirements	How addressed
A43	The Planning Secretary must be notified via the Major Projects Website as soon as possible and no later than 12 hours after the Proponent becomes aware of an incident. The notification must identify the CSSI (including the application number and the name of the CSSI if it has one) and set out the location and nature of the incident.	Section 7.5 Section 3.7 Appendix B
A45	The Planning Secretary must be notified via the Major Projects Website within seven days after the Proponent becomes aware of any non-compliance. The notification must identify the CSSI (including the application number and the name of the CSSI if it has one), identify the condition/s against which the CSSI is non-compliant, the nature of the non-compliance; the reason for the non-compliance (if known) and what actions have been, or will be, undertaken to address the non-compliance.	Section 3.8.1 of the CEMP Section 7.5
C3	The CEMP (and relevant CEMP sub-plans) must be endorsed by the ER and then submitted to the Planning Secretary for approval no later than one month before the commencement of construction, or where construction is staged, no later than one month before the commencement of each stage.	Section 1.4
C4	The following CEMP Sub-plans must be prepared in consultation with the relevant government agencies identified for each CEMP Sub-plan. Details of all information requested by an agency during consultation must be provided to the Planning Secretary as part of any submission of the relevant CEMP Sub-plan, including copies of all correspondence from those agencies as required by Condition A9. (c) Soils and Contamination – Agencies to be consulted: EPA and relevant councils	This SCCSP
C5	a. The CEMP Sub-plans must state how: the environmental performance outcomes identified in the documents listed in Condition A1 will be achieved; b. the mitigation measures identified in the documents listed in Condition A1 will be implemented; c. the relevant terms of this approval will be complied with; and d. issues requiring management during construction (including cumulative impacts), as identified through ongoing environmental risk analysis, will be managed through SMART principles.	CEMP Appendix A1 a. Section 2 b. Section 6 c. Section 6 and 7 d. Section 1.3
C8	The Soils and Contamination CEMP Sub-Plan must be prepared by a Contaminated Land Consultant certified under either the Environment Institute of Australia and New Zealand's Certified Environmental Practitioner (Site Contamination) scheme (CEnvP (SC)) or the Soil Science Australia Certified Professional Soil Scientist Contaminated Site Assessment and Management (CPSS CSAM) scheme. The Soils and Contamination CEMP Sub-Plan must include measures to address any contamination found during construction. The Soils and Contamination CEMP Sub-Plan must include (but not limited to): a. details of construction activities and their locations which have the potential to expose areas known to contain, or potentially contain, contaminated soils and/or other contaminated materials; b. measures for the handling, treatment and management of hazardous and contaminated soils and materials, including measures to manage and/or minimise worker and public health and safety risks with regard to exposure to contamination; c. a description of how the effectiveness of the actions and measures for managing contamination impacts would be monitored during the proposed works, clearly indicating how often this monitoring would be undertaken, the locations where monitoring would take place, and how the results of the monitoring would be recorded and reported;	Section 1.4 a. Section 5 b. Section 6 c. Section 7.3 d. Section 7.3 e. Section 4.1.3, Section 6.3, Appendix C f. Appendix C g. Appendix C

CoA No.	Condition Requirements	How addressed
	<p>d. measures to identify contamination during Works;</p> <p>e. measures to manage acid sulfate soils;</p> <p>f. measures to manage asbestos finds; and</p> <p>g. measures to detail unexpected finds consistent with the Unexpected Finds Procedure for Contamination required under Condition E88. The procedure must include details of who will be responsible for implementing the Unexpected Finds Procedure for Contamination and the roles and responsibilities of all parties involved.</p> <p>The Soils and Contamination CEMP Sub-Plan must be reviewed by the Site Auditor engaged under Condition E74. The Site Auditor must issue interim audit advice or a relevant site audit statement stating whether they consider the Soils and Contamination CEMP Sub-Plan to be adequate. Once reviewed by the Site Auditor and approved by the Planning Secretary, the Soils and Contamination CEMP Sub-Plan must be implemented throughout the duration of construction.</p>	Section 1.2
C11	Construction must not commence until the CEMP and all CEMP Sub-plans have been approved by the Planning Secretary.	Section 1.4
E72	Prior to the commencement of any Work, erosion and sediment controls must be installed and maintained, as a minimum, in accordance with the publication <i>Managing Urban Stormwater: Soils & Construction</i> (4th edition, Landcom 2004) commonly referred to as the 'Blue Book'. In the South Creek catchment, controls must also be in accordance with the construction phase targets and sediment and erosion control design principles outlined in the <i>Technical Guidance for Achieving Wianamatta South Creek Stormwater Management Targets</i> (DPE, 2022).	<p>Section 6.1</p> <p>Details regarding erosion and sediment control and management is addressed in the SWGCSP.</p>
E73	The Proponent must engage a Certified Professional in Erosion and Sediment Control (CPESC) with minimum five years' experience to oversee all construction and sediment controls required for the AWRC.	<p>Section 6.1</p> <p>Details regarding erosion and sediment control and management is addressed in the SWGCSP.</p>
E74	<p>A NSW EPA accredited Site Auditor(s) must be engaged before the commencement of contamination investigations until the completion of construction to ensure that any Work required in relation to contamination is appropriately managed. The Site Auditor is to be provided with all documentation relevant to the consideration of contamination risk and the management of contamination for the project, including previous site audits and site audit statements. The Site Auditor is to review all relevant documentation and provide a written opinion on the contamination risk and the appropriateness of the reports and any proposed management measures of the site, including (but not limited to):</p> <p>a. the contamination aspects of management and monitoring plans in Conditions C1 and C4 including any updates or amendments to those plans;</p> <p>b. the review of the Proponent's risk rating for Areas of Environmental Concern (AECs) in Condition E76;</p> <p>c. Sampling and Analysis Quality Plan in Condition E77;</p> <p>d. Detailed Site Investigation Report(s) in Condition E79;</p> <p>e. Remedial Action Plans in Condition E83;</p> <p>f. Unexpected Finds Procedure for Contamination in Condition E88; and</p> <p>g. Post-remediation validation reports.</p>	<p>Section 7.1.1</p> <p>Section 1.2</p> <p>a. Section 6.5</p> <p>b. Section 5.2.1</p> <p>c. Section 6.5</p> <p>d. Section 6.5</p> <p>e. Section 6.5</p> <p>f. Appendix C</p> <p>g. Section 6.5</p>
E75	Evidence that the NSW EPA accredited Site Auditor has reviewed each of the plans and reports listed in Condition E74, and has issued an interim audit advice or a relevant Site Audit Statement regarding the appropriateness of those plans or reports, must be provided when the plan or report is submitted to the Planning Secretary for information. Where the NSW EPA accredited Site Auditor confirms that no further investigations are warranted, Conditions E76 to E82 do not apply.	Section 3.4 and Section 7.4
E76	The NSW EPA accredited Site Auditor must be engaged to review the risk rating for AECs identified in Appendix N (Soils and Contamination Impact Assessment) of the Environmental Impact Statement listed in	Section 5.2.1

CoA No.	Condition Requirements	How addressed
	Condition A1. Following this review, the Site Auditor must issue an interim audit advice confirming whether the risk rating has been undertaken appropriately.	
E77	<p>Prior to the commencement of construction, a Sampling and Analysis Quality Plan (SAQP) for medium and high-risk AECs, as confirmed by the Site Auditor and identified in the documents referred to in Condition E76, must be prepared to ensure that field investigations and analyses will be undertaken in a way that enables the collection and reporting of reliable data to meet project objectives, including the relevant site characterisation requirements of the detailed site investigations. The SAQP must:</p> <ul style="list-style-type: none"> a. be prepared (or reviewed and approved) by consultants certified under either the Environment Institute of Australia and New Zealand's Certified Environmental Practitioner (Site Contamination) scheme (CEnvP (SC)) or the Soil Science Australia Certified Professional Soil Scientist Contaminated Site Assessment and Management (CPSS CSAM) scheme; and b. be prepared in accordance with relevant guidelines made or approved by the EPA under section 105 of the <i>Contaminated Land Management Act 1997</i> (CLM Act). 	Section 6.5
E78	<p>For medium to high-risk AECs as confirmed by the NSW EPA accredited Site Auditor, Detailed Site Investigation(s) must be conducted to determine the full nature and extent of the contamination at project areas identified in the SAQP(s). The Detailed Site Investigation(s) must:</p> <ul style="list-style-type: none"> a. be prepared (or reviewed and approved) by consultants certified under either the Environment Institute of Australia and New Zealand's Certified Environmental Practitioner (Site Contamination) scheme (CEnvP (SC)) or the Soil Science Australia Certified Professional Soil Scientist Contaminated Site Assessment and Management (CPSS CSAM) scheme b. be prepared in accordance with relevant guidelines made or approved by the EPA under section 105 of the CLM Act; and c. state if the land within the project footprint is suitable for the proposed use or if the land requires remediation to be made suitable for the proposed use. 	Section 6.5
E79	<p>A Detailed Site Investigation Report must be submitted to the Planning Secretary upon request following the completion of the Detailed Site Investigation(s) required by Condition E78. The Detailed Site Investigation Report must be prepared in accordance with:</p> <ul style="list-style-type: none"> a. the land use criteria applicable to the final land use at the opening of Stage 1 of the CSSI. Where the final land use is unknown the most stringent criteria for the land use assumed in the documents listed in Condition A1 is to be applied; and b. relevant guidelines made or approved by the EPA under section 105 of the CLM Act including <i>Consultants Reporting on Contaminated Land: Contaminated Land Guidelines</i> (NSW EPA 2020). The report must be prepared by a Contaminated Land Consultant certified under either the Environment Institute of Australia and New Zealand's Certified Environmental Practitioner (Site Contamination) scheme (CEnvP (SC)) or the Soil Science Australia Certified Professional Soil Scientist Contaminated Site Assessment and Management (CPSS CSAM) scheme. <p>Notes:</p> <ol style="list-style-type: none"> 1. <i>Nothing in this condition prevents the Proponent from preparing individual Detailed Site Investigation Reports for separate contaminated sites.</i> 2. <i>Where Detailed Site Investigation(s) have already been undertaken for contaminated soils, materials, groundwater or sediments, and the Site Auditor agrees that these Detailed Site Investigation(s) are appropriate in determining the nature and extent of contamination, they do not need to be undertaken again for the purposes of this condition.</i> 	Section 6.5

CoA No.	Condition Requirements	How addressed
E80	<p>The Detailed Site Investigation Report must provide details on:</p> <ol style="list-style-type: none"> primary sources of contamination, for example potentially contaminating activities, infrastructure (such as underground storage tanks, fuel line, sumps or sewer lines) or site practices; contaminant dispersal in air, hazardous ground gases, surface water, groundwater, soil vapour, separate phase contaminants, sediments, infrastructure (e.g. concrete), biota, soil and dust; contaminant characterisation and behaviour (volatility, leachability, speciation, degradation products and physical and chemical conditions on-site which may affect how contaminants behave); potential effects of contaminants on human health, including the health of occupants of built structures (for example arising from risks to service lines from hydrocarbons in groundwater, or risks to concrete from acid sulphate soils) and the environment; potential and actual contaminant migration routes including potential preferential pathways; the adequacy and completeness of all information available for use in the assessment of risk and for making decisions on management requirements, including an assessment of uncertainty; the review and update of the conceptual site model from the preliminary and detailed site investigations; nature and extent of any existing remediation (such as impervious surface cappings); and whether the land is suitable (for the intended final land use) or can be made suitable through remediation. 	Section 6.5
E81	<p>Detailed Site Investigation Reports must be reviewed by the NSW EPA accredited Site Auditor in accordance with Condition E74 and all recommendations made by the NSW EPA accredited Site Auditor implemented before Work commencing that could result in any disturbance of any land confirmed as a moderate to high-risk area of potential contamination by the NSW EPA accredited Site Auditor.</p> <p><i>Notes:</i></p> <ol style="list-style-type: none"> <i>The intention of this condition is to require Detailed Site Investigation(s) of locations identified as an area of potential contamination to be completed before any form of excavation including the use of hand tools to expose soil to prevent unacceptable risk to human health or the environment on or off site.</i> <i>This condition does not prevent disturbance required to complete the Detailed Site Investigation(s).</i> <i>This condition does not prevent other activities that do not disturb the land where the ER has reviewed the appropriateness of those activities in accordance with Condition A28(j).</i> 	Section 6.5
E82	<p>Any recommendations made in the Detailed Site Investigation Report for changes to management measures in the CEMP sub-plan(s) must be incorporated into the relevant subplan required by Condition C4, unless otherwise approved by the Planning Secretary.</p>	Section 8.2
E83	<p>Where remediation is required to make land suitable for the final intended land use, a Remedial Action Plan must be prepared and/or reviewed and approved by consultants certified under either the Environment Institute of Australia and New Zealand's Certified Environmental Practitioner (Site Contamination) scheme (CEnvP (SC)) or the Soil Science Australia Certified Professional Soil Scientist Contaminated Site Assessment and Management (CPSS CSAM) scheme.</p> <p>The Remedial Action Plan must be prepared in accordance with relevant guidelines made or approved by the EPA under section 105 of the CLM Act and must include measures to remediate the contamination at the site to ensure the site will be made suitable for the final intended land use.</p> <p><i>Note: Nothing in this condition prevents the Proponent from preparing individual Remedial Actions Plan(s) for separate contaminated sites.</i></p>	Section 6.5

CoA No.	Condition Requirements	How addressed
E84	If remediation is required to make land suitable for the final intended land use, then prior to commencing with the remediation, the Proponent must submit the Remedial Action Plan(s) and an interim audit advice from a NSW EPA accredited Site Auditor to the Planning Secretary for information, which considers that the Remedial Action Plan is appropriate and that the site can be made suitable for the proposed land use. The Remedial Action Plan must be implemented and any changes to the Remedial Action Plan must be approved in writing by the NSW EPA accredited Site Auditor.	Section 6.5
E85	For any land confirmed as a moderate to high risk area of potential contamination by the NSW EPA accredited Site Auditor as per Condition E76, a Section A1 or 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 relevant council(s) after remediation and no later than one month before the commencement of operation of Stage 1 of the CSSI. <i>Note: Nothing in this condition prevents the Proponent from obtaining Section A Site Audit Statements for individual parcels of remediated land.</i>	Section 6.5
E86	Contaminated land must not be used for the purpose approved under the terms of this approval until a Section A1 or A2 Site Audit Statement is obtained which states that the land is suitable for that purpose and any conditions on the Section A Site Audit Statement have been complied with.	Section 6.5
E87	Any recommendations to minimise risk to human health or the environment or for the management of contamination arising, the NSW EPA accredited Site Auditor review, advice or audits must be incorporated into the relevant CEMP sub-plan and implemented.	Section 8.2
E88	An Unexpected Finds Procedure for Contamination must be prepared before the commencement of Work and must be followed should unexpected contamination or asbestos (or suspected contamination) be excavated or otherwise discovered. The procedure must include details of who will be responsible for implementing the unexpected finds procedure and the roles and responsibilities of all parties involved. The Procedure must be reviewed by the Site Auditor and interim audit advice or a Section B Site Audit Statement provided certifying that the Unexpected Finds Procedure is appropriate. The Unexpected Finds Procedure must be submitted to the Planning Secretary for approval at least one month prior to the commencement of Work and a copy of the interim audit advice or Section B Site Audit Statement attached. The Unexpected Finds Procedure for Contamination must be implemented throughout Work. <i>Note: Nothing in this condition prevents the Unexpected Finds Procedure for Contamination required under Condition E88 to be submitted for approval as part of the Soils and Contamination CEMP Sub-Plan under Condition C8.</i>	Appendix C The Unexpected Finds Procedure for Contamination has been approved by DPE, following the Site Auditor review and submission of an interim audit advice, noting its appropriateness for the project works.

3.3 Updated Management Measures

Table 3.2 below provides a summary of the UMMs relevant to soil and contamination management and how these items are addressed in this plan or other relevant project plans.

Table 3.2 Updated Management Measures relevant to this SCCSP

UMM No.	Commitment	Where Addressed
CLS01	<p>Review soil sampling and areas of environmental concern identified for the project as part of the Soils and Contaminated Land Impact Assessment (Aurecon Arup, 2021). Where detailed design indicates soils will be disturbed, develop and implement a soil sampling program to assess excavated soils for salinity, acid sulfate soils (ASS), contamination and sodicity. If identified:</p> <ul style="list-style-type: none"> • Saline soils will be managed in accordance with NSW Department of Primary Industries (2014) Salinity Training Handbook and NSW guidelines for salinity management. • Develop an ASS management plan (ASSMP) in accordance with the NSW ASSMAC (1998) guidelines and consideration of the Department of Agriculture and Water Resources 'National Acid Sulfate Soils guidance: National acid sulfate soils sampling and identification methods manual, that includes: <ul style="list-style-type: none"> ○ identification of ASS locations ○ handling and storage procedure to avoid and minimise exposure of stockpiles ○ where stockpiles are exposed, treat exposed areas with lime • Excavation of sodic soils will be avoided if possible. If not possible to avoid excavation, they will not be reused within the project for landscaping or surface rehabilitation <p>Prepare a Sampling and Analysis Quality Plan prior to implementation of any soil sampling investigations in accordance with ASC NEPM (2013), Sampling Design Guidelines (NSW EPA, 2022), Consultants Reporting on Contaminated Land, (NSW EPA, 2020) and Assessment and Management of Hazardous Ground Gases (NSW EPA, 2020).</p>	Section 6
CLS02	Undertake a pre-demolition destructive hazardous material survey of any buildings and structures within the AWRC site to confirm hazardous materials and estimate types and volumes.	Section 6.5
CLS03	Develop and implement a remedial action plan for AECs, if the soil sampling program or pre-demolition destructive hazardous material survey identifies this is required. Prepare this in accordance with the ASC NEPM (2013) and Consultants Reporting on Contaminated Land, (NSW EPA, 2020).	Section 6.5.1
CLS04	<p>Develop and implement an unexpected finds procedure that will include:</p> <ul style="list-style-type: none"> • stop work in area suspected of contamination • inspection and verification of the area by a contaminated lands practitioner • collection of soil samples and analysis for chemicals of potential concern (COPC) identified by the inspection • management, risk assessment or remedial action based on the type, extent, waste implications and significance of the COPC • requirement to notify the NSW EPA under section 60 of the CLM Act • remediation in accordance with remedial action plan 	Appendix C
CLS05	Develop and implement a procedure to manage the importation of Virgin Excavated Natural Material, Excavated Natural Material or materials covered by any resource recovery orders or exemptions under the Protection of the Environment Operations Act 1997, the Protection of the Environment Operations Waste Regulation (2014) for use as fill material on the AWRC site. Prepare this in accordance with any relevant EPA guidelines and the ASC NEPM 2013.	Section 6.5 Appendix A
SW05	Implement and maintain sediment and erosion control measures that consider the construction phase stormwater quality targets in the draft Western Sydney Aerotropolis DCP – Phase 2 (October 2021) (PO1 in	Section 6.1

UMM No.	Commitment	Where Addressed
	section 4.3.2 and PO1-PO5 in section 9.6.2) and. Management measures will be developed considering the guidance provided in the project's Surface Water Impact Assessment (Aurecon, Arup, 2021d).	Details regarding erosion and sediment control and management is addressed in the SWGCSP.
SW07	Develop and implement the following as part of the CEMP: <ul style="list-style-type: none"> spill response procedure in accordance with Australian Spill Control Industry Standard for Spill Response Kits (ASCIS 2695) vehicle, plant and equipment maintenance and refuelling procedure. 	Appendix B Section 7.7 of the Surface and Groundwater CEMP Sub-plan
G06	Develop and implement construction site layout plans as part of the project's CEMP. Development of the plans should consider the following as a minimum: <ul style="list-style-type: none"> locating stockpiles and equipment storage areas away from drainage pathways, and where possible in elevated positions or at alternative sites 	Details for stockpile management included in Appendix A10 of the CEMP

3.4 Infrastructure Sustainability Council benchmarks

The project aims to achieve Level 1 benchmarks for management of contaminated materials (Rso-2) and Level 1 in management of acid sulphate soils (Rso-3) as per the Infrastructure Sustainability (IS) v2.1 Technical Manual Design and As Built Rating (ISC Benchmarks) (herein referred to as ISC v2.1). In April 2023, Rso-2 and Rso-3 credits were verified as having low materiality. As a result, only DL1.1 is required for the project excluding the performance targets, and the project can only achieve Level 1 for these IS credits. Specifically, for the low materiality pathway, only the unexpected finds protocol mitigation measure is required within the relevant contamination management plan or equivalent plan/documents.

If contamination materiality remains low throughout the design and construction phases of the project, remaining consistent with the documentation provided at time of verification of materiality, Level 1 can be verified and the points for Level 2 and Level 3 are reallocated proportionately across the IS rating scheme as per the IS v2.1 Technical Manual direction. If contamination or ASS are discovered inconsistent with the EIS and requires update to the risk ratings detailed within 5.2.1 Areas of Environmental Concern – Table 5.1, the SCCSP will be updated to include the relevant management measures and associated evidence required. The relevant benchmarks for level 1 achievement are listed in Table 3.3 and includes references to requirements for achieving the benchmark, the necessary evidence and references to documents and/or sections of this SCCSP where the evidence is presented.

Table 3.3 presents the IS requirements for the Project, which have been derived from the IS v2.1 Technical Manual Design and As Built Rating (ISC Benchmarks), August 2021 Version. The IS manual prescribes the "re-use" of contaminated material on the Project (DL1.1) to showcase best practice sustainability where possible. In this plan, the term "re-use" refers specifically to on-site management practices that comply with the relevant legislation, guidelines, and standards of New South Wales (NSW), as outlined in section 3.1 of the plan. The term "re-use" in this context should be understood as on-site management practices aimed at minimising the quantity of contaminated material sent to waste facilities, while ensuring compliance with legal requirements.

These on-site management practices may include the use of approved containment cells for soil contaminated with asbestos-containing material (ACM), subject to approval by an EPA Site Auditor. Additionally, suitable treatment of Acid Sulfate Soils before reusing them is also considered part of the on-site management practices. The goal of these practices is to prevent the unnecessary transportation of materials to licensed treatment facilities, promoting environmentally sustainable practices on the Project.

It is important to note that the definition of "re-use" as on-site management is consistently applied throughout the rest of the plan, ensuring adherence to the applicable laws and regulations governing waste management in NSW.

Table 3.3 ISC requirements relevant to this SCCSP

Level	Benchmark	Management Measure	Evidence Required	Where addressed
Rso 2 Design				
1	DL1.1 A Site Contamination Management Plan (SCMP) has been developed for the management and treatment of contaminated material.	<p>A Site Contamination Management Plan (SCMP) or equivalent must be developed by a suitably qualified professional to outline contamination management actions responding to identified risks and opportunities and performance targets (DL1.2).</p> <p>The SCMP must include a risk assessment which identifies potential contamination risk, assesses the likelihood of the risk occurring, estimates the expected consequence, and identifies potential mitigation measures (or recommendations) regarding potential contaminants. The assessment may be part of a broader sustainability or project risk assessment or standalone.</p> <p>The SCMP must include the following factors, unless justification can be provided as to why elements are not applicable:</p> <ul style="list-style-type: none"> An Unexpected Finds Protocol for the identification, classification and treatment of any previously unknown contaminated material in the event that such material is encountered (only this measure is required for low materiality) - #SCMP1 How contaminated material is to be characterised, classified, tracked, reused, treated and monitored throughout the project - #SCMP2 Project-specific performance targets (see DL1.2) - #SCMP3 An indicative program for reuse, retention or other treatment of contaminated material and any legislation relevant to the project throughout the duration of the schedule of works - #SCMP4 How the volume of contaminated material will be minimised throughout the project by the contractor and their sub-contractors - #SCMP5 Specific mechanisms for adopting a 'reduce, reuse and recycle' approach for dealing with all contaminated material. - #SCMP6 <p>The SCMP must be based on the completed risk assessment and any site investigations undertaken to verify and quantify contamination risk.</p>	<p>A SCMP (or equivalent) including evidence of site investigations and a contamination risk assessment</p> <p>Documentation for suitably qualified professional e.g. CV or LinkedIn profile.</p>	<p>This plan (SCCSP)</p> <p>Section 5.2.1, Table 5.1</p> <p>Section 1.4 - SCCSP development and approval</p> <p>Section 5.2.1, Table 5.1</p> <p>Unexpected Finds protocol (Appendix C), Section 5.2.1 & Section 6.5 - #SCMP1</p> <p>Section 3.1, 6, 6.5, 6.5.1 and 7.3 - #SCMP2</p> <p>Note, project specific targets are not required due to low materiality - #SCMP3</p> <p>Section 3 & 6.3, 6.4, 6.5 & 6.5.1 - #SCMP4</p> <p>Section 5.2.1 - Table 5.1, 6 - 6.6 & RES-AP - #SCMP5</p> <p>Section 6.3, 6.4, 6.5 & 6.5.1 - #SCMP6</p> <p>Appendix N of the EIS, AWRC Sampling and Analysis Quality Plan (AWRC).</p> <p>AWRC & Pipelines Remediation Action Plans (RAPs)</p> <p>and Section 5.2.1, Table 5.1</p>

Level	Benchmark	Management Measure	Evidence Required	Where addressed
		Site investigations must be undertaken in accordance with Schedule A 'Recommended general process for assessment of site contamination' of National Environment Protection (Assessment of Site Contamination) Measure 1999 (amended 2013). Justification must be provided if no further site investigations are required.		Appendix N of the EIS, (Section 5.2.1, Table 5.1), Sampling and Analysis Quality Plans, DSIs and Site Auditor Advice (Appendix E). AWRC & Pipelines Remediation Action Plans (RAP's) Section 6.5 & 6.5.1
		If a desktop contamination risk assessment has been undertaken and verified in a Planning rating, then it must be reviewed and updated, taking into account any new information or changes to the project.		N/A
	DL1.2 Project performance targets for contaminated material risks and sustainable remediation have been developed.	SMART contamination remediation and management stretch targets must be developed (according to potential location, classification or type, and volume of contaminated material) and take into account during previous site investigations and any other baseline contamination information.	SMART project-specific targets and their justification against requirements • Documentation for suitably qualified professional e.g. CV or LinkedIn profile.	N/A- not required due to low materiality score
		The project targets must deliver no or low residual risk to people and the environment and maximise sustainable outcomes by: <ul style="list-style-type: none"> • Prioritising destruction of contaminated material where possible • Maximising separation of contaminated material and clean fraction • Reducing materials to landfill where options exist for practicable treatment to enable reuse of soil and/or groundwater • Maximising the sustainability of remediation options (see DL1.3). 		N/A – not triggered due to low materiality score
		The project-specific targets and their justification against the requirements above must be prepared or reviewed by a suitably qualified contamination professional and the sustainability manager (or delegate).		N/A – not triggered due to low materiality score
		If SMART project-specific targets for contaminated material and remediation were developed and verified as part of the Planning rating, those targets must be used to inform this criterion considering any new information or changes to the project.		N/A – not triggered due to low materiality score
	DL1.3 A formal assessment has been completed to determine sustainable remediation options for identified contaminated material.	A multi-criteria options assessment that considers material environmental, social and economic aspects and whole of life costing must be undertaken to assess and identify sustainable remediation options for contaminated material in line with project targets (DL1.2).	Analysis and results of sustainable remediation options assessment for managing contaminated material, e.g. assessment report.	N/A not triggered due to low materiality score
		The assessment must be completed by a suitably qualified contamination professional and the sustainability manager (or delegate).		N/A not triggered due to low materiality score
		The assessment of sustainable remediation options must be started in the design phase and can be completed during construction if relevant.		N/A – not triggered due to low materiality score

Level	Benchmark	Management Measure	Evidence Required	Where addressed
		If a formal assessment of remediation options has been undertaken and verified in a Planning rating, then it must be reviewed and updated considering any new information or changes to the project.		N/A – not triggered due to low materiality score
	DL1.4 The project design and construction methodology have responded to contamination risk and sustainable remediation options.	The project design and the construction methodology must reflect initiatives and management actions which reduce or eliminate contamination risk, implement sustainable remediation options identified and aim to achieve the project targets (DL1.2) across the design and construction phases.	Documentation of design and construction initiatives and management actions e.g. Design reports and drawings, updated SCMP and other management plans.	N/A – not triggered due to low materiality score
Rso 2 As Built				
1	ABL1.1 Contamination risk assessment and the SCMP have been reviewed and updated.	The project contamination risk assessment (DL1.1) must be reviewed annually during construction by a suitably qualified professional and updated where necessary, taking into account any new information or changes to the design or construction methodology. Any changes to the SCMP must be provided to the Site Auditor for review.	The contamination risk assessment and SCMP reviewed annually and updated as required, along with supporting documentation e.g. updated risk assessment, contamination reports, remediation action plan Documentation for suitably qualified professional e.g. CV, LinkedIn profile Evidence related to change of targets, if applicable.	Section 7.4 and 8
		If further site assessments are required, as recommended in the project risk assessment, then the site assessment must follow the recommended approach in Schedule A 'Recommended general process for assessment of site contamination' of National Environment Protection (Assessment of Site Contamination) Measure 1999 (amended 2013). If there is no recommendation for further site investigations, this requirement does not apply.		N/A – not triggered due to low materiality score
		The SCMP (or equivalent) must be reviewed (and updated if needed) annually during the construction phase by a suitably qualified professional, taking into account changes to the risk assessment, results from any further site investigations or changes to design or construction methodology.		Section 7.4 and 8
		If any changes are made to the project-specific targets, the new targets must be reviewed by an independent suitably qualified professional and cover the assumptions and feasibility of the new targets. The independent professional can be from a proponent (client) organisation or a third party.		N/A – not triggered due to low materiality score
		The independent suitably qualified professional must outline that they agree with the reasoning for the updated targets, and that they believe the new targets will result in the same or greater sustainability outcomes.		N/A – not triggered due to low materiality score

Level	Benchmark	Management Measure	Evidence Required	Where addressed
	ABL1.2 The formal assessment examining sustainable remediation options has been updated.	The multi-criteria options assessment of sustainable remediation options for contaminated material (DL1.2) must be reviewed and updated to include any identified contaminated materials not assessed in design and any unexpected finds of contaminated material during delivery.	Review and update of sustainable remediation options assessment for managing contaminated material e.g. assessment report, update in SCMP.	N/A – not triggered due to low materiality score
	ABL1.3 The SCMP including maintenance and monitoring requirements have been implemented.	The SCMP (or equivalent) recommendations and mitigation measures must be implemented and cover implementation of feasible sustainable remediation options in line with project-targets, along with ongoing maintenance and monitoring.	Evidence of implementation of SCMP or equivalent e.g. a contamination register, documentation of contamination management (in the form of invoices, dockets, online billing), on-site destruction or remediation measures Monitoring results or report tracking and reporting performance against targets.	N/A – not triggered due to low materiality score
Rso-3 Design				
1	DL1.1 An Acid Sulfate Soil Management Plan (ASSMP) or equivalent has been developed outlining opportunities for avoidance of ASS or retention or reuse of any treated ASS material.	<p>An ASSMP (or equivalent) must be developed by a suitably qualified professional to outline opportunities for avoidance or treatment and reuse onsite or offsite of any acid sulfate soil material, and include:</p> <ul style="list-style-type: none"> The outcomes of site investigations An ASS risk assessment to identify potential ASS contamination risk Design and construction methodologies to manage the ASS risk, following the avoid or treat and retain onsite, reuse offsite or dispose in suitable facility hierarchy Recommendations and mitigation measures from the risk assessment (see factors listed below). <p>Any site assessment investigations required to confirm and quantify ASS risk must be undertaken in accordance with relevant State/Territory or local jurisdiction ASS management guidelines.</p> <p>Outline and justification of ASS investigation methodology must be provided if no such guidelines exist.</p> <p>The desktop ASS risk assessment must identify the risk, assess the likelihood of the risk occurring, estimate the expected consequences, and identify mitigation measures (or recommendations) regarding ASS.</p> <p>If a desktop ASS risk assessment has been undertaken and verified in a Planning rating, it must be reviewed and updated, taking into account any new information or changes to the project.</p> <p>If there are changes to the risk assessment (nature or severity of risks) resulting from any further site investigations or changes to design or construction methodology prior to construction commencement, the ASSMP must be reviewed and updated by a suitably qualified professional.</p>	<p>Acid Sulfate Soils have been assessed as having low risk for the project and will be managed through the SCMP.</p> <p>OR</p> <p>If required, an Acid Sulfate Soils management plan (ASSMP) will be developed and may be a standalone document or part of the Resource Efficiency Strategy and Action Plan (RES-AP), a CEMP or other relevant management plan.</p> <p>Documentation for suitably qualified professional e.g. CV, LinkedIn profile.</p>	<p>EIS, Appendix N (Soil and Contaminated Land Impact (SCLI) Assessment)</p> <p>This Plan:</p> <p>Section 1.4 - SCCSP development and approval</p> <p>Section 4.1.3</p> <p>Section 6.3</p> <p>Table 6-1</p> <p>Unexpected Finds protocol (Appendix C), Section 5.2.1 & Section 6.3 - #SCMP1</p>

Level	Benchmark	Management Measure	Evidence Required	Where addressed
		<p>The following factors must be included when developing the mitigation measures, unless justification can be provided for omitting these factors:</p> <ul style="list-style-type: none"> An Unexpected Finds Protocol for the identification, classification and disposal of any previously unknown ASS material in the event that such material is encountered (only this measure is required for low materiality) - #SCMP1 How ASS material is to be characterised, classified, tracked and monitored throughout the project - #SCMP2 Project-specific targets – default or other (see DL1.2) – #SCMP3 The design of an indicative program for retention or reuse of ASS material, and how relevant legislation will be complied with for the duration of the project - #SCMP4 Specific documented mechanisms for adopting an 'avoid, reduce, retain, or reuse' approach for dealing with ASS material - #SCMP5 Mitigation actions identified from the risk assessment to be implemented during design and construction. - #SCMP6 		<p>Section 3.1, 6, 6.3, 6.5.1 and 7.3 - #SCMP2</p> <p>Note, project specific targets are not required due to low materiality - #SCMP3</p> <p>Section 3 & 6.3, 6.5 & 6.5.1 - #SCMP4</p> <p>Section 1.5, 6.3, 6.5 & 6.5.1 - #SCMP5</p> <p>Section 5.2.1, Section 6.3 - Table 6.1, RES-AP - #SCMP6</p>
	DL1.2 Project-specific performance targets for ASS have been developed.	SMART performance targets for ASS must be developed in line with the 'avoid, reduce, retain, reuse' hierarchy and incorporated into the ASSMP according to potential location, classification or type, and volume, taking into account all previous site investigations and any other baseline ASS information.	SMART project-specific targets (default or other) If default targets not used: CIR for project-specific targets approved by ISC.	N/A – not triggered due to low materiality score
		If the default targets are not used, the project-specific targets developed for Level 2 and 3 must be submitted to ISC for approval via the CIR process to assess their appropriateness and ambition (confirming application of hierarchy and no or low residual risk).		N/A – not triggered due to low materiality score
	DL1.3 The project design and construction methodology have responded to ASS risks.	The project design and the construction methodology must include initiatives or management actions to reduce ASS risk (DL1.1) across the asset lifecycle and aim to achieve the project targets for Design & As Built.	Documentation of design and construction initiatives and management actions e.g. updated ASSMP, final design reports and drawings.	N/A – not triggered due to low materiality score
Rso 3 As Built				
1	ABL1.1 The ASSMP has been reviewed and updated.	<p>The ASSMP (DL1.1) must be reviewed and updated during the construction phase at least annually by a suitably qualified professional, taking into account changes to the risk assessment that may result from further site investigations or changes to design or construction methodology.</p> <p>If any changes are made to the project-specific targets, the new targets must be independently reviewed by a suitably qualified professional and cover the assumptions and feasibility of the new targets.</p>	<p>Evidence of annual ASSMP review and documentation for suitably qualified professional e.g. CV, LinkedIn profile</p> <p>Evidence related to change of targets, if applicable.</p>	<p>Section 7.4 and 8</p> <p>N/A – not triggered due to low materiality score</p>

Level	Benchmark	Management Measure	Evidence Required	Where addressed
		The independent suitably qualified professional must outline that they agree with the reasoning for the updated targets, and that they believe the new targets will result in the same or greater sustainability outcomes.		N/A – not triggered due to low materiality score
	ABL1.2 The ASSMP including maintenance and monitoring have been implemented.	The recommendations and mitigation measures in the ASSMP or equivalent (ABL1.1) must be implemented covering the management or treatment of ASS to be reused onsite or offsite, along with any ongoing maintenance and monitoring requirements outlined in the ASSMP	Evidence of ASSMP implementation can be shown through plans, photos, extracts of management plans, receipts, reports, etc.	N/A – not triggered due to low materiality score

3.5 Consultation

Consultation requirements raised in the Infrastructure Approval are explored in detail in Section 2 of the CEMP. Specifically, the SCCSP has been provided to the following agencies in accordance with CoA C4, with their outcomes summarised in Appendix D and applicable comments received from the consultation process incorporated into relevant sections of this Plan.

- NSW Environment Protection Authority (EPA)
- Relevant Councils, including:
 - Wollondilly Shire Council
 - Penrith City Council
 - Liverpool City Council
 - Fairfield City Council
 - Canterbury-Bankstown Council

In accordance with CoA A9, a Consultation Summary Report has been developed and is appended to this Plan (Appendix D) to document and provide evidence of consultation undertaken in accordance with the Infrastructure Approval.

4 Existing Environment

The following sections summarise what is known about factors influencing soils and contamination within and adjacent to the project site and pipeline corridors. Information is based on the EIS which included desk-top assessments of publicly available information and previous soil and contamination reports conducted in the assessment area; intrusive soil investigations and analysis and the development of a conceptual site model for contamination.

4.1 Topography and Soil Characteristics

The AWRC site is located on a relatively flat paddock previously used for cattle grazing, with a gentle slope towards the north. Due to the linear nature of the pipeline components of the Project, the pipeline alignment is located in various land use types including bushland, residential, commercial and industrial. The pipelines generally follow gently sloping topographies.

The project is located within the Permo-Triassic Sydney Basin. The Sydney Basin is characterised by sub-horizontal sedimentary deposits, which mainly comprise sandstone with interbedded shale layers deposited unconformably on a basement of the Lachlan fold belt (Haworth, R.J., 2003).

4.1.1 Soil Landscapes and Soil Erodibility Hazard

Based on the EIS Chapter 9.5, the AWRC site is located on South Creek and Blacktown soil landscapes. Most of the treated water pipeline is located in the Blacktown and Luddenham soil landscapes, with the South Creek soil landscape found along the creek corridors. The Nepean release location is located on the Richmond soil landscape. The brine pipeline is located on Blacktown, Luddenham, South Creek and Berkshire Park soil landscapes. A summary of the soil erodibility hazard for each soil landscape is presented in Table 4.1.

Table 4.1 Soil landscape and soil erodibility hazard

Soil Landscape	Location	Soil Structure and Erodibility Hazard
South Creek	AWRC site	Highly susceptible to water erosion due to the active floodplain nature of the landscape. Streambank and gully erosion are common results of concentrated flow.
Blacktown	AWRC site Pipelines	Susceptible to localised water erosion hazards with localised moderately reactive plastic subsoils. Gully, sheet and rill erosion may occur on cleared areas where vegetation is not maintained.
Berkshire Park	Treated Water Pipelines	Susceptible to wind erosion hazard on cleared land. Gully, sheet and rill erosion may occur on dissected areas.
Luddenham	Brine Pipelines	Erosional landscapes and disturbed land and can suffer sheet erosion.
Richmond	Treated Water Pipelines	Can suffer water erosion on localised terrace edges.

4.1.2 Soil Salinity and Sodicty

AWRC Site

Salinity mapping indicates the AWRC site is located in an area with moderate salinity potential with no known areas of salinity mapped on the site.

Analysis of soil samples taken from the AWRC site for the project provided the following information about soil characteristics:

- Non saline soils are present near the surface (up to one metre below ground level), and saline to moderately saline soils are one to three metres below ground level.
- Soils across the AWRC site are generally highly sodic or dispersive, indicating a high potential for erosion if soils are exposed and vegetation removed. Samples indicated non to moderately sodic surface soils, moderately sodic soils at depths of about 0.4 metres and highly sodic soils at depths of about one metre.

Pipelines and Water Release Infrastructure

Salinity mapping indicates the areas with high salinity potential across the treated water pipeline and brine pipeline include low lying areas around Cosgrove Creek, Kemps Creek and the South Creek alluvial plain. There are no known areas of salinity that intersect the pipeline alignments. The same mapping also indicates areas around Nepean River release location has a low to moderate salinity risk with no known areas of salinity mapped for this location.

Soil samples analysed for the brine pipeline were typically non saline with the exception of some locations around Clear Paddock Creek. Soil samples analysed for the treated water pipeline indicate generally non saline conditions. Moderately saline soils were detected at one sample location about 50 m west of South Creek. Salinity concentrations generally increase with depths to the water table across the treated water and pipeline alignments.

Soil sampling found that soils across the treated water pipeline and brine pipeline alignments ranged from non-sodic to highly sodic, with surface soils (up to 0.4 m below ground surface) being non to moderately sodic. Deeper soils (greater than 0.4 m below the ground surface) indicated highly sodic conditions.

4.1.3 Acid Sulfate Soils

AWRC Site

The DPIE ASS risk maps (accessed from eSPADE online soil mapping) indicates that the AWRC site is outside areas mapped as having potential ASS. Soil sampling did not indicate the presence of ASS. ASS is considered highly unlikely to be present in soils across the AWRC site.

Pipelines and water release infrastructure

The DPIE ASS risk map indicates that most of the desktop assessment area for the treated water pipeline and brine pipeline is outside areas mapped as having potential ASS. Some potential ASS risk areas are present around Prospect Creek in the eastern portion of the desktop assessment area, indicating potential risk from disturbance and excavation associated with brine pipeline construction in these areas. Soil sampling indicated that ASS would unlikely be encountered with the exception of the Prospect Creek area.

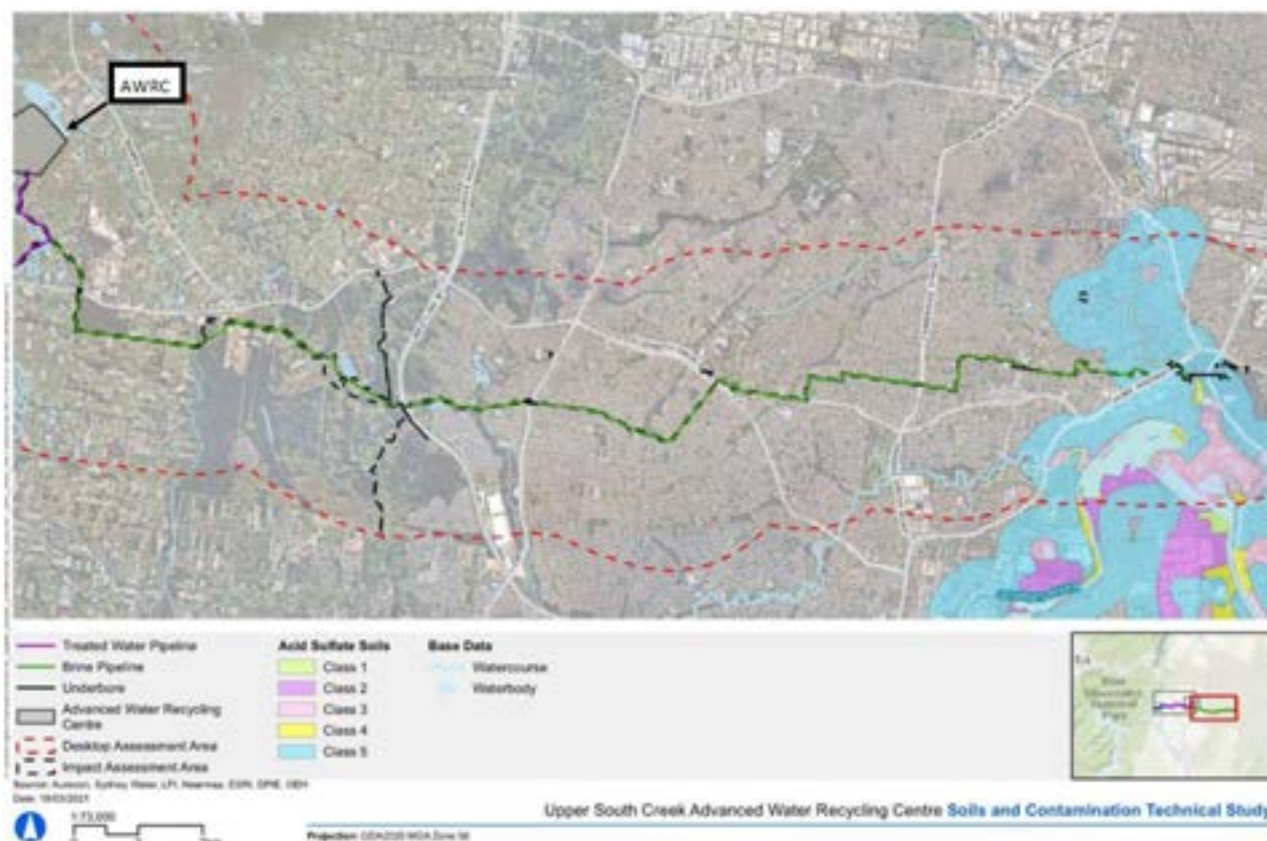


Figure 4-1: Acid sulfate soils probability and classes within the desktop assessment area

4.2 Contaminated Land

Based on data contained in the EIS Chapter 9.5 and Appendix N Sections 7 to 11, several sources were referenced, and investigations were carried out to determine the potential for land contamination within and adjacent to the project site. The findings consolidated from these studies are summarised below.

Table 4.2 summarises potentially contaminated areas across the desktop assessment area and these are also shown as areas of environmental concern (AEC) on Figure 4-2a and Figure 4-1b.

At the AWRC site, the main source of contamination was determined to be localised asbestos containing materials (ACM) in surface soils. Some near surface soil samples showed minor exceedances of heavy metals and Total Recoverable Hydrocarbon (TRH) for ecological screening levels.

Aurecon ARUP undertook a contamination DSI for the AWRC and pipelines routes on behalf of Sydney Water in 2020 which included some salinity and soil quality sampling and analysis to inform soil quality conditions as part of the impact methodology. Contamination analysis of soil samples at the AWRC site identified the following:

- The site typically has natural soils from the surface with minimal filling present. Fill materials were observed at one location from the surface to 0.1 m below ground level.
- All the samples analysed for chemicals of potential concern (COPCs) (non-asbestos) were below the adopted Tier 1 screening guideline investigation criteria for human health with several minor exceedances of ecological criteria. The presence of minor exceedances of ecological criteria for heavy metals and TRH is not considered a constraint due the site being filled and landscaped with topsoil suitable to support plant growth.
- ACMs were detected in localised areas of soils (typically sourced from former nearby structures now removed) and existing buildings such as sheds and derelict buildings on the site.

Concentrations of all other COPCs assessed did not exceed adopted human health criteria. Polyfluoroalkyl substances (PFAS) were not reported in any soil samples analysed across the site.

Pipelines

In general, for the pipelines, previous investigations found little or low risk of contamination from existing sources across the area covered by desktop assessment. Sydney Water's contamination analysis of soil samples along the brine pipeline alignment identified:

- Fill material down to a maximum depth of 2.1 m was present at various locations along the brine pipeline. During site works, volatile vapours were noted at one sample location on Cabramatta Road, potentially originating from an adjacent service station at Bonnyrigg.
- Most samples taken along the brine pipeline did not exceed any guideline investigation criteria (NEPM 2013). No asbestos fragments were detected.
- An exception was one sample found Total Recoverable Hydrocarbons (TRH) exceeding the Health Screening Levels for commercial or industrial land use guidelines (ASC NEPM, 2013). This is associated with the service station located close to the alignment near Bonnyrigg.

Sydney Water's contamination analysis of soil samples along the treated water pipeline alignment identified:

- Fill material down to a maximum depth of 2.1 m was present at various locations.
- There were no exceedances of the guideline investigation criteria (ASC NEPM 2013) for COPCs (non-asbestos).
- Asbestos fragments were detected in two sample locations along the treated water pipeline alignment. However, analysis results did not report any free or respirable fibres, and all samples were from a depth greater than 100 mm from the surface and within fill material.

Table 4.2 Summary of historical contamination

AEC ID	Location	Historical Activities	Potential COPCs present	Historical contamination summary
1	AWRC site	Former and current agricultural land usage Pesticide and herbicide use Chemical/fuel use and storage Structures containing hazardous building materials (HBM) including asbestos and heavy metals Historical filling and stockpiles on site	ACM Heavy metals	ACM fragments were present in soils and in buildings on site across the AWRC site. Areas of ACM are located and limited to former structures and surrounding current structures across the AWRC site. Zinc and copper had minor and localised exceedances of adopted Tier 1 screening criteria for ecological receptors (ASC NEPM 2013) (JBS&G, 2018).
2	AWRC Air strip on Lot 2/DP88836	Potential use of historical fire-fighting foams containing PFAS for airfield activities.	PFAS	Small air strip with limited use and no known fire training adjacent to the AWRC site to the immediate south-east. No exceedances of adopted guidelines (PFAS NEMP 2.0, 2020) for PFAS from Sydney Water analysis (2020) and JBS&G (2018) previous site investigations.
3	Kemps Creek Rural Fire Service	Use of historical firefighting foams containing PFAS	PFAS	No exceedances for PFAS (AAJV, 2019b).
4	Western Rd to Brandown Quarry, Kemps Creek	Historical filling	Heavy metals	Ecological exceedances (ASC NEPM, 2013) for zinc, copper and nickel in soil. Copper and zinc exceedance in groundwater. Metal concentrations noted to be natural and at background concentrations (Aurecon Arup, 2021f).
5	Former Kari & Ghossayn Pty Ltd (solid waste landfill), Kemps Creek	Former landfilling activities	TRH, Benzene, Toluene, Ethylbenzene and Xylene (BTEX), ammonia, Polycyclic Aromatic Hydrocarbons (PAH), heavy metals, Organochlorine pesticides (OCP), Orthophenylphenol (OPP), Polychlorinated Biphenol (PCB), nutrients, ACM	Results from soil sampling near the site found no exceedances of adopted Tier 1 screening criteria. However, no samples were collected within the site. Possible contamination within the site (RMS, 2019).
6	SUEZ Kemps Creek Resource Recovery Park	Historical and current landfilling activities	TRH, BTEX, ammonia, PAH, heavy metals, OCP, OPP, PCB, nutrients, ACM	Groundwater containing elevated copper, zinc, ammonia, nitrogen and nickel levels, and gas containing methane and carbon dioxide exceedances above adopted guidelines (ASC NEPM, 2013 and NSW EPA guideline Assessment and management of hazardous ground gases, 2020c) were found adjacent to the site (RMS, 2019).
7	Potential area of fill next to South Creek	Historical filling	Heavy metals	Exceedances of adopted Tier 1 screening criteria (ASC NEPM, 2013) for copper and zinc in groundwater (RMS, 2019).
8	Corner of Elizabeth Drive and Range Road, Kemps Creek	Illegal dumping of building materials	ACM	ACM present within the soil to the north of Range Road (RMS, 2019).
9	Western Sydney Airport, Badgerys Creek	Contaminants from construction activities	TRH, BTEX, PAH, heavy metals, PCB, nutrients, ACM	No exceedances of adopted Tier 1 screening criteria (ASC NEPM, 2013) (AAJV, 2019b).

AEC ID	Location	Historical Activities	Potential COPCs present	Historical contamination summary
10	Elizabeth Drive between the Northern Road and M7	Dumped domestic, and construction and demolition waste Suspected ACM Historical filling	TRH, BTEX, PAH, heavy metals, PCB, ACM	No exceedances in soil of adopted Tier 1 screening criteria (ASC NEPM 2013) (AAJV, 2019b). Asbestos cement sheeting present in waste piles along roadway and at surface of piles.
16	Petrol stations across project area	Petrol Storage, dispensing and spills	TRH, ACM	TRH C6-C10 and TRH C6-C10 exceeded the adopted Tier 1 screening criteria (ASC NEPM, 2013) in one sample along the brine pipeline (Aurecon Arup, 2021f).

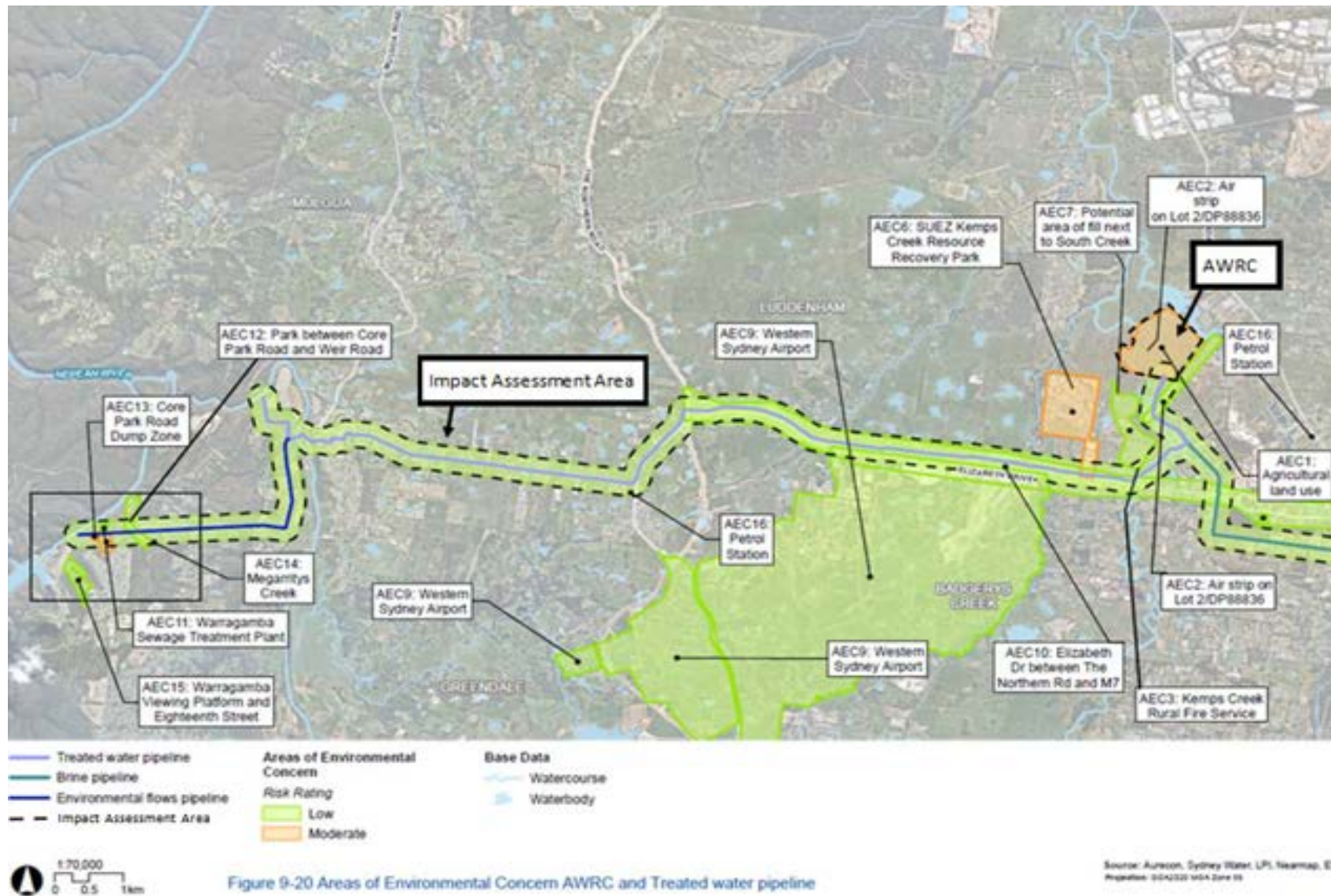


Figure 4-2a Areas of Environmental Concern AWRC and Treated water pipeline (Source: EIS, Figure 9-20 (Aurecon Arup, September 2021) (image indicative only)

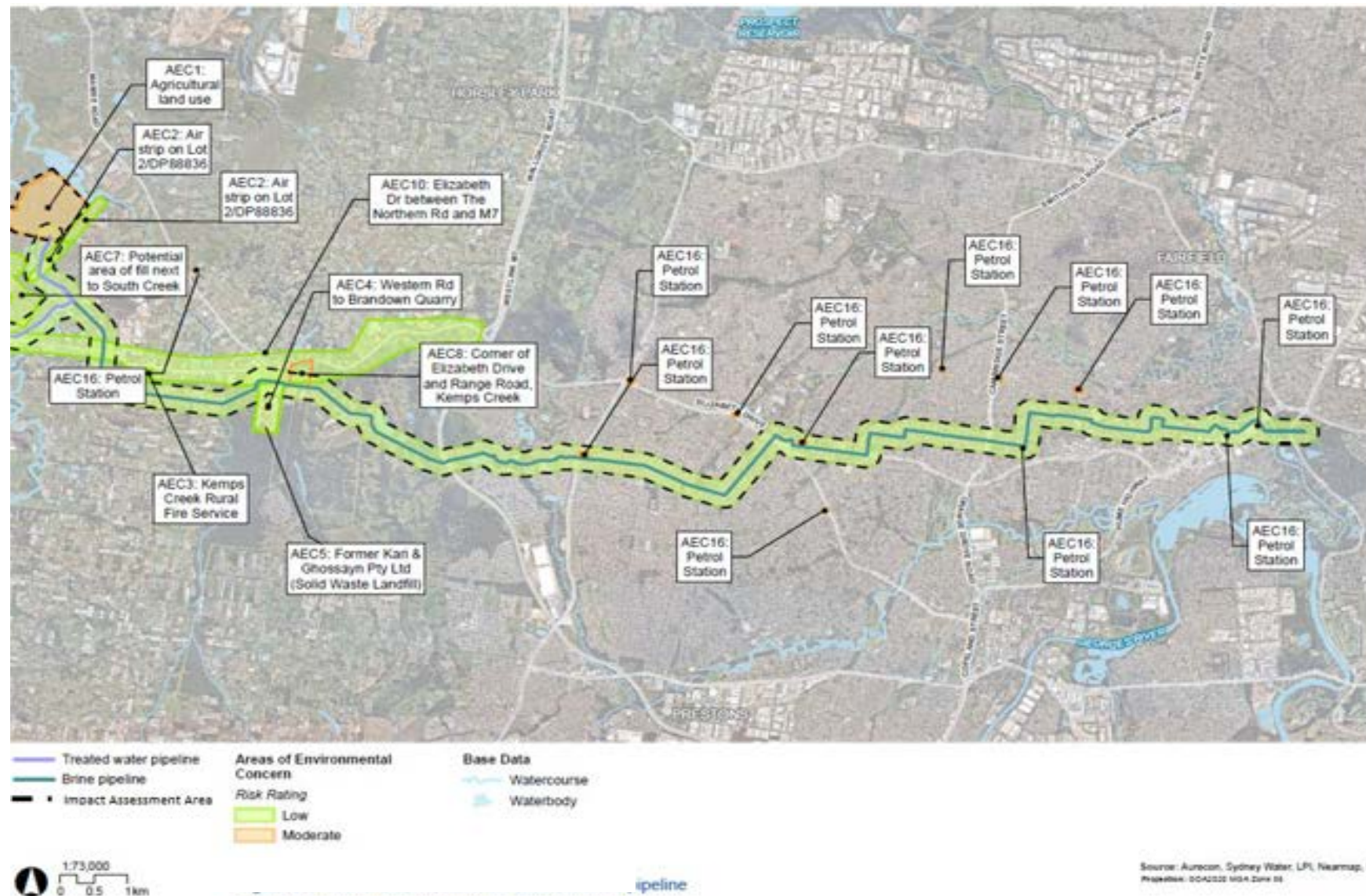


Figure 4-1b Areas of Environmental Concern Brine Pipeline (Source: EIS, Figure 9-21 (Aurecon Arup, September 2021) (image indicative only)

5 Soils, Contamination and Construction Impacts

5.1 Construction Activities

Key aspects of the project that could result in adverse impacts to soils and contamination include:

- Pre-construction activities including utility adjustment, site access provisions, property adjustments
- Vegetation clearing and topsoil removal
- Planned salvage removal of heritage items
- Bulk earthworks and excavations
- Construction of site compounds
- Construction and use of site access including drainage works
- Material stockpiles
- Waste storage and material laydown
- Tunnelling for pipelines at select locations
- Compounds operation including fuel and chemical storage, refuelling and chemical handling
- Removal of groundwater and dewatering
- Noxious weed treatment including herbicide spraying

Refer also to the Aspects and Impacts Register included in Appendix A4 of the CEMP.

5.2 Impacts

The potential for impacts on soils and contamination will depend on a number of factors. Primarily impacts will be dependent on the nature, extent and magnitude of construction activities and their interaction with the natural environment. Potential impacts attributable to construction might include:

- Removal of topsoils, subsoils, and changes in infiltration where earthworks remove the natural soil cover.
- Environmental and/or H&S issues resulting from exposure, handling and treatment of acid sulphate soils.
- Spread of soil contamination resulting from disturbance of contaminated soils during construction via excavations, including trenches for pipelines and deeper excavations.
- Disturbance, mobilisation and spread of contaminants, including leachable contaminants and asbestos, due to soil disturbance, excavation and earthworks.
- Environmental and H&S risks resulting from demolition of structures containing hazardous building materials (HBM), including asbestos containing materials (ACM) and lead paints.
- Disturbance and removal of vegetation and topsoil and movement of subsoils resulting in increased erosion hazard onsite.
- Sediment laden surface and storm waters entering downstream habitats and receiving waterways.
- Disturbance, movement and reuse of saline soils excavated near drainage lines and low-lying areas, increasing the salinity release risk to surface waters and groundwater.
- Contamination of soils and water from spills and chemical usage.
- Importation of contaminated fill material.
- Treatment, handling and disposal of contaminated water, increasing the potential for migration of contaminants via leaching, overland flow or subsurface flow.

Relevant aspects and the potential for related impacts have been considered in a risk assessment in Appendix A4 of the CEMP. Section 6 provides a suite of mitigation and management measures that will be implemented to avoid or minimise those impacts. Provided these measures are implemented, impacts associated with the construction of the project are expected to be low.

5.2.1 Areas of Environmental Concern

Risk ratings for the AECs identified in Appendix N - Soils and Contamination Impact Assessment (Aurecon Arup, 2021f) of the EIS have been revised and are presented below in Table 5.1. Table 4.2 provides further detail on the summary of historical contamination.

The Site Auditor has provided an assessment of risk ratings of the AECs for the AWRC site on 17 March 2023 and for Pipelines on 16 May 2023.

Table 5.1 Areas of environmental concern risk rating

AEC ID	Potential COPCs present	Likelihood of the risk occurring	Risk Rating / Expected Consequence	Construction Activity	Potential Mitigation / Recommendation
1	Potential COPCs present	Demolition, excavation and stockpiling of soils containing ACM have potential to create exposure scenarios to construction workers and spread contaminated soil across the site. Because ACM fragments were present in soils and in buildings across the site, the impact significance and likelihood of the risk occurring is considered moderate . Zinc and copper ecological screening criteria exceedances (ASC NEPM, 2013) were previously identified across the site. The impact significance and likelihood of the risk occurring is considered low because rehabilitation will include the use of suitable soils for landscaping.	Moderate	<ul style="list-style-type: none"> Pre-construction activities including utility adjustment, site access provisions, property adjustments Vegetation clearing and topsoil removal Planned salvage removal of heritage items Bulk earthworks and excavations Construction of site compounds Construction and use of site access including drainage works Material stockpiles Waste storage and material laydown Compounds operation including fuel and chemical storage, refuelling and chemical handling Removal of groundwater and dewatering Noxious weed treatment including herbicide spraying 	<p>Further assessment of identified contamination AECs (typically asbestos in soils) prior to construction to determine remedial or management actions (if required). The investigations are to be undertaken in accordance with guidelines made or endorsed by the EPA and the ASC NEPM 2013. The additional supplementary investigations must consider detailed engineering design and construction methodology to inform management, remedial or risk assessment approaches.</p> <p>Destructive hazardous materials (HAZMAT) asbestos and lead paint surveys of any buildings or structures within the AWRC site prior to demolition, clearing or earthworks.</p> <p>Data obtained from these assessments will provide site specific remediation recommendations and outline locations, quantities and condition of materials identified in order to inform cost estimates and scheduling of remediation works and possible re-use options.</p> <p>Earthworks planning to ensure that contaminated zones do not distribute asbestos or any other contamination away from the source zones. Earthworks planning will be provided in the project RAP (where required).</p> <p>Further information regarding process for moderate to high-risk AEC is detailed in section 6.5.1</p> <p>Unexpected Finds Protocol for Contamination</p>
2	PFAS	If present, PFAS can migrate through surface water and groundwater pathways. Because there are no exceedances for PFAS and the air strip is small with no previous known fire training occurring, the impact	Low	<ul style="list-style-type: none"> Pre-construction activities including utility adjustment, site access provisions, property adjustments Vegetation clearing and topsoil removal 	<p>Project-specific and Progressive Erosion and Sediment Control Plans (ESCP) will be developed and implemented as part of Construction Environmental Management Plan (CEMP) and Surface water and Groundwater sub-plan (SWGCS). These plans provide mitigation to minimise the</p>

AEC ID	Potential COPCs present	Likelihood of the risk occurring	Risk Rating / Expected Consequence	Construction Activity	Potential Mitigation / Recommendation
		significance and likelihood of the risk occurring is low .		<ul style="list-style-type: none"> Planned salvage removal of heritage items Bulk earthworks and excavations Construction of site compounds Construction and use of site access including drainage works Material stockpiles Waste storage and material laydown Compounds operation including fuel and chemical storage, refuelling and chemical handling Removal of groundwater and dewatering Noxious weed treatment including herbicide spraying 	risk of erosion and prevent sediment migration through overland and surface flow paths. Compliance with the CEMP and SWGCSP. Unexpected Finds Protocol for Contamination
3	PFAS	Because there are no known exceedances from investigations undertaken for the project and AEC 3 is about 500 m from the project brine pipeline alignment, the impact significance and likelihood of the risk occurring low .	Low	<ul style="list-style-type: none"> Pre-construction activities including utility adjustment, site access provisions, property adjustments Vegetation clearing and topsoil removal Bulk earthworks and excavations Construction and use of site access including drainage works Noxious weed treatment including herbicide spraying 	Project specific and Progressive ESCPs will be implemented as part of CEMP and SWGCSP. These plans provide mitigation to minimise the risk of erosion and prevent sediment migration through overland and surface flow paths. Compliance with the CEMP and SWGCSP. Unexpected Finds Protocol for Contamination
4	Heavy metals	Because ecological exceedances (ASC NEPM, 2013) for zinc, copper and nickel in soil are noted concentrations at background levels, the impact significance and likelihood of the risk occurring is low .	Low	<ul style="list-style-type: none"> Pre-construction activities including utility adjustment, site access provisions, property adjustments Vegetation clearing and topsoil removal Bulk earthworks and excavations Construction and use of site access including drainage works Noxious weed treatment including herbicide spraying 	Further assessment of identified contamination AECs prior to construction to determine remedial or management actions (if required). The investigations are to be undertaken in accordance with guidelines made or endorsed by the EPA and the ASC NEPM 2013. The additional supplementary investigations must consider detailed engineering design and construction methodology to inform management, remedial or risk assessment approaches. Data obtained from these assessments will provide site specific remediation recommendations and outline locations, quantities and condition of materials identified in order to

AEC ID	Potential COPCs present	Likelihood of the risk occurring	Risk Rating / Expected Consequence	Construction Activity	Potential Mitigation / Recommendation
					inform cost estimates and scheduling of remediation works and possible re-use options. Earthworks planning to ensure that contaminated zones do not distribute asbestos or any other contamination away from the source zones. Earthworks planning will be provided in the project RAP (where required).
5	TRH, BTEX, ammonia, PAH, heavy metals, OCP, OPP, PCB, nutrients, ACM	Because soil sampling near the site found no exceedances of adopted Tier 1 criteria (ASC NEPM, 2013) and AEC 5 is 1.7 km from the brine pipeline the impact significance and likelihood of the risk occurring is low .	Low	<ul style="list-style-type: none"> Pre-construction activities including utility adjustment, site access provisions, property adjustments Vegetation clearing and topsoil removal Bulk earthworks and excavations Construction and use of site access including drainage works Noxious weed treatment including herbicide spraying 	<p>Further assessment of identified contamination AECs prior to construction to determine remedial or management actions (if required). The investigations are to be undertaken in accordance with guidelines made or endorsed by the EPA and the ASC NEPM 2013. The additional supplementary investigations must consider detailed engineering design and construction methodology to inform management, remedial or risk assessment approaches.</p> <p>Data obtained from these assessments will provide site specific remediation recommendations and outline locations, quantities and condition of materials identified in order to inform cost estimates and scheduling of remediation works and possible re-use options.</p> <p>Earthworks planning to ensure that contaminated zones do not distribute asbestos or any other contamination away from the source zones. Earthworks planning will be provided in the project RAP (where required).</p>
6	TRH, BTEX, ammonia, PAH, heavy metals, OCP, OPP, PCB, nutrients, ACM	There is potential for contaminated groundwater to migrate to the AWRC site as topography indicates that groundwater is expected to flow from west to east. However, the presence of South Creek between the two sites will act as a barrier or hydrogeological divide to the migration of groundwater and landfill gas. The impact significance and likelihood of the risk occurring for migration of contaminated groundwater is moderate . Landfill gas is deemed to have a low impact significance and likelihood of occurrence to the project	Moderate	<ul style="list-style-type: none"> Pre-construction activities including utility adjustment, site access provisions, property adjustments Vegetation clearing and topsoil removal Bulk earthworks and excavations Construction and use of site access including drainage works Noxious weed treatment including herbicide spraying 	<p>Ensure the hydrological divide between the two sites remains intact.</p> <p>Compliance with the CEMP and SWGCSP.</p> <p>Project specific and Progressive ESCPs will be implemented as part of CEMP and SWGCSP. These plans provide mitigation to minimise the risk of erosion and prevent sediment migration through overland and surface flow paths.</p> <p>Further information regarding process for moderate to high-risk AEC is detailed in section 6.5.1</p> <p>Unexpected Finds Protocol for Contamination</p>

AEC ID	Potential COPCs present	Likelihood of the risk occurring	Risk Rating / Expected Consequence	Construction Activity	Potential Mitigation / Recommendation
		due to the distance between the two sites (400 m).			
7	Heavy metals	Because exceedances for copper and zinc in groundwater are from background levels (likely naturally occurring and not indicative of anthropogenic contamination), the impact significance and likelihood of occurrence is considered low .	Low	<ul style="list-style-type: none"> Pre-construction activities including utility adjustment, site access provisions, property adjustments Vegetation clearing and topsoil removal Bulk earthworks and excavations Construction and use of site access including drainage works Noxious weed treatment including herbicide spraying 	<p>Further assessment of identified contamination AECs prior to construction to determine remedial or management actions (if required). The investigations are to be undertaken in accordance with guidelines made or endorsed by the EPA and the ASC NEPM 2013. The additional supplementary investigations must consider detailed engineering design and construction methodology to inform management, remedial or risk assessment approaches.</p> <p>Data obtained from these assessments will provide site specific remediation recommendations and outline locations, quantities and condition of materials identified in order to inform cost estimates and scheduling of remediation works and possible re-use options.</p> <p>Compliance with the CEMP and SWGCSP.</p> <p>Unexpected Finds Protocol for Contamination</p>
8	ACM	Because of ACM present within the soil to the north of Range Road and parts of AEC 8 are within the impact area for the project and will be disturbed during construction, the impact significance and likelihood of the risk occurring is moderate .	Moderate	<ul style="list-style-type: none"> Pre-construction activities including utility adjustment, site access provisions, property adjustments Vegetation clearing and topsoil removal Bulk earthworks and excavations Construction and use of site access including drainage works Noxious weed treatment including herbicide spraying 	<p>Further assessment of identified contamination AECs (typically asbestos in soils) prior to construction to determine remedial or management actions (if required), including consideration of containment cells where feasible and permissible. The investigations are to be undertaken in accordance with guidelines made or endorsed by the EPA. The additional supplementary investigations must consider detailed engineering design and construction methodology to inform management, remedial or risk assessment approaches.</p> <p>Destructive hazardous materials (HAZMAT) asbestos and lead paint surveys of any buildings or structures within the AWRC site prior to demolition, clearing or earthworks.</p> <p>Data obtained from these assessments will provide site specific remediation recommendations and outline locations, quantities and condition of materials identified in order to inform cost estimates and scheduling of remediation works and possible re-use options.</p> <p>Earthworks planning to ensure that contaminated zones do not distribute asbestos or any other contamination away from</p>

AEC ID	Potential COPCs present	Likelihood of the risk occurring	Risk Rating / Expected Consequence	Construction Activity	Potential Mitigation / Recommendation
					the source zones. Earthworks planning will be provided in the project RAP (where required). Further information regarding process for moderate to high-risk AEC is detailed in section 6.5.1 Unexpected Finds Protocol for Contamination
9	TRH, BTEX, PAH, heavy metals, PCB, nutrients, ACM	Because there are no adopted Tier 1 screening criteria (ASC NEPM, 2013) exceedances and the treated water pipeline does not intersect with AEC 9 the impact significance and likelihood of the risk occurring is low .	Low	<ul style="list-style-type: none"> Pre-construction activities including utility adjustment, site access provisions, property adjustments Vegetation clearing and topsoil removal Bulk earthworks and excavations Construction and use of site access including drainage works Noxious weed treatment including herbicide spraying 	<p>Further assessment of identified contamination AECs (typically asbestos in soils) prior to construction to determine remedial or management actions (if required). The investigations are to be undertaken in accordance with guidelines made or endorsed by the EPA and the ASC NEPM 2013. The additional supplementary investigations must consider detailed engineering design and construction methodology to inform management, remedial or risk assessment approaches.</p> <p>Destructive hazardous materials (HAZMAT) asbestos and lead paint surveys of any buildings or structures within the AWRC site prior to demolition, clearing or earthworks.</p> <p>Data obtained from these assessments will provide site specific remediation recommendations and outline locations, quantities and condition of materials identified in order to inform cost estimates and scheduling of remediation works and possible re-use options.</p> <p>Earthworks planning to ensure that contaminated zones do not distribute asbestos or any other contamination away from the source zones. Earthworks planning will be provided in the project RAP (where required).</p> <p>Unexpected Finds Protocol for Contamination</p>
10	TRH, BTEX, PAH, heavy metals, PCB, ACM	Because there are no adopted Tier 1 screening criteria (ASC NEPM, 2013) exceedances in soil, and asbestos cement sheeting present in waste piles is unlikely to be disturbed by construction of the treated water pipeline, the impact significance and likelihood of the risk occurring is low .	Low	<ul style="list-style-type: none"> Pre-construction activities including utility adjustment, site access provisions, property adjustments Vegetation clearing and topsoil removal Bulk earthworks and excavations Construction and use of site access including drainage works Noxious weed treatment including herbicide spraying 	<p>Further assessment of identified contamination AECs (typically asbestos in soils) prior to construction to determine remedial or management actions (if required). The investigations are to be undertaken in accordance with guidelines made or endorsed by the EPA and the ASC NEPM 2013. The additional supplementary investigations must consider detailed engineering design and construction methodology to inform management, remedial or risk assessment approaches.</p>

AEC ID	Potential COPCs present	Likelihood of the risk occurring	Risk Rating / Expected Consequence	Construction Activity	Potential Mitigation / Recommendation
				<ul style="list-style-type: none"> Tunnelling for pipelines at select locations 	<p>Destructive hazardous materials (HAZMAT) asbestos and lead paint surveys of any buildings or structures within the AWRC site prior to demolition, clearing or earthworks.</p> <p>Data obtained from these assessments will provide site specific remediation recommendations and outline locations, quantities and condition of materials identified in order to inform cost estimates and scheduling of remediation works and possible re-use options.</p> <p>Earthworks planning to ensure that contaminated zones do not distribute asbestos or any other contamination away from the source zones. Earthworks planning will be provided in the project RAP (where required).</p> <p>Unexpected Finds Protocol for Contamination</p>
16	TRH, ACM	Given the TRH exceedance in the soil sample associated with the service station near Cabramatta Rd, West Bonnyrigg and that AEC 16 may be subject to disturbance at this location for pipeline construction, the impact significance is moderate. Whilst other AECs are unlikely to be impacted by disturbance during construction, COPCs can migrate so the impact significance and likelihood of the risk occurring is moderate .	Moderate	<ul style="list-style-type: none"> Pre-construction activities including utility adjustment, site access provisions, property adjustments Vegetation clearing and topsoil removal Bulk earthworks and excavations Construction and use of site access including drainage works Noxious weed treatment including herbicide spraying 	<p>Further assessment of identified contamination AECs (typically asbestos in soils) prior to construction to determine remedial or management actions (if required). The investigations are to be undertaken in accordance with guidelines made or endorsed by the EPA and the ASC NEPM 2013. The additional supplementary investigations must consider detailed engineering design and construction methodology to inform management, remedial or risk assessment approaches.</p> <p>Destructive hazardous materials (HAZMAT) asbestos and lead paint surveys of any buildings or structures within the AWRC site prior to demolition, clearing or earthworks.</p> <p>Data obtained from these assessments will provide site specific remediation recommendations and outline locations, quantities and condition of materials identified in order to inform cost estimates and scheduling of remediation works and possible re-use options.</p> <p>Earthworks planning to ensure that contaminated zones do not distribute asbestos or any other contamination away from the source zones. Earthworks planning will be provided in the project RAP (where required).</p> <p>Further information regarding process for moderate to high-risk AEC is detailed in section 6.5.1</p> <p>Unexpected Finds Protocol for Contamination</p>

6 Management of Soils and Contamination

6.1 Soil Management Practices

As described in Section 1.5, the management of erosion and sediment control is detailed within the SWGCSP (Appendix B1 of the CEMP) and includes an Erosion and Sediment Control Procedure. An overview of relevant soil management practices is provided below.

Key soil management practices to mitigate impacts of the project and demonstrate best practice include:

- Minimise the footprint of land and soil disturbance associated with construction activities.
- Stage construction activities to minimise the duration and extent of land disturbance.
- Commence earthworks, stripping topsoil and subsoil independently and storing these separately. Weed-free topsoil should be preserved for use later in rehabilitation.
- Stockpiled material to be recorded on the stockpile location permit and register (summarised below in Section 6.2) and in relevant Erosion and Sediment Control Plans (ESCPs).
- Progressive early stabilisation of all disturbed areas to be conducted during construction phase.
- Establish temporary cover or stabilise disturbed areas where rehabilitation is delayed.
- Limit unnecessary vehicle movements across the wider project area to those only required for construction activities and ensure movements are contained to the predefined construction access tracks.
- During rehabilitation, soil conditioning may be required based on soil analysis results.

Prior to the commencement of any work, erosion and sediment controls will be installed and maintained, as a minimum, in accordance with the publication *Managing Urban Stormwater: Soils & Construction* (4th edition, Landcom 2004) commonly referred to as the 'Blue Book'. In the South Creek catchment, controls will also be implemented to meet the construction phase targets and sediment and erosion control design principles outlined in the *Technical Guidance for Achieving Wianamatta South Creek Stormwater Management Targets* (DPE, 2022).

Site-specific ESCPs will be developed and progressively updated for the project by a Certified Professional in Erosion and Sediment Control (CPESC) with a minimum of five years' experience. The nominated CPESC for the project is Carl Vincent, Director of ErSed Environmental Pty Ltd, with over 20 years' experience in soil conservation, environmental best practice in construction, land management and environmental protection.

An Environmental Protection Licence (EPL) is in place for the project in which John Holland is the licensee. A meeting between representatives of the EPA and John Holland took place on Friday 10 February 2023 to discuss the licensing approach for the Project. This included specific detail around the proposed erosion and sediment control strategy (including staging and sequencing of the work) and how this will relate to compliance with other linked CoA, including E124 and the preparation of a water pollution impact assessment required to inform licencing consistent with section 45 of the *Protection of the Environment Operations Act 1997*. This plan and specifically the SWGCSP has been updated following the issue of the EPL for the project.

6.2 Stockpile Management

Stockpiles will be managed in accordance with the stockpile management protocols in Appendix A9 of the CEMP - Stockpile Management Protocol.

A summary of the stockpile management requirements for the project include:

- Prior to use, the location of proposed stockpiles will be assessed under the Stockpile Location Permit. Details of each stockpile are to be recorded on the Stockpile Register.
- Site-specific mitigation measures, where they are necessary to further reduce impacts, are to be identified and detailed in the Stockpile Location Permit.
- An ESCP of the stockpile location will be prepared and implemented in advance of stockpiling and will include soil and water management measures.
- Implement any additional required measures of stockpiles of potentially impacted material, as directed by the Environmental Manager.
- If a stockpile is found to be contaminated material, then sampling should be undertaken in the stockpile footprint once the stockpile has been removed, where there has been direct contact between stockpile and the exposed ground. This demonstrates that no residual contamination from the stockpile remains or has leached into the underlying soils.

6.3 Acid Sulfate Management

Risk ratings for Acid Sulfate Soils (ASS) identified in Appendix N - Soils and Contamination Impact Assessment (Aurecon Arup, 2021f) of the EIS have been revised and are presented below in Table 6.1.

A search of the DPIE ASS risk map indicates that the majority of the project area is not located within an area of potential ASS including the AWRC site and surrounds. Figure 4-1 details ASS within the desktop assessment area.

Some potential ASS risk areas are present around Prospect Creek, including:

- A high potential for occurrence of ASS along the brine pipeline associated with creek bed sediments and surrounding embankments where the Hume Highway intersects Prospect Creek.
- A high potential for occurrence of ASS for creek bed sediments in the George Rivers near Moorebank, and a low probability for occurrence of ASS along the banks and riparian zones of the Georges River.
- Areas surrounding the Georges River in Chipping Norton and Milperra, where a mixture of ASS probability zones are present, including disturbed terrain, high probability ASS, high probability creek bed sediments, and low probability for ASS.

The risk of disturbing ASS is present within the eastern portion of the brine pipeline. The main disturbance mechanisms will be ground disturbance by excavation, Horizontal Directional Drilling (HDD) and localised dewatering / ground water management for the pipeline works.

Table 6.1 Areas of environmental concern risk rating for Acid Sulfate Soils

Likelihood of Risk Occurring	Risk Rating Expected Consequence	Potential Mitigation / Recommendation
Given the excavations would be minor and localised to the pipeline construction and the works would be temporary and not change pre-development conditions significantly, the likelihood of the risk occurring is low .	Low	<p>ASS were assessed during the SCLI Assessment (Aurecon Arup, 2021). The assessment found that for the treated water pipeline, ASS was considered unlikely to be encountered during construction based on the results of previous investigations (laboratory testing and lithology). For the brine pipeline, the only area where ASS were considered to potentially be encountered was around Prospect Creek. A review of existing soil analytical testing and interpretation of results and are detailed in the relevant Remediation Action Plans (RAPs). In summary, the two boreholes (BDNO5_BH23 and BDNO5_BH24) drilled on either side of Prospect Creek did not indicate ASS presence based on laboratory results. Further, the spoil characterisation report as per the DSI undertaken at Lansdowne Reserve did not identify any contamination. Therefore, no ASS management plans were considered to be required for construction.</p> <p>Any unexpected ASS encountered during excavation will be managed through a process neutralisation treatment using agricultural lime. The treated soils will undergo validation to ensure they have been treated to the correct level. Once validated, the ASS can be either beneficially reused on-site or disposed of at a licensed waste facility. The specific outcome and decision for each encountered instance of ASS, whether it should be treated and reused or removed, will be determined through the delivery of the program/process detailed in Section 6.5.1. Section 6.5.1 provides mechanisms for identifying the appropriate course of action for each encountered instance of ASS.</p>

Where detailed design indicates soils will be disturbed, a soil sampling program will be developed and implemented to assess excavated soils for ASS soils. If ASS soils are identified, an ASS Management Plan (ASSMP) will be developed in accordance with the NSW ASSMAC (1998) guidelines and consideration of the Department of Agriculture and Water Resources 'National Acid Sulfate Soils guidance: National acid sulfate soils sampling and identification methods manual'. The ASSMP will include:

- identification of ASS locations
- handling and storage procedures to avoid and minimise exposure of stockpiles
- where stockpiles are exposed, treatment options, such as neutralisation with lime
- controls and management of any acid leachate to avoid pollution to receiving environments.

Excavation of ASS will be avoided where possible. Where it cannot be avoided, potential treatment and re-use on site and/or off site will be investigated. SEPs and EWMS will be updated where relevant to manage ASS.

6.4 Saline and Sodic Soils Management

Where detailed design indicates soils will be disturbed, a soil sampling program will be developed and implemented to assess excavated soils for salinity and sodicity. If saline or sodic soils are identified:

- Saline soils will be managed in accordance with NSW Department of Primary Industries (2014) Salinity Training Handbook and NSW guidelines for salinity management.
- Excavation of sodic soils will be avoided if possible. If not possible to avoid excavation, they will not be reused within the project for landscaping or surface rehabilitation, subject to advice provided by suitably qualified soil specialist. Potential treatment and onsite reuse (e.g. sub-surface backfilling) will be investigated and implemented if deemed viable where sodic soils are encountered.
- Areas of Sodic Soils will be included to Site Environmental Plans and works near these areas will include appropriate mitigation measures as part of their EWMS.

6.5 Contaminated Land Management

The contaminated land management process for the project and provision of recommendations for subsequent remediation and/or management will be completed with reference to the relevant legislation and guidelines outlined in Section 3. Measures to manage and minimise the human health and/or environmental impacts associated with disturbance of contaminated land are to be implemented prior to and during works. Elimination of the hazard is the first preference of control, followed by engineering, then administrative controls.

To effectively mitigate and manage potential impacts associated with contaminated land, it is essential that site staff are made aware of the location of known contamination areas of the project and the contamination risk to themselves and the environment. Signage will be erected to identify areas associated with exclusion zones to prevent unauthorised disturbance, where required. Site staff are to be instructed in measures to mitigate potential impacts and reduce exposure. Contaminated land must not be used until a Section A1 or A2 Site Audit Statement is obtained which states that the land is suitable.

A summary of key contaminated land management practices to mitigate and minimise impacts of the project and demonstrate best practice include:

- Undertake further assessment as detailed in Section 6.5.1 below, and where necessary prepare Remedial Action Plans / Site Management Plans of potential areas of contamination as per Section 6.5.1 (below).
- Minimise the footprint of land and soil disturbance associated with construction activities.
- Excavated known or likely contaminated material to be stockpiled on hardstand or lined surface, in accordance with the relevant RAP (see Section 6.5.1). Stockpile bunding and upslope diversions to be installed, as per the Stockpile Management Protocol.
- Segregate excavated material to allow for any opportunities for onsite management, potential treatment and/or waste classification, where suitable. All waste produced as part of the project must be managed and disposed of in accordance with the Waste Classification Guidelines (NSW EPA 2014) and the WRUCSP under the CEMP.
- All imported material to be used as fill on the project site must be approved by the Environmental Manager, and verified by the Site Auditor, as required. Material is to be verified as Virgin Excavated Natural Material (VENM) or Excavated Natural Material (ENM), in accordance with Appendix A – Imported Material Procedure.
- Undertake a pre-demolition destructive hazardous material survey of any buildings and structures within the ARWC site. Materials removed during demolition are to be segregated to allow for appropriate isolation and management of impacted material, and recycling of different waste streams.
- In the event unexpected contamination or asbestos (or suspected contamination) is discovered during works, the steps outlined in the Unexpected Finds Procedure for Contamination (Appendix C) shall be followed if unexpected contaminated material is encountered, site personnel will be notified through daily toolbox meetings and project documents will be updated accordingly.
- Additional management measures, including validation sampling, for moderate to high-risk AECs, will be performed in accordance with the RAP for the area. Further outlined in Section 6.5.1.

- A tracking register for the project will be utilised to document and manage material for the project including but not limited to, imported fill material, excavated stockpile material and waste material classified for off-site disposal. Periodic inspections of the material tracking register/process can be requested by the Site Auditor.
- To mitigate and manage contamination during the construction period, in the event of a spill, the Spill Response Management Procedure (Appendix B) will be implemented. Fuel, chemical storage and handling areas will be clearly identified with signage. Spill kit and fire response equipment will be located where chemicals are stored and where refuelled plant are operated or maintained. Relevant site personnel will undergo appropriate training for spill management and refuelling. If refuelling is undertaken on site, it will be in a designated area away from drainage lines. All refuelling activities will be supervised.
- Areas of contamination will be included to Site Environmental Plans and works near these areas will include appropriate mitigation measures as part of their EWMS.

6.5.1 Process for Moderate to High-Risk AECs

The management of contamination is a crucial aspect for facilitating the safe and sustainable execution of construction projects. The following process will be undertaken for the management of moderate and high-risk AECs, as confirmed by the independent Site Auditor and listed in Table 5.1. The following documents must be prepared in accordance with the relevant guidelines made or approved by the EPA under Section 105 of the Contaminated Land Management (CLM).

The following documents outline a process or strategy that will be enacted, as required, to identify opportunities for onsite management, retention, or other treatment of contamination. This approach enables the Project to implement best practice contamination management and drive sustainable outcomes. Additionally, this approach aims to create opportunities for the reduction and onsite management of contamination (where feasible and lawful) through optioneering and recommendations provided by the Project's suitably qualified contaminated land specialist.

The independent Site Auditor is to review and provide a written opinion on the contamination risk and the appropriateness of the SAQP, DSI, RAP and validation reports and any proposed management measures. By implementing the key mechanisms in the SAQP, DSI and RAP reports, we can effectively manage contamination in a sustainable manner.

It's noted that separate SAQP, DSI and RAP reports have been prepared for both the pipelines and AWRC components of the Project.

Sampling and Analysis Quality Plan (SAQP)

Prior to the implementation of any soil sampling investigations or construction, a SAQP will be prepared to ensure that field investigations and analyses are undertaken in a way that enables the collection and reporting of reliable data to meet project objectives, including the relevant site characterisation of the DSIs.

The SAQP must:

- a. be prepared (or reviewed and approved) by consultants certified under either the Environment Institute of Australia and New Zealand's Certified Environmental Practitioner (Site Contamination) scheme (CEnvP (SC)) or the Soil Science Australia Certified Professional Soil Scientist Contaminated Site Assessment and Management (CPSS CSAM) scheme; and
- b. be prepared in accordance with relevant guidelines made or approved by the EPA under section 105 of the *Contaminated Land Management Act 1997* (CLM Act), ASC NEPM (2013), Sampling Design Guidelines (NSW EPA, 2022), Consultants Reporting on Contaminated Land (NSW EPA, 2020) and Assessment and Management of Hazardous Ground Gases (NSW EPA, 2020)

Detailed Site Investigation (DSI)

A DSI(s) must be conducted to determine the full nature and extent of the contamination at project areas identified in the SAQP(s). The DSI must:

- a. be prepared (or reviewed and approved) by consultants certified under either the Environment Institute of Australia and New Zealand's Certified Environmental Practitioner (Site Contamination) scheme (CEnvP(SC)) or the Soil Science Australia Certified Professional Soil Scientist Contaminated Site Assessment and Management (CPSS CSAM) scheme
- b. be prepared in accordance with relevant guidelines made or approved by the EPA under section 105 of the CLM Act; and
- c. state if the land within the project footprint is suitable for the proposed use or if the land requires remediation to be made suitable for the proposed use. The DSI must be prepared in accordance with the land use criteria

applicable to the final land use at the opening of the Stage 1 of the CSSI. Where the final land use is unknown the most stringent criteria for the land use assumed in the documents listed in CoA A1 will be applied.

The DSI Report (s) are to be provided to Sydney Water and are to be reviewed by the Site Auditor and submitted to the Planning Secretary upon request following the completion of the DSI (s).

The DSI Report (s) must provide details on:

- a. primary sources of contamination, for example potentially contaminating activities, infrastructure (such as underground storage tanks, fuel line, sumps or sewer lines) or site practices;
- b. contaminant dispersal in air, hazardous ground gases, surface water, groundwater, soil vapour, separate phase contaminants, sediments, infrastructure (e.g. concrete), biota, soil and dust;
- c. contaminant characterisation and behaviour (volatility, leachability, speciation, degradation products and physical and chemical conditions on-site which may affect how contaminants behave);
- d. potential effects of contaminants on human health, including the health of occupants of built structures (for example arising from risks to service lines from hydrocarbons in groundwater, or risks to concrete from acid sulphate soils) and the environment;
- e. potential and actual contaminant migration routes including potential preferential pathways;
- f. the adequacy and completeness of all information available for use in the assessment of risk and for making decisions on management requirements, including an assessment of uncertainty;
- g. the review and update of the conceptual site model from the preliminary and detailed site investigations;
- h. nature and extent of any existing remediation (such as impervious surface cappings); and
- i. whether the land is suitable (for the intended final land use) or can be made suitable through remediation

All recommendations made by the Site Auditor regarding the DSI (s) are to be implemented before work commences to disturb the subject land or unless otherwise agreed by the site auditor.

Remedial Action Plan (RAP)

Where remediation is required to make land suitable for the final intended land use, a Remediation Action Plan (RAP) will be prepared and will include measures to remediate the contamination through reducing and reusing where possible in accordance with relevant guidelines made or approved by the EPA at the site to ensure the site will be made suitable for the final intended land use. The RAP must be prepared and/or reviewed and approved by consultants certified requirements of CoA E83. The RAP will demonstrate how the risks of contamination will be reduced to within acceptable levels and prevent migration within the site as well as off-site.

Where required, RAPs for the Project will:

- a. Set remediation goals that ensure the remediated site will be suitable for the proposed land use;
- b. Document requirements to be implemented to reduce risks to workers during remediation; and
- c. Outline sampling requirements to validate that the remediation strategy has been successful.

The RAP(s) will be prepared and submitted to Sydney Water and the Site Auditor for review. The RAP(s) (and accompanying interim audit advice from the Site Auditor) will be issued to DPE and Sydney Water for information prior to commencement of remediation works.

Validation Report

Validation reports are required to confirm that the remediation goals specified under the RAP(s) have been achieved. The report (s) will detail:

- a. Description of remedial action undertaken;
- b. The validation results of the remediation action undertaken on the site;
- c. Confirmation that all regulatory requirements, where applicable, have been met; and
- d. Identification of any residual contamination with discussion of any associated risks and an outline of control measures required.

Validation Reports will be submitted to the Site Auditor to review and provide a written opinion on the appropriateness of the report. Where residual contamination is retained on-site, the Validation report may be accompanied by an Environmental Management Plan.

Following remediation, a Section A1 or A2 Site Audit Statement and a Site Audit Report is to be provided by the Site Auditor, stating that the contaminated land disturbed by the remediation works has been made suitable for the intended land use. The Site Audit Statement and Site Audit Report must be submitted to DPE and relevant councils after remediation and no later than one month before the commencement of the project.

The following progressive Interim Audit Advice (IAA) has been issued by the Site Auditor and are also provided in Appendix E.

- L02 Interim Audit Advice (0503-2307-02) – Unexpected Finds Protocol dated 9 December 2022
- L03 Interim Audit Advice (0503-2307-03) – Review of the Upper South Creek Advanced Water Recycling Centre - Soils and Contaminated Land Impact Assessment dated 17 March 2023
- L04 Interim Audit Advice (0503-2307-04) – Review of the Upper South Creek Advanced Water Recycling Centre – Soils and Contamination Construction Environmental Management Plan Sub-Plan dated 12 May 2023
- L05 Interim Audit Advice (0503-2307-05) – Review of the Upper South Creek Advanced Water Recycling Centre - Soils and Contaminated Land Impact Assessment – Pipelines dated 16 May 2023
- L06 Interim Audit Advice (0503-2307-06) – Review of the USC AWRC Plant Sampling and Analysis Quality Plan dated 22 June 2023
- L07 Interim Audit Advice (0503-2307-07) – Review of the Pipelines Sampling and Analysis Quality Plan dated 14 August 2023
- L08 Interim Audit Advice (0503-2307-08) – Review of the Remedial Action Plan – Plant site dated 30 August 2023
- L09 Interim Audit Advice (0503-2307-08) – Review of the Remedial Action Plan – Plant site dated 6 September 2023
- L10 Interim Audit Advice (0503-2307-10) – Review of the Remedial Action Plan for Pipelines Alignment dated 22 December 2023
- L11 Interim Audit Advice (0503-2307-11) – Review of the Updated Remedial Action Plan for Pipelines Alignment dated 20 March 2024

6.6 Mitigation and Management Measures

A range of environmental requirements and control measures are identified in the various environmental documents prepared for the project, including the EIS, Submissions Report, supplementary assessments, CoAs and UMMs. Specific measures and requirements to address potential impacts on soils and contamination are outlined in Table 6.2.

Table 6.2 Soils and contaminated land mitigation and management measures

ID	Measure / Requirement	Timing	Responsibility	Evidence	Reference
Pre-construction					
SC01	Planning Secretary approval issued for the SCCSP (Hold Point)	Prior to construction	SWC Environment Lead (SWC EL) / JH Environment Manager (JH EM)	Formal approval letter from DPE (CoA C11)	CoA C11
SC02	Develop Site Environmental Plans (SEPs) including consideration of contamination risk and reference to project's Unexpected Finds Procedure for Contamination.	Prior to construction	JH Environmental Manager	SEPs	Section 3.2.4 of the CEMP
SC03	Staff induction to include soil and contamination risks and measures to mitigate impacts.	Prior to construction During construction	JH Environmental Manager / JH Construction Manager	Induction and training records	CoA C2
SC04	Location of known contamination areas will be communicated to relevant staff on Environmental Work Method Statements (EWMS) and Site Environment Plans (SEPs), including measures to manage, control and reduce exposure.	Prior to construction During construction	JH Environmental Manager / JH Construction Manager	EWMS	CoA C2
Contamination Management					
SC05	A NSW EPA accredited Site Auditor(s) has been engaged for the project. The role of the Site Auditor is detailed in Section 7.1, and includes review of AEC risk ratings, remediation strategies (if required) and sign-off of plans and reports, as listed in Condition E74.	Prior to construction During construction	Sydney Water Environmental Lead	Auditor correspondence	CoA E74, E75 and E76
SC06	An SAQP for medium and high-risk AECs must be prepared to ensure that field investigations and analyses will be undertaken in a way that enables the collection and reporting of reliable data to meet project objectives, including the relevant site characterisation requirements of the detailed site investigations.	Prior to construction	JH Environmental Manager / JH Construction Manager Reviewed by Site Auditor	SAQP(s)	CoA E77 and UMM CLS01

ID	Measure / Requirement	Timing	Responsibility	Evidence	Reference
SC07	<p>For medium to high-risk AECs, a Detailed Site Investigations(s) (DSI) must be conducted to determine the full nature and extent of the contamination at project areas identified in the SAQP(s). The DSI must:</p> <p>(a) be prepared (or reviewed and approved) by consultants certified under either the Environment Institute of Australia and New Zealand's Certified Environmental Practitioner (Site Contamination) scheme (CEnvP(SC)) or the Soil Science Australia Certified Professional Soil Scientist Contaminated Site Assessment and Management (CPSS CSAM) scheme</p> <p>(b) be prepared in accordance with relevant guidelines made or approved by the EPA under section 105 of the CLM Act; and</p> <p>(c) state if the land within the project footprint is suitable for the proposed use or if the land requires remediation to be made suitable for the proposed use.</p> <p>The DSI Report (s) must be reviewed by the Site Auditor and submitted to the Planning Secretary upon request following the completion of the DSI (s).</p>	Prior to construction	JH Environmental Manager / JH Construction Manager	DSI(s)	CoA E78 and E79
SC08	<p>DSI Reports must be reviewed by the Site Auditor. Any land confirmed as a moderate to high-risk area of potential contamination by the Site Auditor must have all recommendations from the DSI (made by the Site Auditor) implemented before work commences that could result in disturbance of that land unless otherwise agreed with the site auditor.</p> <p>This SCCSP is to be updated with any significant findings/recommendations made in the DSI Reports (unless otherwise approved by the Planning Secretary).</p>	Prior to construction	JH Environmental Manager / JH Construction Manager	Auditor correspondence	CoA E81 and E82 UMM CLS03
SC09	Where remediation is required to make land suitable for the final intended land use, a Remedial Action Plan (RAP) must be prepared and must include measures to remediate the contamination at the site to ensure the site will be made suitable for the final intended land use.	<p>Prior to construction</p> <p>During construction</p>	<p>JH Environmental Manager / JH Construction Manager</p> <p>Reviewed by Site Auditor</p>	<p>Auditor correspondence</p> <p>RAP</p>	CoA E83
SC10	Prior to commencing with any remediation, the relevant RAP(s) and accompanying interim audit advice from the Site Auditor is to be submitted to DPE. The RAP must be implemented and any changes to the RAP must be approved in writing by the Site Auditor.	Prior to construction	JH Environmental Manager / JH Construction Manager	<p>Auditor correspondence</p> <p>RAP</p>	CoA E84

ID	Measure / Requirement	Timing	Responsibility	Evidence	Reference
SC11	Following remediation of moderate to high-risk areas of potential contamination, a Section A1 or A2 Site Audit Statement (accompanied by an Environmental Management Plan) and its accompanying Site Audit Report is to be submitted to the Planning Secretary and relevant council(s). The documents should state that the contaminated land disturbed by the remediation works has been made suitable for the intended land use. Submission should occur no later than one month before the commencement of operation of the project.	During construction Post construction	JH Environmental Manager	Auditor correspondence	CoA E85
SC12	Operation is not to commence on contaminated land until a Section A1 or A2 Site Audit Statement is obtained which states that the land is suitable for its final purpose and any conditions on the Section A Site Audit Statement have been complied with.	Post construction	JH Construction Manager	Auditor correspondence	CoA 86
SC13	This SCCSP is to be updated to include any recommendations to minimise risk to human health, the environment or for the management of contamination, following advice or audits received from the Site Auditor.	Prior to construction During construction	JH Environmental Manager	Auditor correspondence	CoA 87
SC14	The Unexpected Finds Procedure for Contamination is to be followed should unexpected contamination or asbestos (or suspected contamination) be excavated or otherwise discovered during works.	During construction	JH Environmental Manager / JH Construction Manager / Site Foreman	Appendix C	CoA 88 UMM CLS04
SC15	Undertake a pre-demolition destructive hazardous material survey of any buildings and structures within the AWRC site. Implement measures within the RAP to address any requirements identified from the destructive hazardous material survey.	Prior to construction During construction	JH Construction Manager	RAP Destructive hazardous material survey	UMM CLS02 and CLS03
SC16	Manage contaminated waste streams in accordance with the Waste and Resource Use CEMP Sub-plan, Resource Efficiency Strategy (RES), Resource, efficiency Action Plan, (REAP) and RAPs (where relevant). Specific mechanisms to adopt a reduce and onsite management approach for dealing with contaminated material will be explored.	Prior to construction During construction	JH Environmental Manager / JH Construction Manager / Site Foreman	Waste tracking register	UMM W01
SC17	Implement control measures such as sediment controls developed in accordance with the 'Bluebook' to divert surface runoff away from contaminated land and to capture and manage any surface runoff contaminated by exposure to contaminated land. These controls will be documented in Site Environmental Plans.	During construction	Site Foreman / JH Environmental Manager	Inspections ESCPs	Good Practice

ID	Measure / Requirement	Timing	Responsibility	Evidence	Reference
SC18	Where contamination is encountered, workers will apply the appropriate Personal Protective Equipment (PPE). The appropriate PPE will depend on the contaminant type and the works to be undertaken. Appropriate PPE will be decided upon in consultation with a suitably qualified expert in contamination	During construction	JH Construction Manager / JH Health and Safety Team / Suitably qualified contamination expert	Inspection of PPE	Good Practice
SC19	Contaminated material will be excavated and where stockpiling is required, stockpiled at a suitably segregated location(s) away from sensitive areas (e.g. water bodies, drainage lines, stormwater pits, etc) and ongoing excavations, and in a manner that will not cause nuisance to the neighbouring properties.	During construction	JH Construction Team	Inspections SEP EWMS	Good Practice
SC20	Stockpiles of contaminated material (where stockpiled in a compound or area not suitable for reuse) shall be stockpiled at a suitably segregated location(s) and placed on geofabric, and ideally on hardstand where possible, to reduce cross contamination of the underlying soil.	During construction	JH Construction Team	Inspections SEP EWMS	Good Practice
SC21	The management of contaminated stockpiles will be undertaken consistent with the USC Stockpile Management Protocol in the CEMP (Appendix A9).	During construction	JH Construction Team	Inspections SEP EWMS	Appendix A9 of CEMP
SC22	Measures will be implemented to ensure no contaminated material is spilled onto public roadways or tracked off-site on vehicle wheels. Subject to final site layout of compound this may include rumble grid and/or wheel wash). Roadways will be kept clean throughout the remediation works and will be broomed.	During construction	JH Construction Team	Inspections SEP EWMS	Good practice
SC23	All loads will be securely covered and may be lightly wetted, if required, to ensure that no materials or dust are dropped or deposited outside or within the site.	During construction	JH Construction Team	Inspections SEP EWMS	Good practice
Soil and Materials Management					
SC24	Imported material must be approved by the Environment Manager prior to being used as fill, as per the Imported Material Procedure referenced in Appendix A. The material must be certified as Virgin Excavated Natural Material (VENM), Excavated Natural Material (ENM) or comply with relevant resource recovery orders or exemptions under the Protection of the Environment Operations Act 1997, the Protection of the Environment Operations Waste Regulation (2014).	During construction	JH Environmental Manager / JH Construction Manager	Appendix A	UMM CLS05

ID	Measure / Requirement	Timing	Responsibility	Evidence	Reference
SC25	Imported fill materials and exported waste will be recorded in a tracking register in accordance with the Waste Management Plan.	During construction	JH Environmental Manager / Site Foreman	Waste tracking register	Good practice
SC26	Manage spills in accordance with the Spill Response procedure – Appendix B	During construction	Site Foreman / JH Environmental Manager	Incident recording	UMM SW07
SC27	Manage impacted stockpiles in accordance with the Stockpile Management Protocol (Appendix 9 of CEMP) and/or requirements of the relevant RAP.	During construction	Site Foreman / JH Environmental Manager	Stockpile Location permit Inspections	Good practice CoA E83
SC28	Relevant soil management and contaminated land control measures from this SCCSP will be included in relevant EWMS and/or Erosion and Sediment Control Plans (ESCP).	Prior to construction During construction	JH Environmental Manager	EWMS ESCPs	Good Practice
SC29	Inspections will occur to ensure that all soil stabilisation controls are in place and in effective working order in accordance with the relevant ESCP and section 7.3.	Prior to rainfall	Site Foreman / JH Environmental Manager	Inspections	Good Practice
SC30	Where identified, saline soils will be managed in accordance with NSW Department of Primary Industries (2014) Salinity Training Handbook and NSW guidelines for salinity management. Excavation of sodic soils will be avoided if possible. If not possible to avoid excavation, they will not be reused within the project for landscaping or surface rehabilitation (unless a treatment method is approved by the Site Auditor).	Prior to construction During construction	Site Foreman / JH Environmental Manager	SAQPs Material tracking register	CLS01
SC31	Stage construction activities to minimise the duration and extent of land disturbance. Progressive early stabilisation of all disturbed areas to be conducted during construction phase	During construction	Site Foreman / JH Environmental Manager	Inspections	Good practice
SC32	If ASS is identified during investigations or unexpected finds, an ASS management plan (ASSMP) would be developed in accordance with the NSW ASSMAC (1998) guidelines and consideration of the Department of Agriculture and Water Resources 'National Acid Sulfate Soils guidance: National acid sulfate soils sampling and identification methods manual. The ASSMP will be provided to the Site Auditor for review.	Prior to construction During construction	Site Foreman / JH Environmental Manager	SAQPs ASSMP	CLS01
SC33	Commence earthworks, stripping topsoil and subsoil independently and storing these separately. Weed-free topsoil should be preserved for use later in rehabilitation. Any stored material will be stored in accordance with the Stockpile Management Protocol (Appendix A9 of the CEMP).	During construction	Site Foreman / JH Environmental Manager	Stockpile Location permit Inspections	Good practice

ID	Measure / Requirement	Timing	Responsibility	Evidence	Reference
SC34	Limit unnecessary vehicle movements across the wider project area to those only required for construction activities and ensure movements are contained to the predefined construction access tracks.	During construction	Site Foreman / JH Environmental Manager	Inspections	Good practice

7 Compliance Management

7.1 Roles and responsibilities

The John Holland project team's organisational structure and overall roles and responsibilities are outlined in Section 3.3 of the CEMP. Specific responsibilities for the implementation of environmental controls are detailed in Section 6 of this Plan.

7.1.1 Contamination Site Auditor (EPA Accredited Site Auditor)

The Contamination Site Auditor has been engaged by Sydney Water for the duration of the project. The responsibilities of the Contamination Site Auditor include, but are not limited to, the following:

- review all relevant documentation and provide a written opinion on the contamination risk and the appropriateness of the reports and any proposed management measures of the site, including (but not limited to):
 - the contamination aspects of management and monitoring plans in CoAs C1 and C4, including any updates or amendment to those plans
 - the review of risk ratings for Areas of Environmental Concern (AECs) in CoA E76
 - sampling and Analysis Quality Plan in CoA E77
 - detailed Site Investigation Report(s) in CoA E79
 - remedial Action Plans in CoA E83
 - unexpected Finds Procedure for Contamination in CoA E88
 - post-remediation validation reports.
- where required, provide evidence that they have reviewed each of the plans and reports listed in CoA E74 and has issued an interim audit advice or a relevant Site Audit Statement regarding the appropriateness of those plans or reports, and must provide it when the plan or report is submitted to the Planning Secretary for information.
- responsibilities of the Contamination Site Auditor are further detailed in the Soils & Contamination CEMP Sub-plan.

7.1.2 Project CPESC

- A Certified Professional in Erosion and Sediment Control (CPESC) with minimum five years' experience will be engaged to oversee all construction and sediment controls required for the AWRC.

7.2 Training

All staff and subcontractors will undergo project-specific induction training that includes relevant soils and contamination risks and management measures that must be implemented and taken into account when planning and delivering work. Additional daily and task-specific training and awareness material may be delivered to relevant staff and workforce, in the form of toolbox talks, pre-start meetings and EWMS for high-risk areas/activities, to ensure that where detailed information is required, it is accessible to all involved with the project.

Elements related to soils and contamination management may include but will not be limited to:

- Measures to reduce soil exposure.
- Identification, avoidance and management of potential contamination.
- Stockpile management.
- Acid Sulfate Soil identification and management.
- Saline and sodic soil identification and management.
- Unexpected finds procedure for contamination.

Further details regarding staff induction and training are outlined in Section 3.5 of the CEMP.

7.3 Monitoring and Inspections

Daily informal observations will be undertaken of the construction work and will be recorded in site diaries in Project Pack Web (PPW), as required. General monitoring of construction areas will occur for evidence of adverse impact which may result from construction activities. Weekly environmental inspections will occur throughout construction. Inspection and monitoring requirements relevant to soils and contamination are summarised in Table 7.1.

Table 7.1 Monitoring and inspections relevant to soils and contamination

Inspection / Monitoring	Frequency	Responsibility	Document Reference
<u>Weekly environmental inspection</u> The effectiveness of environmental controls will be evaluated using an inspection checklist. The inspection will include disturbed areas of contaminated or suspected contaminated land and include any observations of visual or olfactory evidence of potential contamination. The inspection will also note the status and management of soils across the site, the effectiveness of soil stabilisation controls and actions required to be closed out from previous inspections.	Weekly	Superintendent / Foreman / Site Supervisor / Environmental Site Representative	CEMP Appendix A8
Additional requirements for inspections and monitoring will be included in the relevant RAP or other site-specific contamination assessment report, if required. The SCCSP will be updated to reflect additional monitoring conditions.	As required	Superintendent / Foreman / Site Supervisor / Environmental Site Representative	SCCSP RAP – Pipelines RAP – AWRC
Additional requirements for inspections and monitoring as a result of unexpected finds will be included in this table if deemed required.	As required	Superintendent / Foreman / Site Supervisor / Environmental Site Representative	SCCSP RAP – Pipelines RAP – AWRC

Monitoring requirements included in this SCCSP, as approved by the Planning Secretary including any minor amendments approved by the ER must be implemented for the duration of construction or as specified by the Planning Secretary, whichever is the greater.

Monitoring requirements associated with this SCCSMP, as approved by the EPA under EPL 21800 must be implemented until the licence is surrendered by John Holland (the licence holder) or until it is suspended or revoked by the EPA or Minister. A licence may only be surrendered with the written approval of the EPA.

7.3.1 Monitoring Locations

The project will undertake monitoring of work areas that coincide with AEC's nominated in the EIS and has subsequently been confirmed by the Site Auditor via Interim Audit Advice (IAA) included in Appendix E of this plan, as required under CoA E76. A summary of these locations is provided in Figures 7-1a through 7-1g below.

Throughout delivery, the project will undertake monitoring ongoingly and in response to unexpected finds (in accordance with Appendix C) at any location along the project alignment.



Figure 7-1a Moderate AEC on the treated water pipeline (Elizabeth Drive, Kemp's Creek)



Figure 7-1b Moderate AEC on the AWRC site (Clifton Avenue, Kemp's Creek)



Figure 7-1c Moderate AEC on the brine pipeline (Range Road, Kemps Creek)



Figure 7-1d Moderate AEC on the brine pipeline (N Liverpool Rd, Bonnyrigg Heights)



Figure 7-1e Moderate AEC on the brine pipeline (Cabramatta Road, Bonnyrigg)



Figure 7-1f Moderate AEC on the brine pipeline (John Street, Cabramatta)



Figure 7-1g Moderate AEC on the brine pipeline (Hume Highway, Lansdowne)

7.4 Auditing and Reporting

Auditing and reporting requirements are documented in Section 3.9 of the CEMP. The project contamination risk assessment and Acid Sulfate Risk Assessment will be reviewed annually during construction by a suitably qualified professional and updated where necessary, taking into account any new information or changes to the design or construction methodology.

Audits (both internal and external) will be undertaken to assess the effectiveness of environmental controls, compliance with this sub plan, CoA and other relevant approvals, licenses and guidelines.

Details of field observations shall be reported via the weekly environmental inspection checklist, and communicated to all staff during pre-starts, toolbox and team meetings, as required.

A summary of project-specific soils and contamination matters, including incident management, will be provided in the project monthly report issued to Sydney Water.

When a plan or report is submitted to DPE (as listed in CoA E74), evidence is to be provided that it was reviewed by the Site Auditor, in the form of an interim audit advice or relevant Site Audit Statement regarding the appropriateness of those plans or reports.

7.5 Incident Management

Any environmental incidents related to soils and contamination will be reported in accordance with the project's environmental incident management plan (IMP), provided in Section 3.7 of the CEMP. The IMP is consistent with Sydney Water's Incident Management Procedure (DC0000506). Any incident that has caused or is likely to cause material harm to the environment will be reported to Sydney Water within 30 minutes after the incident was first notified, as required by the Sydney Water Environment Incident Reporting Process (REF0866). The John Holland Regional HSEQ team is to be immediately informed of any incident that has caused or has potential to cause material harm to the environment and will advise on the notification of relevant regulators and stakeholders. John Holland will notify Sydney Water immediately and Sydney Water will notify DPE via the NSW Planning Portal Website within seven days in accordance with CoA A45. The notification must identify the CSSI (including the application number and the name of the CSSI), set out the condition/s that is non-compliant, the nature of the breach; the reason for the non-compliance (if known) and what actions have been, or will be, undertaken to address the non-compliance.

A summary of project-specific soils and contamination matters, including incident management, will be provided in the project monthly report issued to Sydney Water.

8 Review and Improvement

8.1 Continuous Improvement

Continuous improvement of this SCCSP will be achieved by the ongoing evaluation of environmental management performance against environmental policies, objectives and targets for the purpose of identifying opportunities for improvement.

The continuous improvement process will be designed to:

- Identify areas of opportunity for improvement of environmental management and performance
- Determine the cause or causes of non-conformances and deficiencies
- Develop and implement a plan of corrective and preventative action to address any non-conformances and deficiencies
- Verify the effectiveness of the corrective and preventative actions
- Document any changes in procedures resulting from process improvement
- Make comparisons with objectives and targets.

8.2 SCCSP Update and Amendment

The processes described in Section 3.12 of the CEMP may result in the need to update or revise this Plan. This will occur as needed.

Only the Environment Manager, or delegate, has the authority to change any of the environmental management documentation.

This plan will also be updated on advice from the Site Auditor to minimise risks to human health or the environment or for the management of contamination.

A copy of the updated plan and changes will be distributed to all relevant stakeholders in accordance with the approved document control procedure – refer to Section 3.10.2 of the CEMP.

APPENDIX A – Imported Material Procedure

All imported material to be used as fill on the project site must be approved by the Environmental Manager, and verified by the Site Auditor, as required. Material is to be verified as Virgin Excavated Natural Material (VENM), Excavated Natural Material (ENM) or natural quarried product under the Protection of the Environment Operations Act 1997 (POEO Act), the Protection of the Environment Operations Waste Regulation (2014). This procedure was prepared in accordance with relevant EPA guidelines and the ASC NEPM 2013.

If fill material other than VENM, ENM or natural quarried product is proposed to be imported, it will require a Resource Recovery Order and Exemption issued by the NSW EPA. Any recycled materials proposed to be imported will be subject to the following procedure, which has been reviewed and approved by the Site Auditor:

- the Environmental Manager must be notified of the proposed material for importation;
- the recycled material must be provided by a facility licensed by the NSW EPA to process and provide such material, the source of the material must be well understood and a product report/certificate must be provided by the facility clearly stating that the material complies with the relevant Resource Recovery Order, including sampling and laboratory analysis at a NATA-accredited laboratory in accordance with the Resource Recovery Order;
- in the event that recycled material is provided by a construction site, a classification report must be provided by the generator clearly stating that the material complies with the relevant Resource Recovery Order, including sampling and laboratory analysis at a NATA-accredited laboratory in accordance with the Resource Recovery Order; and
- regardless of the requirements of applicable Resource Recovery Orders, asbestos analysis must be undertaken on the material by a NATA-accredited laboratory at a frequency that sufficiently demonstrates that the material does not contain asbestos (this is expected to be reviewed by the Environmental Manager and Environmental Consultant on a case-by-case basis).

Virgin Excavated Natural Material

If the material is considered to be classified as VENM and meets the definition of VENM in the POEO Act, the generator of the material is to complete and supply the NSW EPA VENM Certificate to the Environmental Manager for approval.

The certificate template is available on the NSW EPA website, [Virgin excavated natural material \(nsw.gov.au\)](https://www.nsw.gov.au/venm).

The generator of the site should also provide a summary of the site history of the site source, the findings of any environmental investigations undertaken at the source site and any soil analysis undertaken.

If the above is not provided, a site visit to the source site by the nominated environmental consultant to enable collection and analysis of soil samples may be required. The soil analysis would be based on potential site-specific contamination risks and the potential need to satisfy the ENM criteria below.

Excavated Natural Material

- Where excavated material cannot be classified as VENM, it may be eligible for reuse under the excavated natural material order and exemption.

Sampling of ENM at the source site is to be undertaken at the density listed within the ENM Order. Where the material is non-homogeneous or from several different source sites, specific sampling regimes will be developed by a suitably qualified environmental specialist (or professional) at the time of works.

Samples are to be analysed for all relevant Contaminants of Potential Concern (CoPC) associated with potential land uses undertaken at the source site and surrounding area and should include at a minimum total recoverable hydrocarbons (TRH), benzene, toluene, ethylbenzene and xylene (BTEX), polycyclic aromatic hydrocarbons, organochlorine pesticides (OCP), organophosphate pesticide (OPP), heavy metals and asbestos (unless appropriate justification is provided for an alternative analytical schedule).

All ENM reports are to include laboratory reports and evidence that the sampling results meet the criteria listed in the in the excavated natural material order.

- The Site Auditor must be provided information and approve the material prior to the VENM or ENM is imported to site.

- Once material has been approved by the Environmental Manager, the VENM and ENM certification reports are to be saved on file. Records of imported materials are to be maintained on the material tracking register, with reference to any laboratory results to enable examination/ verification by the Site Auditor, on request.

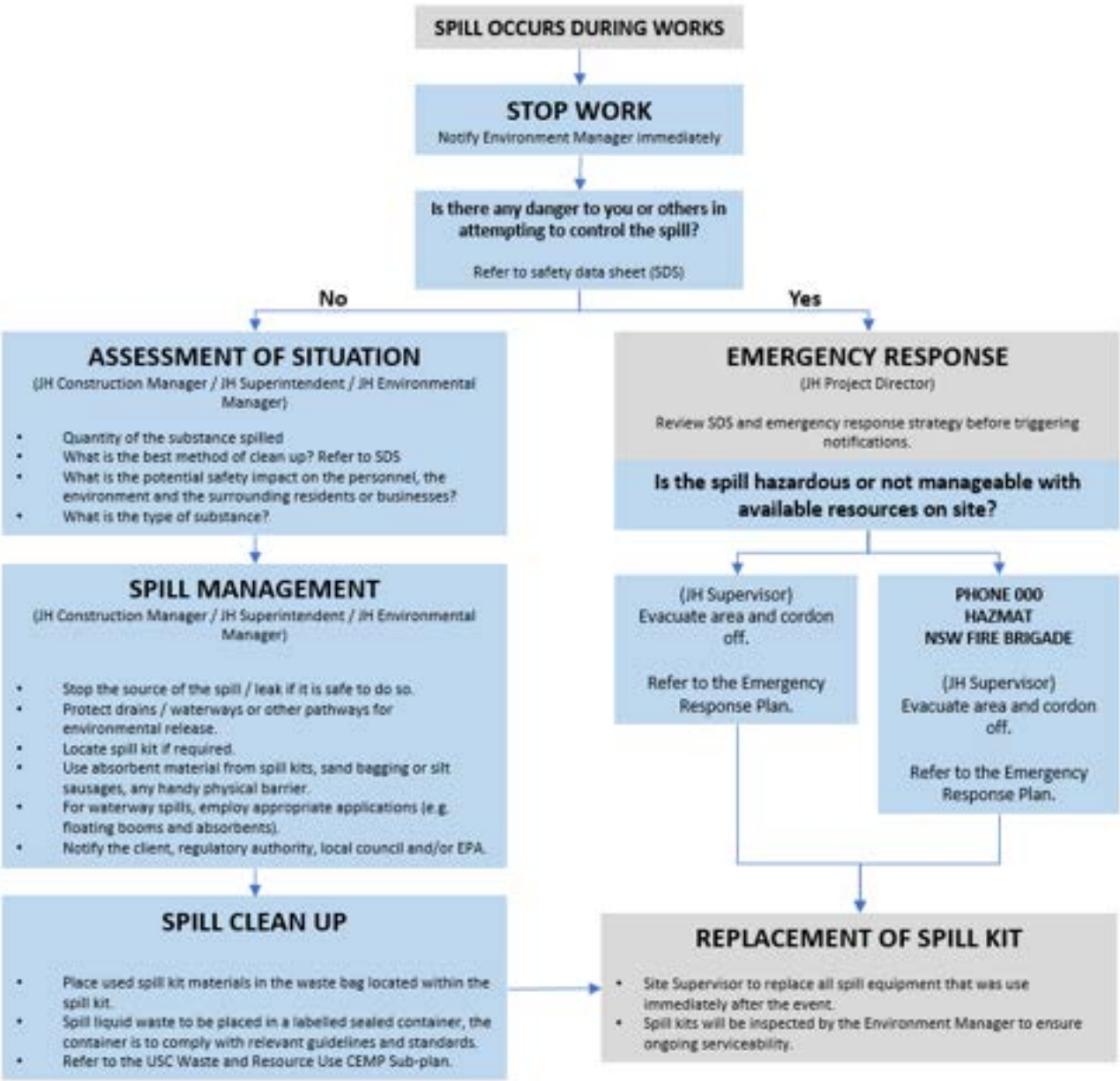
Natural Quarried Product

Generally, “extractive materials” (as defined in the POEO Act, Schedule 1, clause 19) that are legally extracted from a quarry are not considered waste. Where this applies, the material is therefore not required to be classified under the waste classification process and does not require a VENM certificate (<https://www.epa.nsw.gov.au/your-environment/waste/classifying-waste/virgin-excavated-natural-material>). The other procedures applying to VENM importation above will also apply to natural quarried product; however, a product letter/report will be required from the generator instead of a VENM certificate/report.

APPENDIX C – Unexpected Finds Procedure for Contamination

APPENDIX B – Spill Response Procedure

Spill Response Flowchart



Spill Prevention & Spill

Response Procedure

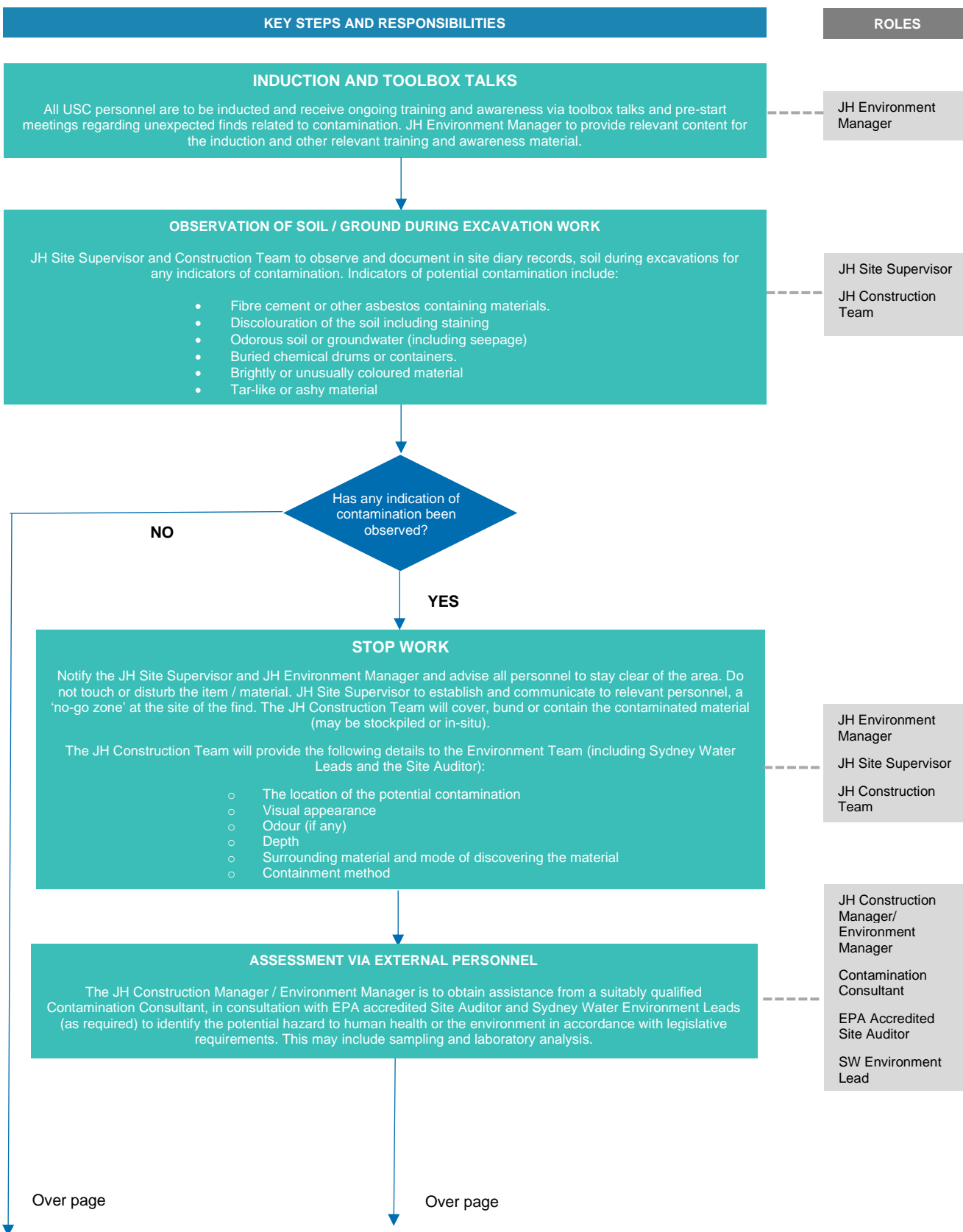
- In the event of a spill, this Spill Response Procedure will be implemented.
- Appropriate security measures will be implemented to prevent unauthorised access by the public to the work site.
- Fuel, chemical storage and handling areas will be clearly identified with signage
- Fuel, chemical storage and handling areas will be regularly checked for signs of spills and ensure the capacity of secondary containment is maintained
- Bunds must have 110% capacity of the total volume of liquids stored (Australian Standard AS 1940-2004: The storage and handling of flammable and combustible liquids)
- Hazardous substances will be stored onsite in lockable containers, in their original receptacles only
- All hazardous substances will be clearly labelled and have Safety Data Sheets available nearby
- All hazardous substances will be stored and managed in accordance with *the Storage and Handling of Dangerous Goods Code of Practice* (WorkCover NSW, 2005) and Hazardous and Offensive Development Application Guidelines
- An up-to-date register of hazardous substances will be kept onsite at all times
- Hazardous substance use that could result in a spill will not be carried out near drainage or stormwater lines and, wherever possible, will be conducted within defined bunds. Where practical, small bunds will be provided on site to provide temporary storage for small containers at the point of use.
- Spill kit and fire response equipment will be located where chemicals are stored and where refuelled plant are operated or maintained. If refuelling is undertaken on site, it will be in a designated area away from drainage lines. All refuelling activities will be supervised.
- All spills or leakages will be immediately contained and cleaned up, ensuring waste material is appropriately disposed of
- Used packages (drums and containers) and containers storing waste liquids must be sealed and disposed of in accordance with the Waste and Resource Use Management Procedure
- Plan and execute the works so as to minimise the possibility of pollution of the site and adjoining areas by chemicals, dangerous goods and other potential contaminants.

Incident Management

- Incidents are managed in accordance with Section 3.7 of the CEMP. The investigation will include a review of events leading up to the incident and implement improved practices as required, with findings reported to Sydney Water.
- Corrective actions may include monitoring groundwater and/ or nearby surface waters for possible contamination if required and spills are considered to be substantial.
- In accordance with Part 5.7 the Protection of the Environment Operations Act 1997, should the incident be deemed to have resulted in or potential for material environmental harm, or the associated clean-up costs exceed \$10,000, the Environmental Manager or Project Director will notify the relevant authorities and stakeholders.

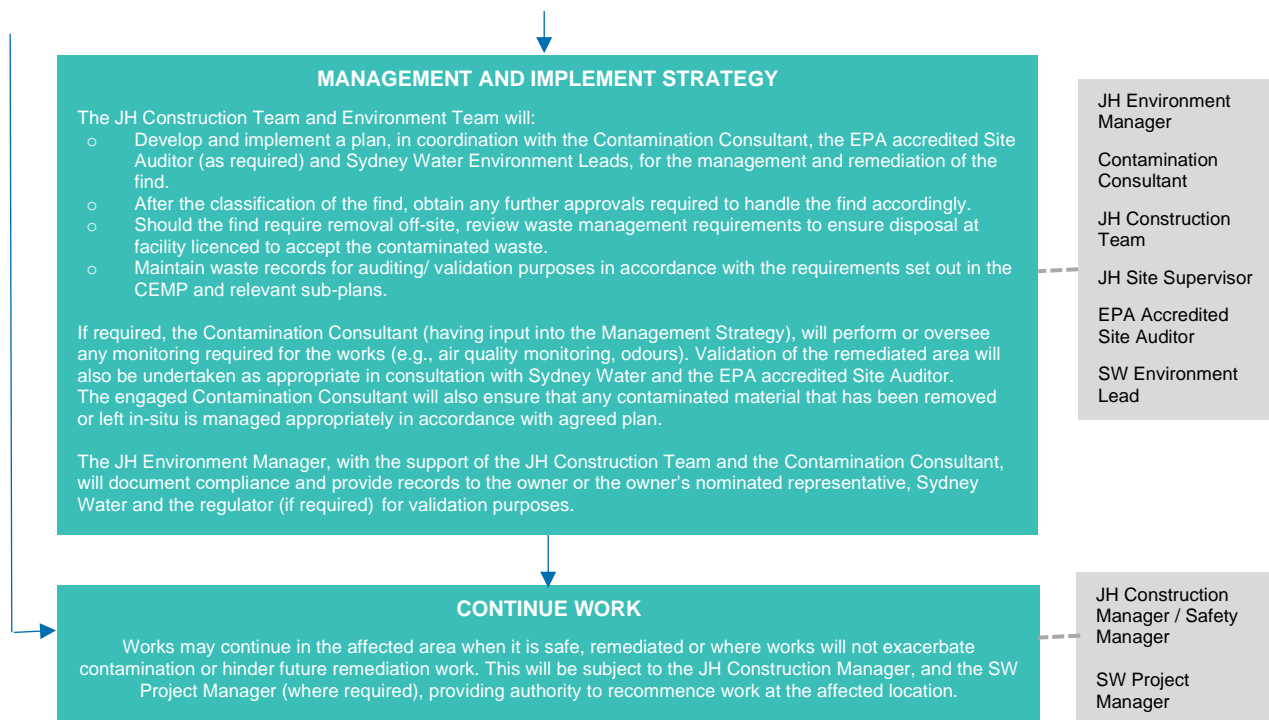
Unexpected Finds Procedure for Contamination

Scope: This Procedure has been prepared in accordance with Environmental Planning and Assessment Act 1979 (EP&A Act), Protection of the Environment Operations Act 1997 and the Contaminated Land Management Act 1997 (CLM Act) for the management of unexpected contamination finds on the Upper South Creek Advanced Water Recycling Centre Project (USC).



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Table 1: Relevant Conditions of Approval

Condition	Condition Requirement	How Addressed
C8 (g)	Measures to detail unexpected finds consistent with the Unexpected Finds Procedure for Contamination required under Condition E88. The procedure must include details of who will be responsible for implementing the Unexpected Finds Procedure for Contamination and the roles and responsibilities of all parties involved.	In accordance with MCoA C4(b), a project-specific Soils & Contamination CEMP sub-plan will be developed and implemented for the duration of the project. As required by MCoA C8(g) the sub-plan will include detail around the project's approach to unexpected contamination finds and will be consistent with the Unexpected Finds Procedure for Contamination required under MCoA E88.
E74 (f)	<p>A NSW EPA accredited Site Auditor(s) must be engaged before the commencement of contamination investigations until the completion of construction to ensure that any Work required in relation to contamination is appropriately managed. The Site Auditor is to be provided with all documentation relevant to the consideration of contamination risk and the management of contamination for the project, including previous site audits and site audit statements. The Site Auditor is to review all relevant documentation and provide a written opinion on the contamination risk and the appropriateness of the reports and any proposed management measures of the site, including (but not limited to):</p> <ul style="list-style-type: none"> Unexpected Finds Procedure for Contamination in Condition E88. 	<p>SW has engaged an EPA Accredited Site Auditor (Andrew Lau, JBS&G). This procedure has been provided to the Site Auditor for review prior to issuing to the Planning Secretary in accordance with MCoA E88.</p> <p>Evidence of this review will be provided to DPE.</p>
E88	An Unexpected Finds Procedure for Contamination must be prepared before the commencement of Work and must be followed should unexpected contamination or asbestos (or suspected contamination) be excavated or otherwise discovered. The procedure must include details of who will be responsible for implementing the unexpected finds procedure and the roles and responsibilities of all parties involved. The Procedure must be reviewed by the Site Auditor and interim audit advice or a Section B Site Audit Statement provided certifying that the Unexpected Finds Procedure is appropriate. The Unexpected Finds Procedure must be submitted to the Planning Secretary for approval at least one month prior to the commencement of Work and a copy of the interim audit advice or Section B Site Audit Statement attached. The Unexpected Finds Procedure for Contamination must be implemented throughout Work.	This document is the Upper South Creek Unexpected Finds Procedure for Contamination and specifically addresses the requirements of MCoA E88. This procedure has been provided to the Site Auditor for review prior to issuing to the Planning Secretary for approval at least one month prior to commencement of work. This procedure will form part of the CEMP and sub-plans for implementation throughout the Work.

APPENDIX D – COA A9 Consultation Summary Report

Upper South Creek

Advanced Water Recycling Centre and Pipelines

CoA A9 Consultation Summary Report
Soils and Contamination CEMP Sub-plan

Document Number: USCP-JHG-RPT-ENV-0004

Revision: A

Revisions and Distribution

Distribution

There are no restrictions on the distribution or circulation of this Construction Environmental Plan within John Holland.

	Uncontrolled Copy
Authorised By:	Richard Ioffrida (Project Director)
Date:	

Revisions

Draft issues of this document shall be identified as Revision 01, 02, 03 etc. Upon initial issue (generally Contract Award) this shall be changed to a sequential number commencing at Revision A. Revision numbers shall commence at Rev. A, B etc.

Date	Rev	Remarks	Section	Prepared By	Reviewed By & Approved By
02-05-2023	01	Summary of consultation from SCCSP	All	M.Segaran	A.Harrington
12-05-2023	02	Respond to ER comments	All	M.Segaran	A.Harrington
22-06-2023	03	Change in format	All	M.Segaran	A.Harrington
23-08-2023	A	Issued for construction	All	M.Segaran	D. O'Brien

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1 Introduction

1.1 Background

The Upper South Creek Advanced Water Recycling Centre and Pipelines project (the project) has been proposed to support the population growth and economic development of the Western Sydney Aerotropolis Growth Area (WSAGA or Aerotropolis), South West Growth Area (SWGA) and the new Western Sydney International Airport. The project will provide wastewater services to Western Sydney to produce high-quality treated water for non-drinking reuse and for release to local waterways.

The project will comprise the following components:

- A new Advanced Water Recycling Centre (AWRC) to collect wastewater from businesses and homes and treat it, producing high-quality treated water, renewable energy and biosolids for beneficial reuse
- A new green space area around the AWRC, adjacent to South Creek and Kemps Creek, to support the ongoing development of a green spine through Western Sydney
- New infrastructure from the AWRC to South Creek, to release excess treated water during significant wet weather events, estimated to occur about 3 – 14 days each year
- A new treated water pipeline from the AWRC to Nepean River at Wallacia Weir, to release high-quality treated water to the river during normal weather conditions
- A new brine pipeline from the AWRC connecting into Sydney Water's existing wastewater system to transport brine to the Malabar Wastewater Treatment Plant
- A range of ancillary infrastructure.

The Department of Planning and Environment (DPE) issued the final Secretary's Environmental Assessment Requirements (SEARs) for the project in January 2021. Sydney Water prepared an Environmental Impact Statement (EIS) responding to these requirements, which was on public exhibition on the major projects planning portal for 28 days from 21/10/2021 to 17/11/2021. During this time, due to its importance, the project was declared to be State Significant Infrastructure (SSI) and Critical State Significant Infrastructure (CSSI) by the then Minister for Planning and Public Spaces on 9 November 2021. Sydney Water submitted an Amendment Report for the proposal on 11 March 2022. This report provided a description of amendments to the proposal that occurred since the exhibition of the EIS. The Amendment Report was on public exhibition on the major projects planning portal from 23 March 2022 to 05 April 2022.

On 28 November 2022, the Department of Planning and Environment (DPE) approved the construction and operation of the project (SSI 8609189) (herein referred to as the USC project).

Following determination of the project at a state level by the NSW Minister for Public Spaces, the project was referred to the Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW) for a decision about whether the project was likely to have a significant impact on any matters of national environmental significance under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999.

A detailed description of the project is provided in Chapter 4 of the Upper South Creek AWRC Environmental Impact Statement (EIS), Volume 2.

The USC project will be built in stages, consisting of:

Stage 1

- building and operating the AWRC to treat a daily wastewater flow, known as the average dry weather flow (ADWF), of up to 50 megalitres per day (ML/day)
- building the treated water and brine pipelines to cater for up to 100 ML/day flow coming through the AWRC (but only operating them to transport and release volumes produced by Stage 1).

Future Stages

It is expected that the AWRC will ultimately require expansion to treat wastewater flows up to 100 ML/day. Sydney Water will remain flexible on the size and timing of these future upgrades to accommodate changes in population projections over time. Future stages will be subject to further environmental assessment.

Further detail on project staging is provided in the Upper South Creek AWRC EIS.

John Holland has been appointed by Sydney Water to deliver the USC project works, with detailed design and construction planning for treating a daily wastewater flow of up to 35ML/day. Greater flow capacities (including up to 50ML/day and 100ML/day, as explored in the EIS, are not covered in Stage 1. The environmental flows pipeline is not part of John Holland's scope.

1.2 Purpose of this Consultation Summary Report

This Consultation Summary Report has been prepared to meet the requirements of the CSSI approval, in particular Condition of Approval (CoA) A9. CoA A9 outlines the requirements for undertaking and documenting consultation undertaken during the preparation of approval documents or monitoring programs required under relevant CoA for those documents. This Consultation Summary Report has been prepared to consolidate the consultation undertaken during the preparation of the following document:

- CoA C4(c): Soils and Contamination Sub-plan

Consultation required during development of this document is detailed in Table 1-1.

Table 1-1 Consultation Requirements

Reference	Document Name	Consultation Requirement
CoA C4(c)	Soils and Contamination CEMP Sub-plan	<ul style="list-style-type: none"> • EPA • Relevant Councils

1.3 CoA Compliance

This section discusses the compliance of this Consultation Summary Report with the relevant CoA as applicable to consultation required to be undertaken during the development of the SCCSP.

Error! Reference source not found. lists the applicable CoA, where and how they have been addressed in this Consultation Summary Report.

Table 1-2 CoA relevant to consultation summary report

CoA ID	CoA Detail	How and where Addressed
A9	Where the terms of this approval require consultation to be undertaken, evidence of the consultation undertaken must be submitted to the Planning Secretary and ER (as relevant) with the corresponding documentation. The evidence must include:	This document (Consultation Summary Report)
A9	a. documentation of the engagement with the party identified in the condition of approval that has occurred before submitting the document for approval;	Section 2 and Appendices of Consultation Summary Report
A9	b. a log of the dates of engagement of attempted engagement with the identified party;	Section 2 and Appendices of Consultation Summary Report
A9	c. documentation of the follow-up with the identified party where engagement has not occurred to confirm that they do not wish to engage or have not attempted to engage after repeated invitations.	Section 2 and Appendices of Consultation Summary Report
A9	d. outline of the issues raised by the identified party and how they have been addressed	Section 2
A9	e. a description of the outstanding issues raised by the identified party and the reasons why they have not been addressed	Section 2
C4	The following CEMP Sub-plans must be prepared in consultation with the relevant government agencies identified for each CEMP Sub-plan. Details of all information requested by an agency during consultation must be provided to the Planning Secretary as part of any submission of the relevant CEMP Sub-plan, including copies of all correspondence from those agencies as required by Condition A9. (c) Soils and contamination – EPA and relevant council(s)	Consultation Summary Report

1.4 Consultation Process

Consultation with stakeholders and agencies was undertaken using the following means:

- Formal correspondence (DPE Portal Notifications)
- Formal correspondence (standard email)
- Phone Calls

2 Stakeholder and Agency Consultation

This Section of the Consultation Summary Report provides detail of consultation undertaken with each stakeholder and agency in the preparation of the SCCSP. It contains:

A consultation log that identifies:

- Consultation dates (actual and attempted)
- Form of consultation
- Whether responses and / or comments were received
- Summary of the issues raised, including how they have been addressed

Documentary evidence of all the correspondence received and sent through the consultation phase is contained in the Appendices at the end of this Report. The Appendices and this Section are broken down by stakeholder and agency, not by issue.

2.1 SCCSP – EPA

Consultation with EPA commenced on 11 March 2023 and concluded 24 March 2023.

Table 2-1 below includes the details of engagement between EPA and USC regarding the SCCSP.

Table 2-2 includes a summary of the issues raised, how those were addressed and closed out. Full evidence of correspondence is in Appendix 1 of this report.

Table 2-1 Engagement log – SCCSP - EPA

#	Date	Correspondence		From	Recipient
		Form/Type	Purpose		
1	11/03/2023	Email	Issuing of sub-plan for consultation in accordance with CoA C4	Alyce Harrington	Daniel Burchmore Trevor Wilson
2	20/03/2023	Email	Response to SCCSP consultation. No comments raised.	Daniel Burchmore	Alyce Harrington

Table 2-2 below summarises the consultation comments received from EPA on the SCCSP.

Table 2-2 Summary of issues – SCCSP – EPA

Document Section, CoA/REMM	Comment Raised	Date Raised	How Addressed / Justification Why Not Addressed
SCCSP	No comments raised	N/A	N/A

2.2 SCCSP – Relevant Council

Consultation with the councils commenced on 11 March 2023 and concluded 24 March 2023.

Table 2-3 below includes the details of engagement between USC and the relevant councils regarding the SCCSP. Table 2-4 includes a summary of the issues raised, how those were addressed and closed out. Full evidence of correspondence with relevant councils is provided in the following Appendices:

Appendix 2 - Wollondilly Shire Council

Appendix 3 - Penrith City Council

Appendix 4 - Liverpool City Council

Appendix 5 - Fairfield City Council

Appendix 6 - Canterbury Bankstown City Council

Table 2-3 Engagement log – SCCSP– Relevant Councils

#	Date	Correspondence		From	Recipient
		Form/Type	Purpose		
Wollondilly Shire Council					
1	08-03-2023	Meeting	Stakeholder Meeting with Council on 50% design completion	Michael Robertson Rama Sapkota	Ibrahim Muharrem Trent Davies Matthew Hardland Nafizul Akash
2	11-03-2023	Email	Issuing of sub-plan for consultation in accordance with CoA C4	Alyce Harrington	Bianca Klein
3	28-03-2023	Email	Acknowledgement of recent workshop and confirmation of key council contacts	Alyce Harrington	Bianca Klein Mathew Harland Nafizul Akash Ibrahim Muharrem
4	26-04-2023	Email	Notification regarding end of consultation period	Alyce Harrington	Bianca Klein Mathew Harland Nafizul Akash Ibrahim Muharrem
Penrith City Council					
1	03-03-2023	Meeting	Stakeholder Meeting with Council on 50% design completion	Michael Robertson Rama Sapkota	Scott Jones Michael Middleton Adam Lowe Brad James Justine Vella Ari Fernando Payton Bradrock Murray Halls
2	11-03-2023	Email	Issuing of sub-plan for consultation in accordance with CoA C4	Alyce Harrington	Ari Fernando
3	03-04-2023	Email	Follow up on progression of all sub-plan comments	Alyce Harrington	Ari Fernando
4	26-04-2023	Email	Notification regarding end of consultation period	Alyce Harrington	Ari Fernando
Liverpool City					
1	09-03-2023	Meeting	Stakeholder Meeting with Council on 50% design completion	Michael Robertson Rama Sapkota	Jerard Tungcab Kweky Aikins Riham Gergis Stella Qu Mahavir Arya
2	11-03-2023	Email	Issuing of sub-plan for consultation in accordance with CoA C4	Alyce Harrington	Jerard Tungcab
3	24-03-2023	Phone Call	Query regarding the response date for the sub-plan	Jerard Tungcab	Alyce Harrington
4	26-04-2023	Email	Notification regarding end of consultation period	Alyce Harrington	Jerard Tungcab
Fairfield City Council					
1	11-03-2023	Email	Issuing of sub-plan for consultation in accordance with CoA C4	Alyce Harrington	Daniel Begnell mail@fairfieldcity.nsw.com.au
2	13-03-2023	Meeting	Stakeholder Meeting with Council on 50% design completion	Michael Robertson Rama Sapkota	Andrew Mooney Kerren Ven Mursaleen Shah Zahid Hassan
3	24-03-2023	Email	Respond to sub-plan with request to provide	Dolores Schembri	Alyce Harrington

			ample notification to affected residents		
4	03-04-2023	Email	Follow up on progression of all sub-plans comments	Alyce Harrington	Mursaleen Shah
5	04-04-2023	Email	Respond to follow up by John Holland	Mursaleen Shah	Alyce Harrington
6	04-04-2023	Email	Request to remove individual as point of contact	Mursaleen Shah	Alyce Harrington
7	26-04-2023	Email	Notification regarding end of consultation period	Alyce Harrington	Alison Mortimer Daniel Begnell Zahid Hassan mail@fairfieldcity.com.au
Canterbury Bankstown City Council					
1	11-03-2023	Email	Issuing of sub-plan for consultation in accordance with CoA C4	Alyce Harrington	Tim Ireland Paul Angel David Lowery Asad Suman
2	30-03-2023	Email	Response to consultation. No comments raised	David Milner	Alyce Harrington

Table 2-4 below summarises the consultation comments received from the relevant councils on the SCCSP.

Table 2-4 Summary of issues –SCCSP – Relevant Councils

Relevant Council	Comment Raised	Date Raised	How Addressed / Justification Why Not Addressed
Fairfield	Occupants likely to be impacted are successfully reached/notified and given ample notice prior to the commencement of works and means of addressing and resolving any issues that may arise during the various stages of the project.	24/03/2023	Acknowledged. The project will consider impacts to occupants as part of construction planning.
Canterbury Bankstown	No comments raised	30/03/2023	N/A
Liverpool	No comments raised	08/05/2023	N/A
Penrith	No response	N/A	N/A
Wollondilly	No response	N/A	N/A

Appendix 1 - EPA – Evidence of Consultation

From: [Alyce Harrington-JHG](#)
To: [Daniel Burchmore](#); [Trevor Wilson](#)
Cc: [CAHILL, CHERYL](#); [Cameron Varricchio](#); [Rob Cranston-JHG](#); [Jason Julius-JHG](#); [Michael McIlveen-JHG](#); [Michael Robertson-JHG](#); [Darragh O'Brien-JHG](#); [Mira Segaran-JHG](#)
Subject: Upper South Creek (SSI 8906189) CoA C4(c) - Soils & Contamination CEMP Sub-plan - for consultation (EPA)
Date: Saturday, 11 March 2023 1:32:23 PM
Attachments: [USCP-JHG-MPL-ENV-0008 Upper South Creek CEMP \(Rev 04\) clean and consolidated.pdf](#)
[USCP-JHG-MPL-ENV-0003 Soils and Contamination CEMP Sub-plan \(Rev 04\) clean and consolidated.pdf](#)
[image001.png](#)
[image002.png](#)
[image003.png](#)
[image004.png](#)
[image005.png](#)
[image006.png](#)

Good afternoon Daniel and Trevor,

John Holland has recently been awarded a contract by Sydney Water to design, construct and commission Stage 1 of the Upper South Creek Advanced Water Recycling Centre and Pipelines Project (herein referred to as 'USC Project' or 'the Project'). The Project was approved by the Minister for Planning, Anthony Roberts on Monday 28 November 2022 (SSI-8609189) and in accordance with the relevant conditions of approval (CoA) C1 and C2, John Holland has prepared a Construction Environmental Management Plan (CEMP).

CoA C4 and CoA C13 requires a number of CEMP Sub-plans and Construction Monitoring Programs, respectively, to support the CEMP and they must be developed in consultation with relevant government agencies, including the NSW Environment Protection Authority (EPA). A list of the plans and programs relevant to the NSW EPA is provided below.

C4

- a. Surface Water & Groundwater CEMP Sub-plan (USCP-JHG-MPL-ENV-0001) (SWGCSPP)
- c. Soils & Contamination CEMP Sub-plan (USCP-JHG-MPL-ENV-0003) (SCCSP)
- e. Noise & Vibration CEMP Sub-plan (USCP-JHG-MPL-ENV-0007) (NVCSP)
- h. Air Quality CEMP Sub-plan (USCP-JHG-MPL-ENV-0009) (AQCSP)

C13

- a. Surface Water Quality Construction Monitoring Program (Appendix E of the SWGCSP)
- b. Groundwater Construction Monitoring Program (Appendix F of the SWGCSP)
- c. Noise & Vibration Construction Monitoring Program (Appendix E of the NVCSP)

John Holland proposes to issue the relevant plans and programs progressively, following review and approval by Sydney Water. As such, John Holland on behalf of Sydney Water, is please to present to the NSW EPA, the **Soils & Contamination CEMP Sub-plan** (SCCSP, C4(c)). Please note that as there are a number of references to sections within the CEMP throughout the SCCSP, John Holland has also provided a copy of the CEMP for the NSW EPA's reference.

It would be greatly appreciated if any comments regarding this submission are provided by close of business Friday 24 March 2023.

If you have any questions regarding this submission, please contact me.

Kind Regards,

Alyce Harrington

Planning, Environment & Approvals Director
Upper South Creek

**JOHN
HOLLAND**

Level 3, 65 Pirrama Road, Pyrmont NSW

M. +61 409 633 908

E. Alyce.Harrington@jhg.com.au



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From: [Daniel Burchmore](#)
To: [Alyce Harrington-JHG](#); [Trevor Wilson](#)
Cc: [CAHILL, CHERYL](#); [Cameron Varricchio](#); [Rob Cranston-JHG](#); [Jason Julius-JHG](#); [Michael McIlveen-JHG](#); [Michael Robertson-JHG](#); [Darragh O'Brien-JHG](#); [Mira Segaran-JHG](#)
Subject: RE: Upper South Creek (SSI 8906189) CoA C4(c) - Soils & Contamination CEMP Sub-plan - for consultation (EPA)
Date: Monday, 20 March 2023 1:33:05 PM
Attachments: [image007.png](#)
[image008.png](#)
[image009.png](#)
[image010.png](#)
[image011.png](#)
[image012.png](#)
[image013.png](#)

Hi Alyce,

Thank you for providing the SCCSP. The EPA has no comments on the sub-plan.

Regards,

Daniel Burchmore
Senior Operations Officer
Regulatory Operations Metro South
NSW Environment Protection Authority
P 02 9995 5995



www.epa.nsw.gov.au [@NSW_EPA](#)

The EPA acknowledges the traditional custodians of the land and waters where we work. As part of the world's oldest surviving culture, we pay our respect to Aboriginal elders past, present and emerging.

Report pollution and environmental incidents 131 555 or +61 2 9995 5555

From: Alyce Harrington-JHG <Alyce.Harrington@jhg.com.au>
Sent: Saturday, 11 March 2023 1:32 PM
To: Daniel Burchmore <Daniel.Burchmore@epa.nsw.gov.au>; Trevor Wilson <Trevor.Wilson@epa.nsw.gov.au>
Cc: CAHILL, CHERYL <CHERYL.CAHILL@sydneywater.com.au>; Cameron Varricchio <CAMERON.VARRICCHIO@sydneywater.com.au>; Rob Cranston-JHG <Rob.Cranston@jhg.com.au>; Jason Julius-JHG <Jason.Julius@jhg.com.au>; Michael McIlveen-JHG <Michael.McIlveen@jhg.com.au>; Michael Robertson-JHG <Michael.Robertson@jhg.com.au>; Darragh O'Brien-JHG <Darragh.O'Brien@jhg.com.au>; Mira Segaran-JHG <Mira.Segaran@jhg.com.au>
Subject: Upper South Creek (SSI 8906189) CoA C4(c) - Soils & Contamination CEMP Sub-plan - for consultation (EPA)

Good afternoon Daniel and Trevor,

John Holland has recently been awarded a contract by Sydney Water to design, construct and commission Stage 1 of the Upper South Creek Advanced Water Recycling Centre and Pipelines Project (herein referred to as 'USC Project' or 'the Project'). The Project was approved by the Minister for Planning, Anthony Roberts on Monday 28 November 2022 (SSI-8609189) and in accordance with the relevant conditions of approval (CoA) C1 and C2, John Holland has prepared a Construction Environmental Management Plan (CEMP).

CoA C4 and CoA C13 requires a number of CEMP Sub-plans and Construction Monitoring Programs, respectively, to support the CEMP and they must be developed in consultation with relevant government agencies, including the NSW Environment Protection Authority (EPA). A list of the plans and programs relevant to the NSW EPA is provided below.

C4

- a. Surface Water & Groundwater CEMP Sub-plan (USCP-JHG-MPL-ENV-0001) (SWGCSPP)
- c. Soils & Contamination CEMP Sub-plan (USCP-JHG-MPL-ENV-0003) (SCCSP)
- e. Noise & Vibration CEMP Sub-plan (USCP-JHG-MPL-ENV-0007) (NVCSP)
- h. Air Quality CEMP Sub-plan (USCP-JHG-MPL-ENV-0009) (AQCSP)

C13

- a. Surface Water Quality Construction Monitoring Program (Appendix E of the SWGCSP)
- b. Groundwater Construction Monitoring Program (Appendix F of the SWGCSP)
- c. Noise & Vibration Construction Monitoring Program (Appendix E of the NVCSP)

John Holland proposes to issue the relevant plans and programs progressively, following review and approval by Sydney Water. As such, John Holland on behalf of Sydney Water, is please to present to the NSW EPA, the **Soils & Contamination CEMP Sub-plan** (SCCSP, C4(c)). Please note that as there are a number of references to sections within the CEMP throughout the SCCSP, John Holland has also provided a copy of the CEMP for the NSW EPA's reference.

It would be greatly appreciated if any comments regarding this submission are provided by close of business Friday 24 March 2023.

If you have any questions regarding this submission, please contact me.

Kind Regards,

Alyce Harrington
Planning, Environment & Approvals Director
Upper South Creek

**JOHN
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E. Alyce.Harrington@jhgc.com.au



Appendix 2 – Wollondilly City Council – Evidence of Consultation

From: [Darragh O'Brien-JHG](#)
To: [Mira Segaran-JHG](#)
Cc: [Alyce Harrington-JHG](#)
Subject: FW: Wollondilly Council meeting minutes 08.03.2023
Date: Friday, 28 April 2023 8:04:14 AM
Attachments: [image001.png](#)
[image002.png](#)
[image003.png](#)
[image004.png](#)
[image005.png](#)
[image006.png](#)
[Wollondilly Shire Council Early Coordination Meeting \(1\).pdf](#)
[20230308_Wollondilly Council meeting minutes_FINAL \(3\).pdf](#)
[image007.png](#)
[image008.png](#)
[image009.png](#)
[image010.png](#)
[image011.png](#)
[image012.png](#)

Hi Mira,

See below as discussed.

Regards,

Darragh O'Brien
Environment Lead
Upper South Creek

**JOHN
HOLLAND**

Level 3, 65 Pirrama Road, Pyrmont NSW
M. +61 408927726
E. Darragh.O'Brien@jhg.com.au



Make flexibility work – if you receive an email from me outside of normal business hours, it's because I'm sending it at a time that suits me. I'm not expecting you to read it or reply until normal business hours.

From: Rama Sapkota-JHG <Rama.Sapkota@jhg.com.au>
Sent: Monday, 27 March 2023 1:27 PM
To: Mathew Harland <mathew.harland@wollondilly.nsw.gov.au>;
ibrahim.muharrem@wollondilly.nsw.gov.au; Nafizul Akash
<nafizul.akash@wollondilly.nsw.gov.au>
Cc: Aidan O'Driscoll-JHG <Aidan.O'Driscoll@jhg.com.au>; Michael Robertson-JHG
<Michael.Robertson@jhg.com.au>; Mark Trethewy-JHG <Mark.Trethewy@jhg.com.au>; Darragh
O'Brien-JHG <Darragh.O'Brien@jhg.com.au>; Rex Taka-JHG <Rex.Taka@jhg.com.au>
Subject: Wollondilly Council meeting minutes 08.03.2023

Hi All,

Please see attached meeting minutes from 08.03.2023.

The 50% design drawings are within the attached slide pack.

Thank you,

Rama Sapkota

Senior Community Engagement Advisor - Upper South Creek project

**JOHN
HOLLAND**

M: 0447 633 275

W. johnholland.com.au



Meeting Minutes

Title	Stakeholder meeting with Wollondilly Shire Council on 50% design completion
Date	8/03/2023
Time	2:30pm
Held at	Teams Meeting

Chaired by	Michael Robertson
Minuted by	Rama Sapkota
Distribution Date	

Attendees List

Aidan O'Driscoll (AO), Construction Manager, JHG
Rex Taka (RT), Project Development Manager, JHG
Michael Robertson (MR), Community Manager, JHG
Mark Trethewey (MT), Sustainability Manager, JHG
Darragh O'Brien (DO), Environment Lead, JHG
Rama Sapkota (RS), Senior Community Advisor, JHG
Ibrahim Muharrem (IM), Acting environment assessment planner, Wollondilly Shire Council
Trent Davies (TD), Maintenance Engineer, Wollondilly Shire Council
Matthew Hardland (MH), Council Technical officer, Wollondilly Shire Council
Nafizul Akash (NA), Acting team leader Assets and Transport, Wollondilly Shire Council

Apologies List

Alyce Harrington (AH), Environment & Approvals Manager, JHG

IDescription / Action	By Whom	By When
Acknowledgement of Country	MR	
An introduction of the project and introduced the meeting attendees.	MR	
AO ran through the treated pipeline water overview, overview of the project in the area and gave overview of timing of design process. Some points discussed below:		
<ul style="list-style-type: none">Horizontal directional drill (HDD) under Nepean RiverHDD under Silverdale Road		

IM mentioned that Wollondilly Council has a farm in Wallacia and would like the opportunity to reuse the treated water.

IM mentioned that they want zero impact to waterways and enquired about the methodology of work under the river. He also mentioned that farmers are keen for water and would like to use treated water.

ACTION: MR mentioned the project will provide treated water for non-drinking purposes in the Aerotropolis and treated water for environmental flows in the Nepean River system but he will put Sydney Water in touch with Council about water reuse opportunities.

AO advised that work will be underneath the creek and go across to other side of the bridge. AO mentioned that he would like to work within rock, silty soil is not ideal. The team will start HDD on the rock level, explained outlined micro-tunnel and HDD construction methods.

IM enquired what will be used to stabilise? Will it be Bentonite? If it is, then he raised concern that it might be harmful to the river.

AO confirmed that bentonite will be used to stabilise however the HDD will be quite deep in the rock. There will be an HDD rig on rock in Fowler Reserve which will calculate the pump pressure. Confident that work is going to be very deep in rock and there shouldn't be any impact to the waterways.

IM asked if there is any risk to the bed rock.

AO mentioned not at the depth we are going and the rocks have also been assessed for consistency and strength.

IM and AO spoke about trenching methodology.

AO shared project milestone, start dates, drill set up location and work location.

IM enquired if vegetation clearing required during these works?

AO mentioned that vegetation will be cleared during valve construction. AO confirmed there is no open trench on the riverbanks for the pipeline (but there is the outlet structure to be built on the riverbank on private property to the north).

IM asked about the trenching methodology and if the trench will be secured properly to minimise animals getting trapped.

AO mentioned that the trench will be fenced off and backfilling as the work progresses (with people observing the whole process).

Traffic

AO advised site set up will be at Silverdale Road and entry to site will be from there. There will be trucks and dog, semi trailers and light vehicles accessing the site.

The Nepean River will be the water release point.

AO mentioned they will monitor the traffic and won't be stopping traffic. There shouldn't be any impact to traffic as the work will be underneath the road.

MH enquired if traffic entering and existing Silverdale road will be managed by traffic control – will there be traffic control?

AO mentioned they are currently working on Traffic Management Plan and would like to work with Wollondilly Council and requested for a contact person. **ACTION: Council to nominate best contact person.**

Traffic Contact for John Holland, Upper South Creek AWRC: Balendra Kunaratnam kunaratnam.balendra@jhq.com.au; 0418 979 198

NA enquired if there is anything in the road reserve as most of the work is going through private property.

AO mentioned the access to Silverdale Rd will be through road reserve.

NA requested for better drawings.

ACTION: JHG to share 50% drawings by sharing this slide pack with Council. Complete

IM enquired if there will be trenching around significant trees which may result in damaging their roots. Is there any offset for tree removal? Previously, Sydney Water have offset tree removal. Wollondilly Council is open to planting additional trees, replanting/reinstate the disturbed areas and mitigate the biodiversity impacts.

ACTION: MT said his team would be interested to catch up about the replanting conversation/offset.

DO went through the environment slides and advised that CEMP and subplans have been sent to Council for consultation.

IM enquired if Controlled Activity Approval come through?

DO mentioned that management plan issued and should have been circulated.

ACTION: MR has since confirmed the plans were issued to Bianca Klein but will re-send to this group. RS sent the plans to the group on 10/03/2023. Complete

MT went through the sustainability slides.

MT – Requests if Wollondilly Council could please identify the best environment or sustainability contact to address further council and USC collaboration opportunities proposed on Sustainability slides (e.g. asset resilience in response to climate change, material/water/waste reuse/recycling opportunities)

IM asked what level the water is being treated at? They currently have good quality water and doesn't want it to be impacted. IM keen for alternate solution and link in any offset.

ACTION: MR provided a link to the EIS in the Teams chat during the meeting. Repeated here [Upper South Creek Advanced Water Recycling Centre | Planning Portal - Department of Planning and Environment \(nsw.gov.au\)](https://www.sydneywatertalk.com.au/53513/widgets/322594/documents/251449)

For Council review Community & Stakeholder Engagement Plan and comment on the planned engagement activities and stakeholders

<https://www.sydneywatertalk.com.au/53513/widgets/322594/documents/251449>

Link to the project website: www.sydneywatertalk.com.au/upperouthcreek

IM had questions around environment control, fracking and how Riparian Zone will be protected? Requested for a Controlled Activity Approval.

ACTION: JHG to set up a meeting to discuss methodology about how we are getting across the Nepean River and more detailed conversation as the design is getting finalised.

NA shared concerns about pipeline going underneath the bridge. During flooding, panels go missing. Upgrade to GFR system to make it easily accessible or for water to run

through would be ideal. He shared concerns around flood, pedestrian access on footpath and impacts to residents.

ACTION: Further meeting about traffic, pedestrian management and the drilling fluid return pipe.

ACTION: Make sure the people present from Wollondilly Council get copies of CEMP sub-plans previously sent by Alyce Harrington to Bianca Klein. Complete

ISSUES SUMMARY

- Interest in receiving treated water
- No impact to waterways
- Drilling fluid – fracking risk – CEMP contingencies
- Separation of topsoil and subsoil for reinstatement when trenching
- Vegetation removal in riparian zone - offset approach
- Fauna getting trapped in trenches during construction
- Traffic management on to Silverdale Road
- Drawings – Nafizul Akash
- Want to know to what classification the water is treated to?
- Primary concern is the discharge to the river. Prefer water gets reused by farms etc in the area than go to rivers. Important to reuse water than discharge it.
- Allow them time to review documents as they are under-resourced
- Question about damage to bridge during floods – install a GRF system?
- Pedestrian access across the bridge, particularly if there's a flood.

Could council please confirm the above list to allow the Project to be aware that council's key concerns are understood?

From: [Alyce Harrington-JHG](#)
To: bianca.klein@wollondilly.nsw.gov.au
Cc: [CAHILL, CHERYL](#); [Cameron Varricchio](#); [Rob Cranston-JHG](#); [Jason Julius-JHG](#); [Michael Robertson-JHG](#); [Michael McIlveen-JHG](#); [Darragh O'Brien-JHG](#); [Mira Segaran-JHG](#)
Subject: Upper South Creek (SSI 8906189) CoA C4(c) - Soils & Contamination CEMP Sub-plan - for consultation (WSC)
Date: Saturday, 11 March 2023 1:16:36 PM
Attachments: [USCP-JHG-MPL-ENV-0003 Soils and Contamination CEMP Sub-plan \(Rev 04\) clean and consolidated.pdf](#)
[USCP-JHG-MPL-ENV-0008 Upper South Creek CEMP \(Rev 04\) clean and consolidated.pdf](#)
[image001.png](#)
[image002.png](#)
[image003.png](#)
[image004.png](#)
[image005.png](#)
[image006.png](#)

Good afternoon Bianca,

John Holland has recently been awarded a contract by Sydney Water to design, construct and commission Stage 1 of the Upper South Creek Advanced Water Recycling Centre and Pipelines Project (herein referred to as 'USC Project' or 'the Project'). The Project was approved by the Minister for Planning, Anthony Roberts on Monday 28 November 2022 (SSI-8609189) and in accordance with the relevant conditions of approval (CoA) C1 and C2, John Holland has prepared a Construction Environmental Management Plan (CEMP).

CoA C4 and CoA C13 requires a number of CEMP Sub-plans and Construction Monitoring Programs, respectively, to support the CEMP and they must be developed in consultation with relevant government agencies, including Wollondilly Shire Council (WSC). A list of the plans and programs relevant to WSC is provided below.

C4

- a. Surface Water & Groundwater CEMP Sub-plan (USCP-JHG-MPL-ENV-0001) (SWGCSPP)
- b. Flood Emergency Response CEMP Sub-plan (USCP-JHG-MPL-ENV-0002) (FERCSP)
- c. Soils & Contamination CEMP Sub-plan (USCP-JHG-MPL-ENV-0003) (SCCSP)
- d. Biodiversity CEMP Sub-plan (USCP-JHG-MPL-ENV-0004) (BCSP)
- e. Noise & Vibration CEMP Sub-plan (USCP-JHG-MPL-ENV-0007) (NVCSP)
- f. Traffic & Transport CEMP Sub-plan (USCP-JHG-MPL-ENV-0005) (TTCSP)
- g. Heritage CEMP Sub-plan (USCP-JHG-MPL-ENV-0006) (HCSP)
- h. Air Quality CEMP Sub-plan (USCP-JHG-MPL-ENV-0009) (AQCSPP)

C13

- a. Surface Water Quality Construction Monitoring Program (Appendix E of the SWGCSP)
- c. Noise & Vibration Construction Monitoring Program (Appendix E of the NVCSP)

John Holland proposes to issue the relevant plans and programs progressively, following review and approval by Sydney Water. As such, John Holland on behalf of Sydney Water, is please to present to WSC, the **Soils & Contamination CEMP Sub-plan** (SCCSP, C4(c)). Please note that as there are a number of references to sections within the CEMP throughout the SCCSP, John Holland has also provided a copy of the CEMP for WSC reference.

It would be greatly appreciated if any comments regarding this submission are provided by close of business Friday 24 March 2023.

If you have any questions regarding this submission, please contact me.

Kind Regards,

Alyce Harrington
Planning, Environment & Approvals Director
Upper South Creek

**JOHN
HOLLAND**

Level 3, 65 Pirrama Road, Pyrmont NSW
M. +61 409 633 908
E. Alyce.Harrington@jhg.com.au



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From: [Alyce Harrington-JHG](#)
To: Mathew.Harland@wollondilly.nsw.gov.au; Nafizul.Akash@wollondilly.nsw.gov.au; Ibrahim.Muharrem@wollondilly.nsw.gov.au; bianca.klein@wollondilly.nsw.gov.au
Cc: [Michael Robertson-JHG](#); [Rama Sapkota-JHG](#); [Darragh O'Brien-JHG](#); [Mira Segaran-JHG](#); [Aidan O'Driscoll-JHG](#)
Subject: Upper South Creek (SSI 8906189) - CEMP & sub-plans
Date: Tuesday, 28 March 2023 10:15:45 PM
Attachments: [image001.png](#)
[image002.png](#)
[image003.png](#)
[image004.png](#)
[image005.png](#)
[image006.png](#)
[USCP-JHG-MPL-ENV-0009 Air Quality CEMP Sub-plan \(Rev 03\) clean and consolidated.pdf](#)
[USCP-JHG-MPL-ENV-0006 Heritage CEMP Sub-plan \(Rev 03\) clean and consolidated \(2\).pdf](#)
[USCP-JHG-MPL-ENV-0007 Noise & Vibration CEMP Sub-plan \(Rev 03\) clean and consolidated \(1\).pdf](#)
[USCP-JHG-MPL-ENV-0004 Biodiversity CEMP Sub-plan \(Rev 03\) clean and consolidated \(1\).pdf](#)
[USCP-JHG-MPL-ENV-0003 Soils and Contamination CEMP Sub-plan \(Rev 04\) clean and consolidated \(1\).pdf](#)
[USCP-JHG-MPL-ENV-0004 Flood Emergency Response CEMP Sub-plan \(Rev 02\) clean and consolidated.pdf](#)

Hello,

Recently, Wollondilly Shire Council has kindly participated in a stakeholder engagement meeting with John Holland in anticipation of the commencement of construction work within the relevant council area.

During the meeting, we made reference to the CEMP and associated sub-plans being issued to Bianca Klein as the initial point of contact through which these plans have been communicated. To ensure the plans are reaching the appropriate audience and subject matter experts within WSC, the documents have been attached again for review and comment.

Progressive submission of these documents commenced on Wednesday 01 March and it would be greatly appreciated if all comments regarding the submissions provided to date are returned by close of business Thursday 13 April 2023.

Please note that the final CEMP sub-plan (surface water and groundwater) is scheduled to be issued for WSC review and comment by the end of this week.

If you have any further questions, please do not hesitate to contact me.

Thank you,

Alyce Harrington
Planning, Environment & Approvals Director
Upper South Creek

**JOHN
HOLLAND**

Level 3, 65 Pirrama Road, Pyrmont NSW
M. +61 409 633 908
E. Alyce.Harrington@jhgc.com.au



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From: [Alyce Harrington-JHG](#)
Bcc: [CAHILL, CHERYL](#); [Cameron Varricchio](#); [Michael Robertson-JHG](#); [Rob Cranston-JHG](#); [Jason Julius-JHG](#); [Darragh O'Brien-JHG](#); [Simone Kenyon-JHG](#); [bianca.klein@wollondilly.nsw.gov.au](#); [ari.fernando@penrith.city](#); [tungcabj@liverpool.nsw.gov.au](#); [Alison Mortimer](#); [Daniel Begnell](#); [mail@fairfieldcity.nsw.gov.au](#); [Mathew Harland](#); [Nafizul Akash](#); [Ibrahim Muharrem](#); [Zahid Hassan](#)
Subject: Upper South Creek (SSI-8609189) - CEMP and Sub-plans consultation period
Date: Wednesday, 26 April 2023 4:44:00 PM
Attachments: [image001.png](#)
[image002.png](#)
[image003.png](#)
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[image005.png](#)
[image006.png](#)

Good afternoon,

Over recent weeks, John Holland on behalf of Sydney Water has been issuing documents to relevant government agencies and local councils in relation to the Upper South Creek Advanced Water Recycling Centre project.

These documents include the project's Construction Environmental Management Plan (CEMP) and associated sub-plans as summarised below:

- USC Construction Environmental Management Plan (CEMP)
- USC Air Quality CEMP Sub-plan
- USC Flood Emergency Response CEMP Sub-plan
- USC Heritage CEMP Sub-plan
- USC Biodiversity CEMP Sub-plan
- USC Noise & Vibration CEMP Sub-plan
- USC Traffic & Transport CEMP Sub-plan
- USC Surface Water & Groundwater CEMP Sub-plan
- USC Soils & Contamination CEMP Sub-plan

Please note that whilst the formal consultation period for the above documents has now ended, John Holland would welcome any future opportunity to engage with you on matters related to the project.

If you have any further questions related to this matter, please do not hesitate to contact me.

Kind Regards,

Alyce Harrington
Planning, Environment & Approvals Director
Upper South Creek



Level 3, 65 Pirrama Road, Pyrmont NSW
M. +61 409 633 908
E. Alyce.Harrington@jhgc.com.au



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Appendix 3 – Penrith City Council – Evidence of Consultation

From: [Alyce Harrington-JHG](#)
To: [Mira Segaran-JHG](#)
Subject: FW: Penrith Council meeting minutes 3.03.2023
Date: Friday, 28 April 2023 7:44:04 AM
Attachments: [image001.png](#)
[image002.png](#)
[image003.png](#)
[image004.png](#)
[image005.png](#)
[image006.png](#)
[Penrith City Council Early Coordination Meeting1.pdf](#)
[20230303_Penrith Council meeting minutes_FINAL.pdf](#)
[image007.png](#)
[image008.png](#)
[image009.png](#)
[image010.png](#)
[image011.png](#)
[image012.png](#)

Alyce Harrington
Planning, Environment & Approvals Director
Upper South Creek

**JOHN
HOLLAND**

Level 3, 65 Pirrama Road, Pyrmont NSW
M. +61 409 633 908
E. Alyce.Harrington@jhg.com.au



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From: Rama Sapkota-JHG <Rama.Sapkota@jhg.com.au>
Sent: Friday, 17 March 2023 3:20 PM
To: ari.fernando@penrith.city; Murray.halls@penrith.city; adam.lowe@penrith.city;
Michael.Middleton@penrith.city; Justine.Vella@penrith.city
Cc: Michael Robertson-JHG <Michael.Robertson@jhg.com.au>; Alyce Harrington-JHG
<Alyce.Harrington@jhg.com.au>; Mark Trethewy-JHG <Mark.Trethewy@jhg.com.au>; Aidan
O'Driscoll-JHG <Aidan.O'Driscoll@jhg.com.au>; NORTH, GEMMA
<GEMMA.NORTH@sydneywater.com.au>
Subject: Penrith Council meeting minutes 3.03.2023

Hi all,

Please see attached meeting minutes from 03.03.2023.

Thank you,

Rama Sapkota
Senior Community Engagement Advisor - Upper South Creek project

**JOHN
HOLLAND**

Meeting Minutes

Title	Stakeholder meeting with Penrith City Council (PCC) on 50% design completion
Date	3/03/2023
Time	2:00pm
Held at	Teams Meeting
Chaired by	Michael Robertson
Minuted by	Rama Sapkota
Distribution Date	

Attendees List

Aidan O'Driscoll (AO), Construction Manager, JHG
 Alyce Harrington (AH), Environment & Approvals Manager, JHG
 Michael Robertson (MR), Community Manager, JHG
 Mark Trethewey (MT), Sustainability Manager, JHG
 Rama Sapkota (RS), Senior Community Advisor, JHG
 Gemma North (GN), Community Advisor, SW
 Scott Jones (SJ), Utilities Coordination Manager, PCC
 Michael Middleton (MM), Environmental Health Coordinator, PCC
 Adam Lowe (AL), Asset Coordinator: Parks and Open Space, PCC
 Brad James (BJ), Asset Officer, PCC
 Justine Vella (JV), Bushland Management Coordinator, PCC
 Ari Fernando (AF), PCC
 Payton Bradcock (PB), Asset Officer, PCC
 Murray Halls (MH), PCC

Apologies List

Oliver De Paz, Asset Coordinator - Permits and Inspections, PCC
 Anne Richardson, Strategic Asset Management Coordinator, PCC
 Lynden Tandy, Business Administration Support Officer – Road Assets, PCC

Description / Action	By Who m	By Whe n
Acknowledgement of Country	MR	

An introduction of the project and introduced the meeting attendees.

MR

AO ran through the treated pipeline water overview, overview of the project in the area and gave overview of timing of design process. Some points discussed below:

- Open trench to Luddenham Road
- The Northern Road HDD or boring
- Park Road, south side on the verge and working on a design to reduce impact on local traffic [threatened orchids are northern side]
- Jerry's creek crossing
- Nepean River – HDD under the river

MM enquired about the methodology of going under the river.

AO mentioned that he would like to work with rock, silty soil is not ideal. The team will start HDD on the rock level, explained outlined micro-tunnel and HDD construction methods. He mentioned there will be two pits either side of the Northern Road.

SJ enquired about Park Road and resident access and impacts. He enquired if it will be open excavation or boring.

AO advised there are impacts to couple of driveways and went through the design drawing below.



AO advised there are impacts to some driveways on Park Road.

Some driveway access will be temporarily blocked for short periods during open excavation. He went through how the team on the ground will facilitate access during construction, temporary access lanes could be created as fences are set back from road. He further mentioned there will a rig set up at Jerrys' Creek. There will be trenching work on Driver Avenue.

MM enquired if they will be trenching on nature strip or the road. He enquired if the excavation will be close to the trees and if an arborist report was done. He enquired about the hours of operation and if the work will be day or night work.

Any requirement to undertake work outside of standard daytime construction hours will be in accordance with relevant conditions of the Environmental Protection License to be obtained by John Holland in consultation with the NSW EPA.

MM enquired of there will be consultation with residents before the works begin and if there will be door knocking.

MR advised that there will be face to face consultation with residents around the pipeline, especially the residents that are closer to the pipeline. There will be notifications and online communication with the wider community.

ACTION: PCC to review Community & Stakeholder Engagement Plan and comment on the planned engagement activities and stakeholders

<https://www.sydneywatertalk.com.au/53513/widgets/322594/documents/251449>

Link to the project website: www.sydneywatertalk.com.au/uppersouthcreek

MM enquired about the roadside vegetation with JV and had an internal discussion around disturbance to the reserve. JV is aware of the environment assessment carried out by JH and SW and was satisfied with the outcome.

MM raised concern around vegetation on PCC land.

MH enquired about Riverbank and fish habitat and asked if it is in danger?

AO and MR advised the work will be well below the fish habitat.

SJ and JV spoke about machinery access around or near Fowler reserve. JV advised that she has gone through all the impacts with the site team previously and understands that impact to the embankment won't be fully eliminated. SJ mentioned that it is a steep embankment and wanted to know where the machinery will be stored. SJ flagged that environment assessment and bio-diversity should be looked into.

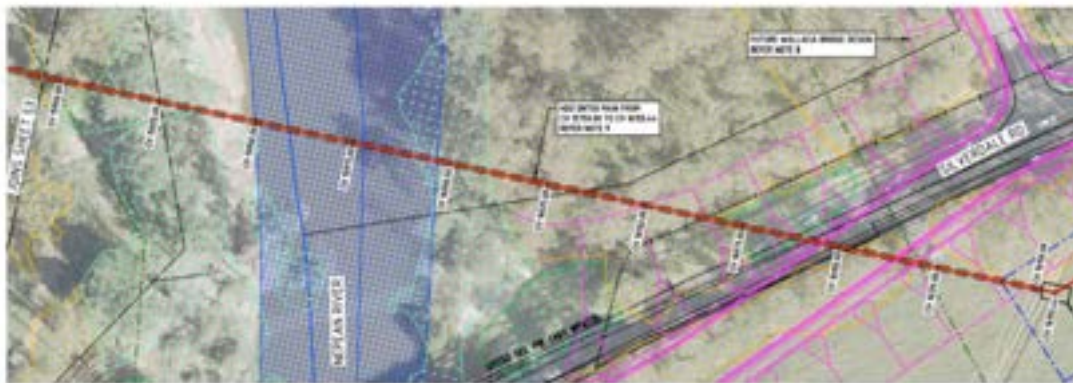
ACTION: AH and MR to speak with JV further about construction approach and vegetation removal near Shelley Road and Fowler Reserve.

AO advised them of the machinery storage location.

ACTION: MR and AO advised we can facilitate an on site meeting to go through construction methodology on site regarding the drilling fluid return pipe.

AO went through the construction methodology around HDD.

SJ shared concerns around pedestrian access on the bridge.



AO advised there may be a possibility of traffic control to help with pedestrian access on site however the drill will be there 24/7.

AF spoke to the above drawing and advised to speak to Wollondilly Council about the pier.

SJ advised that he would like more information on impacts to private properties and restoration piece on Park Road.

ACTION: AO to provide more information about the design along Park Road including any tree removal.

AF requested plans of the old Northern Road and AO went through the drawing with him. AF advised that the Old Northern Road is/will be Council Road, it will no longer state road.

AF enquired about what will happen at Park Road and Northern Road intersection.

AH and MT went through the environmental and sustainability items and encouraged to provide feedback as the sub-plans are being finalised and encouraged open engagement between Council and the USC project.

MT – Requests if Council could please identify the best environment or sustainability contact to address further council and USC collaboration opportunities proposed on Sustainability slides (e.g. asset resilience in response to climate change, material/water/waste reuse/recycling opportunities).

BJ requested a dedicated contact for permits.

ACTION: AO to respond to BJ about permits.

AL enquired about Fowler Reserve, is there is potential for something to sink? AL advised to make safe or make good Fowler Reserve when the work is completed. He had concerns around restoration as other contractors/projects have caused damage previously and unable to get an outcome once they leave the area. He doesn't want any damage to any Council assets.

AO advised that USC project team will be there even after the completion of the project and will restore it properly.

AF enquired about access road on Clifton Avenue or future road for the treatment plant and who does the ownership of that road sit with. Will it be SW private road? Who will be maintaining the access road?

ACTION: MR to ask Sydney Water's WRDT project team to provide information about access road to AF.

AF advised that Traffic Management and impact on local residents is a concern.

MR summarised the issues and asked if there were more questions.

JV enquired are you holding a stall at the Wallacia Community Festival in April?

MR advised that he has been invited and would like to discuss this with JV next week.

MM requested for a clear contact should Council receive resident concerns for noise, dust or other environmental health impacts.

MR provided the project 1800 064 127 number for future contact.

AO advised about site specific Traffic Management Plan and would like to workshop with PCC.

ACTION: JH and PCC agreed that there will be specific targeted meetings on an as-needs basis going forward rather than regular coordination meetings. AF will be the main point of contact and will arrange specific teams to attend the meeting.

Summary of key issues or interests raised by Council

- Impacts of pipeline under waterways
- Parking and traffic impacts on Park Road and Driver Avenue
- Blocking driveways and trenching through driveways during construction
- Vegetation removal including on Park Road and near Shelley Road / Fowler Reserve
- Working hours in residential areas
- Protecting fish habitat structure on Nepean River near Fowler Reserve

- Construction works on or near Silverdale Road bridge including pedestrian management
- Requests for work permits including within Council's road reserves
- Traffic management
- Restoration of Fowler Reserve

Could council please confirm the above list to allow the Project to be aware that council's key concerns are understood?

From: [Alyce Harrington-JHG](#)
To: ari.fernando@penrith.city
Cc: [CAHILL, CHERYL](#); [Cameron Varricchio](#); [Rob Cranston-JHG](#); [Jason Julius-JHG](#); [Michael McIlveen-JHG](#); [Michael Robertson-JHG](#); [Darragh O'Brien-JHG](#); [Mira Segaran-JHG](#)
Subject: Upper South Creek (SSI 8906189) CoA C4(c) - Soils & Contamination CEMP Sub-plan - for consultation (PCC)
Date: Saturday, 11 March 2023 1:17:56 PM
Attachments: [USCP-JHG-MPL-ENV-0008 Upper South Creek CEMP \(Rev 04\) clean and consolidated.pdf](#)
[USCP-JHG-MPL-ENV-0003 Soils and Contamination CEMP Sub-plan \(Rev 04\) clean and consolidated.pdf](#)
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[image002.png](#)
[image003.png](#)
[image004.png](#)
[image005.png](#)
[image006.png](#)

Good afternoon Ari,

John Holland has recently been awarded a contract by Sydney Water to design, construct and commission Stage 1 of the Upper South Creek Advanced Water Recycling Centre and Pipelines Project (herein referred to as 'USC Project' or 'the Project'). The Project was approved by the Minister for Planning, Anthony Roberts on Monday 28 November 2022 (SSI-8609189) and in accordance with the relevant conditions of approval (CoA) C1 and C2, John Holland has prepared a Construction Environmental Management Plan (CEMP).

CoA C4 and CoA C13 requires a number of CEMP Sub-plans and Construction Monitoring Programs, respectively, to support the CEMP and they must be developed in consultation with relevant government agencies, including Penrith City Council (PCC). A list of the plans and programs relevant to PCC is provided below.

C4

- a. Surface Water & Groundwater CEMP Sub-plan (USCP-JHG-MPL-ENV-0001) (SWGCSPP)
- b. Flood Emergency Response CEMP Sub-plan (USCP-JHG-MPL-ENV-0002) (FERCSPP)
- c. Soils & Contamination CEMP Sub-plan (USCP-JHG-MPL-ENV-0003) (SCCSP)
- d. Biodiversity CEMP Sub-plan (USCP-JHG-MPL-ENV-0004) (BCSP)
- e. Noise & Vibration CEMP Sub-plan (USCP-JHG-MPL-ENV-0007) (NVCSP)
- f. Traffic & Transport CEMP Sub-plan (USCP-JHG-MPL-ENV-0005) (TTCSP)
- g. Heritage CEMP Sub-plan (USCP-JHG-MPL-ENV-0006) (HCSP)
- h. Air Quality CEMP Sub-plan (USCP-JHG-MPL-ENV-0009) (AQCSPP)

C13

- a. Surface Water Quality Construction Monitoring Program (Appendix E of the SWGCSP)
- c. Noise & Vibration Construction Monitoring Program (Appendix E of the NVCSP)

John Holland proposes to issue the relevant plans and programs progressively, following review and approval by Sydney Water. As such, John Holland on behalf of Sydney Water, is please to present to PCC, the **Soils & Contamination CEMP Sub-plan** (SCCSP, C4(c)). Please note that as there are a number of references to sections within the CEMP throughout the SCCSP, John Holland has also provided a copy of the CEMP for PCC reference.

It would be greatly appreciated if any comments regarding this submission are provided by close of business Friday 24 March 2023.

If you have any questions regarding this submission, please contact me.

Thank you,

Alyce Harrington
Planning, Environment & Approvals Director
Upper South Creek

**JOHN
HOLLAND**

Level 3, 65 Pirrama Road, Pyrmont NSW
M. +61 409 633 908
E. Alyce.Harrington@jhg.com.au



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From: [Alyce Harrington-JHG](#)
To: ari.fernando@penrith.city
Cc: [Darragh O'Brien-JHG](#); [Mira Segaran-JHG](#); [Michael Robertson-JHG](#)
Subject: Upper South Creek AWRC Project - CEMP & Sub-plans
Date: Monday, 3 April 2023 5:40:28 PM
Attachments: [image001.png](#)
[image002.png](#)
[image003.png](#)
[image004.png](#)
[image005.png](#)
[image006.png](#)

Hello Ari,

Hope you are well.

I'm reaching out to follow up on the USC AWRC Project CEMP and sub-plans issued to Penrith City Council (PCC) over the last few weeks. As a summary of the documents issued, please see below a list of plans and programs that have been issued by John Holland to PCC:

- Air Quality CEMP Sub-plan (issued 01 March 2023)
- Flood Emergency Response CEMP Sub-plan (issued 02 March 2023)
- Heritage CEMP Sub-plan (issued 03 March 2023)
- Biodiversity CEMP Sub-plan (issued 03 March 2023)
- Soils & Contamination CEMP Sub-plan (issued 11 March 2023)
- Noise & Vibration CEMP Sub-plan (including the noise & vibration construction monitoring program) (issued 07 March 2023)
- Traffic & Transport CEMP Sub-plan (issued 28 March 2023)
- Surface Water & Groundwater CEMP Sub-plan (including the surface water quality and groundwater construction monitoring programs) (issued 31 March 2023)

At Sydney Water's request, the plans have been progressively submitted to PCC from Wednesday 01 March 2023. It would be greatly appreciated if you could submit any comments available for any of the plans submitted from early March, as soon as possible so we can review and make the appropriate amendments.

If you have any questions, please do not hesitate to contact me.

Thank you,

Alyce Harrington
Planning, Environment & Approvals Director
Upper South Creek

**JOHN
HOLLAND**

Level 3, 65 Pirrama Road, Pyrmont NSW
M. +61 409 633 908
E. Alyce.Harrington@jhgc.com.au



Appendix 4 – Liverpool City Council – Evidence of Consultation

From: [Alyce Harrington-JHG](#)
To: [Mira Segaran-JHG](#)
Subject: FW: Liverpool Council meeting minutes 09.03.2023
Date: Friday, 28 April 2023 7:44:04 AM
Attachments: [Liverpool City Council Early Coordination Meeting \(1\).pdf](#)
[20230309_Liverpool Council meeting minutes_FINAL \(1\).pdf](#)
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Alyce Harrington
Planning, Environment & Approvals Director
Upper South Creek

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From: Rama Sapkota-JHG <Rama.Sapkota@jhg.com.au>
Sent: Monday, 27 March 2023 1:33 PM
To: GergisR@liverpool.nsw.gov.au; SuryaprakashA@liverpool.nsw.gov.au;
WiafeC@liverpool.nsw.gov.au; qus@liverpool.nsw.gov.au; aikinsk@liverpool.nsw.gov.au
Cc: Belinda Dechnik-JHG <Belinda.Dechnik@jhg.com.au>; Michael Robertson-JHG
<Michael.Robertson@jhg.com.au>; Darragh O'Brien-JHG <Darragh.O'Brien@jhg.com.au>; Aidan
O'Driscoll-JHG <Aidan.O'Driscoll@jhg.com.au>; Alyce Harrington-JHG
<Alyce.Harrington@jhg.com.au>; Mark Trethewy-JHG <Mark.Trethewy@jhg.com.au>
Subject: Liverpool Council meeting minutes 09.03.2023

Hi All,

Please see attached meeting minutes from 09.03.2023.

The 50% design drawings are within the attached slide pack.

Thank you,

Rama Sapkota
Senior Community Engagement Advisor - Upper South Creek project

Meeting Minutes

Title	Stakeholder meeting with Liverpool City Council on 50% design completion
Date	9/03/2023
Time	2:00pm
Held at	Teams Meeting

Chaired by	Michael Robertson
Minuted by	Rama Sapkota
Distribution Date	

Attendees List

Aidan O'Driscoll (AO), Construction Manager, JHG
 Michael Robertson (MR), Community Manager, JHG
 Belinda Dechnik (BD) Environment and Sustainability Advisor, JHG
 Darragh O'Brien (DO), Environment Lead, JHG
 Rama Sapkota (RS), Senior Community Advisor, JHG
 Jerard Tungcab (JT), Strategic Planner, Liverpool City Council
 Kweku Aikins (KA), Acting Executive Planner, Liverpool City Council
 Riham Gergis (RG), Approval Officer, Liverpool City Council
 Stella Qu (SQ), Council Planner, Liverpool City Council
 Mahavir Arya (MA), Liverpool City Council

Apologies List

Alyce Harrington (AH), Environment & Approvals Manager, JHG
 Mark Trethewey (MT), Sustainability Manager, JHG

Description / Action	By Whom	By When
Acknowledgement of Country	MR	
An introduction of the project and introduced the meeting attendees.	MR	
Will have more focused meeting with Traffic team and Council in future	MR	
AO went through the treated pipeline water overview, overview of the project in the area and gave overview of timing of design process.		

MR mentioned the treated pipeline is outside of Liverpool LGA but happy to share details if requested.

RG enquired about the Construction Traffic Management Plan (CTMP) and would like to get the contact in JHG to liaise with directly. **ACTION: AO to follow up with RG about traffic management and permit applications.**

Traffic Contact for John Holland, Upper South Creek AWRC: Balendra Kunaratnam

kunaratnam.balendra@jhq.com.au; 0418 979 198

RG is responsible for ROL. Some points she flagged:

- Location near the school will require consultation with the schools so there are no conflicting issues with them. HSC period should be considered if work is located near a high school
- Dilapidation report to be prepared before starting work, restoration works
- Road opening permit can be applied online
- Things to consider are CTMP, road occupancy, road opening and dilapidation reports

ACTION for Council: Send details for road opening representative.

SQ advised to consult with the school and update the CTMP accordingly to minimise impacts. She also advised that Sydney Metro placed electrical powerline underneath the road last year, but she is not sure if electrical lines are within the verge or middle of the road.

ACTION: JHG currently developing a CTMP and will consult with Council.

JHG to consult with School. JHG have addressed the consultation approach in the Community & Stakeholder Engagement Plan.

AO went through the locations of works and advised the work will be going through residential streets at Cecil Park. The construction team will aim to keep the impacts to a minimum but there will be traffic changes and some noise and dust.

RG enquired about the work hours and noted that there will be restricted hours for road closures noting that there will be no closures during peak hours. Details to be confirmed by JHG in the CTMP.

MA enquired about the depth of the pipe. What is the length of pipe in one day?

AO explained the methodology of pipe placement and advised that there will be multiple crews working along the project alignment.

MA enquired about parking plant on the road, how it will be protected, safety of the plant and enquired if 2-way movement will be allowed? How long will the work take?

AO advised that works will be 6 months plus.

MA flagged that Kennards have carried out work at Cross Street. Electrical work for the airport has also been carried out at this location. He noted that 750mm pipe depth is not sufficient. There is a risk associated with that and advised it is better to have the pipe deeper so it doesn't impact the future development of the road. MA advised he is not aware of any development plans currently. He flagged that Council don't want to relocate the pipeline when there is road construction in future. He is unable to comment on what depth is recommended.

AO advised he will take MA's feedback to the designers.

ACTION: Longitudinal/Vertical design to be passed on to the Council when ready. JHG will issue a 90% detailed design on late May 2023.

MA enquired about where the valve is placed?

AO spoke about the methodology around valve construction and placement.

ACTION: AO to check the road centre line and where the valve will be. JHG will issue a 90% detailed design on 15 May 2023.

MA enquired what kind of pipe is being used?

AO advised PVC pipeline.

MA raised concerns around this for future works in the area.

AO advised the detailed design is 4-6 weeks from 90% design.

Council asked if there was any impact to bus stops? If yes, consult with the bus companies if they need to be relocated.

Council's maintenance team should be involved in these meetings and discussions.

MA will review the design plan and will let the project team know if the pipeline needs to be deeper. MA also enquired if Cowpasture Road will be underbored or trenched?

AO advised the intersection at Cowpasture Road will be underbored. The pit will be located on the shoulder.

MA mentioned there is a lot of services at that location and the pit is in close proximity to the roundabout.

DO went through the environment slide.

JT advised that he has received some management plans which he has circulated internally but is missing Traffic, contamination and air quality plans.

ACTION: DO and JT to coordinate to see which management plans have been sent. Complete

MA will pass on the information to Council's environment team, requested for slides and management plans.

BD went through the sustainability slides.

BD – Requests if Liverpool Council could please identify the best environment or sustainability contact to address further council and USC collaboration opportunities proposed on Sustainability slides (e.g. asset resilience in response to climate change, material/water/waste reuse/recycling opportunities).

JT enquired if there have been any changes to sustainability since the planning phase, they didn't have any comments on that and if there are any significant changes.

BD advised there hasn't been any significant changes since the planning. The team is currently getting into more details of the sustainability requirements.

MR went through the community slides and enquired if there are community festivals or events coming up that JHG could consider attending? If so please let him know. He also requested for feedback on the Community, Stakeholder and Engagement Plan (later sent the Plan to Jerard for distribution within Council).

ACTION: Liverpool Council to review Community & Stakeholder Engagement Plan and comment on the planned engagement activities and stakeholders

<https://www.sydneywatertalk.com.au/53513/widgets/322594/documents/251449>

Link to the project website: www.sydneywatertalk.com.au/uppersouthcreek

MR summarised the meeting and gave an overview of the issues discussed.

Issues summary

- Consultation with residents and schools particularly around HSC times
- Road occupancy/opening permits and restoration approach (do dilap reports)
- Interest in Construction Traffic Management Plan
- Work hours – suggestion for night work (avoiding peak hours) on very busy roads
- Parking and safety of our machinery (and pedestrians) overnight
- Duration of work in this LGA
- Coordination with other project teams and understanding location of other underground assets

-
- Depth of pipe on Cross Street – deep enough to allow for potential future upgrade of Cross Street? Widening could be 8 metres road too
 - Location of HDD pit near roundabout at corner of N Liverpool Road and Capricorn Boulevard
 - Request for Shape files
 - Site compound will be located where there are HDD.
 - Site access arrangements.

Could council please confirm the above list to allow the Project to be aware that council's key concerns are understood?

From: [Alyce Harrington-JHG](#)
To: tungcabj@liverpool.nsw.gov.au
Cc: [CAHILL, CHERYL](#); [Cameron Varricchio](#); [Rob Cranston-JHG](#); [Jason Julius-JHG](#); [Michael McIlveen-JHG](#); [Michael Robertson-JHG](#); [Darragh O'Brien-JHG](#); [Mira Segaran-JHG](#)
Subject: Upper South Creek (SSI 8906189) CoA C4(c) - Soils & Contamination CEMP Sub-plan - for consultation (LCC)
Date: Saturday, 11 March 2023 1:19:53 PM
Attachments: [USCP-JHG-MPL-ENV-0008 Upper South Creek CEMP \(Rev 04\) clean and consolidated.pdf](#)
[USCP-JHG-MPL-ENV-0003 Soils and Contamination CEMP Sub-plan \(Rev 04\) clean and consolidated.pdf](#)
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[image005.png](#)
[image006.png](#)

Good afternoon Jerard,

John Holland has recently been awarded a contract by Sydney Water to design, construct and commission Stage 1 of the Upper South Creek Advanced Water Recycling Centre and Pipelines Project (herein referred to as 'USC Project' or 'the Project'). The Project was approved by the Minister for Planning, Anthony Roberts on Monday 28 November 2022 (SSI-8609189) and in accordance with the relevant conditions of approval (CoA) C1 and C2, John Holland has prepared a Construction Environmental Management Plan (CEMP).

CoA C4 and CoA C13 requires a number of CEMP Sub-plans and Construction Monitoring Programs, respectively, to support the CEMP and they must be developed in consultation with relevant government agencies, including Liverpool City Council (LCC). A list of the plans and programs relevant to LCC is provided below.

C4

- a. Surface Water & Groundwater CEMP Sub-plan (USCP-JHG-MPL-ENV-0001) (SWGCSPP)
- b. Flood Emergency Response CEMP Sub-plan (USCP-JHG-MPL-ENV-0002) (FERCSP)
- c. Soils & Contamination CEMP Sub-plan (USCP-JHG-MPL-ENV-0003) (SCCSP)
- d. Biodiversity CEMP Sub-plan (USCP-JHG-MPL-ENV-0004) (BCSP)
- e. Noise & Vibration CEMP Sub-plan (USCP-JHG-MPL-ENV-0007) (NVCSP)
- f. Traffic & Transport CEMP Sub-plan (USCP-JHG-MPL-ENV-0005) (TTCSP)
- g. Heritage CEMP Sub-plan (USCP-JHG-MPL-ENV-0006) (HCSP)
- h. Air Quality CEMP Sub-plan (USCP-JHG-MPL-ENV-0009) (AQCSPP)

C13

- a. Surface Water Quality Construction Monitoring Program (Appendix E of the SWGCSP)
- c. Noise & Vibration Construction Monitoring Program (Appendix E of the NVCSP)

John Holland proposes to issue the relevant plans and programs progressively, following review and approval by Sydney Water. As such, John Holland on behalf of Sydney Water, is please to present to LCC, the **Soils & Contamination CEMP Sub-plan** (SCCSP, C4(c)). Please note that as there are a number of references to sections within the CEMP throughout the SCCSP, John Holland has also provided a copy of the CEMP for LCC reference.

It would be greatly appreciated if any comments regarding this submission are provided by close of business Friday 24 March 2023.

If you have any questions regarding this submission, please contact me.

Thank you,

Alyce Harrington

Planning, Environment & Approvals Director
Upper South Creek

**JOHN
HOLLAND**

Level 3, 65 Pirrama Road, Pyrmont NSW

M. +61 409 633 908

E. Alyce.Harrington@jhg.com.au



Make flexibility work – if you receive an email from me outside of normal business hours, it's because I'm sending it at a time that suits me. I'm not expecting you to read it or reply until normal business hours.

From: [Alyce Harrington-JHG](#)
To: tungcabj@liverpool.nsw.gov.au
Cc: [CAHILL, CHERYL](#); [Cameron Varricchio](#); [Mira Segaran-JHG](#); [Michael Robertson-JHG](#)
Subject: Upper South Creek (SSI-8609189) - LCC - CEMP Sub-plan consultation feedback
Date: Friday, 24 March 2023 4:39:39 PM
Attachments: [image001.png](#)
[image002.png](#)
[image003.png](#)
[image004.png](#)
[image005.png](#)
[image006.png](#)

Hello Jerard,

It was good to chat with you earlier this afternoon, I really appreciate the call.

As discussed, John Holland on behalf of Sydney Water have issued the Upper South Creek CEMP and Sub-plans in a progressive fashion and would appreciate it if Council could issue back as soon as possible, any plans that have comments available.

You indicated that the Flood Emergency Response and Heritage CEMP Sub-plans have comments, so if you could please send those through now, we can get working on them straight away.

With regard to the remaining plans (including the Traffic & Transport and Surface Water & Groundwater CEMP Sub-plans to be issued imminently), could Council please provide any remaining comments by COB Monday 03 April 2023.

Thank you again and please reach out if you have any other questions.

Cheers,

Alyce Harrington
Planning, Environment & Approvals Director
Upper South Creek

**JOHN
HOLLAND**

Level 3, 65 Pirrama Road, Pyrmont NSW
M. +61 409 633 908
E. Alyce.Harrington@jhgc.com.au



Make flexibility work – if you receive an email from me outside of normal business hours, it's because I'm sending it at a time that suits me. I'm not expecting you to read it or reply until normal business hours.

From: [Alyce Harrington-JHG](#)
Bcc: [CAHILL, CHERYL](#); [Cameron Varricchio](#); [Michael Robertson-JHG](#); [Rob Cranston-JHG](#); [Jason Julius-JHG](#); [Darragh O'Brien-JHG](#); [Simone Kenyon-JHG](#); [bianca.klein@wollondilly.nsw.gov.au](#); [ari.fernando@penrith.city](#); [tungcabj@liverpool.nsw.gov.au](#); [Alison Mortimer](#); [Daniel Begnell](#); [mail@fairfieldcity.nsw.gov.au](#); [Mathew Harland](#); [Nafizul Akash](#); [Ibrahim Muharrem](#); [Zahid Hassan](#)
Subject: Upper South Creek (SSI-8609189) - CEMP and Sub-plans consultation period
Date: Wednesday, 26 April 2023 4:44:00 PM
Attachments: [image001.png](#)
[image002.png](#)
[image003.png](#)
[image004.png](#)
[image005.png](#)
[image006.png](#)

Good afternoon,

Over recent weeks, John Holland on behalf of Sydney Water has been issuing documents to relevant government agencies and local councils in relation to the Upper South Creek Advanced Water Recycling Centre project.

These documents include the project's Construction Environmental Management Plan (CEMP) and associated sub-plans as summarised below:

- USC Construction Environmental Management Plan (CEMP)
- USC Air Quality CEMP Sub-plan
- USC Flood Emergency Response CEMP Sub-plan
- USC Heritage CEMP Sub-plan
- USC Biodiversity CEMP Sub-plan
- USC Noise & Vibration CEMP Sub-plan
- USC Traffic & Transport CEMP Sub-plan
- USC Surface Water & Groundwater CEMP Sub-plan
- USC Soils & Contamination CEMP Sub-plan

Please note that whilst the formal consultation period for the above documents has now ended, John Holland would welcome any future opportunity to engage with you on matters related to the project.

If you have any further questions related to this matter, please do not hesitate to contact me.

Kind Regards,

Alyce Harrington
Planning, Environment & Approvals Director
Upper South Creek



Level 3, 65 Pirrama Road, Pyrmont NSW
M. +61 409 633 908
E. Alyce.Harrington@jhgc.com.au



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Alyce Harrington
Environment & Approvals Manager
Level 3, 65 Pirrama Road
Pyrmont, NSW, 2009

Dear Mrs Harrington

**Re: Upper South Creek Advanced Water Recycling Centre CEMP Consultation –
Liverpool City Council**

I write in response to your email dated 26 April 2023 regarding consultation for the Upper South Creek Advanced Water Recycling Centre (AWRC) Construction Environmental Management Plan (CEMP). We appreciate the opportunity to provide comment and we welcome further engagement on the project.

Council has reviewed the plans and provides detailed comments at Appendix 1. Council staff have also provided a number of recommendations with regards to the carrying out of development at Appendix 1.

In future, Council staff would prefer that the full package of plans and documents are provided for comment at the same time. This allows Council technical officers to undertake a comprehensive review of all aspects of the development, including aspects where there may be inconsistencies between documentation.

Council has previously provided comments on the Heritage Sub-Plan, and Biodiversity Sub-Plan. This has been re-iterated as part of the attachment below along with further matters not previously communicated.

Should you require any further information on this matter, please do not hesitate to contact Jerard Tungcab, Strategic Planner, at tungcabj@liverpool.nsw.gov.au

Yours sincerely,



Ian Stendara
Executive Planner

Attachment 1

Environmental Health

Council's Environmental Health Team have reviewed the following documents:

- USC Construction Environmental Management Plan (CEMP)
- USC Soils & Contamination CEMP Sub-plan
- USC Noise & Vibration CEMP Sub-plan
- USC Air Quality CEMP Sub-plan
- USC Surface Water & Groundwater CEMP Sub-plan

Whilst no major objections have been raised, the following considerations are reiterated for specific matters.

Soils & Contamination

The document states that the Soils & Contamination CEMP Sub-plan (SCCSP) has been reviewed by Peter Lavelle of Environmental Resources Management (ERM). Peter is a Contaminated Land Consultant certified under the Environment Institute of Australia and New Zealand's Certified Environmental Practitioner (Site Contamination) scheme (CEnvP (SC)).

Additionally, an NSW Environment Protection Authority (EPA) accredited Site Auditor has been engaged by Sydney Water for the project. Following review of the SCCSP, the Site Auditor will issue an interim audit advice or a relevant site audit statement stating that the SCCSP is considered adequate for the construction of the project. Relevant outcomes or recommendations from the review process will be incorporated into the SCCSP.

Noise & Vibration

The report states that a suitably qualified and experienced acoustic advisor in noise and vibration management has been nominated by the project and approved by the "Planning Secretary". Additional independent acoustic advisors have also been selected to be utilised if needed.

The Out of Hours Works (OOHW) Protocol will be provided to the EPA, Environmental Representative (ER) and Acoustic Advisor (AA) in accordance with CoA E43. Further attention is required to references to various appendix listed in section 3.3 and table 3-2 of the report.

Air Quality

Proposed activities with potential to generate dust have been identified and plans to monitor dust generating activities, plant and vehicle emissions and meteorological conditions have been listed as well as mitigation techniques and protocols to deal with complaints.

Additionally, it is proposed that John Holland staff, Sydney Water Environmental Leads and the ER will undertake regular inspections of works sites, in particular critical activities, throughout construction of the project. These joint inspections would occur on a weekly or fortnightly basis depending on the complexity and anticipated risks associated with the stage of construction. Deficiencies and required actions will be analysed and prioritised at the completion of the inspection and timeframes for implementation of corrective actions agreed.

Traffic Management

Council's Traffic Management Team have reviewed the following documents:

- USC Construction Environmental Management Plan (CEMP)
- USC Flood Emergency Response CEMP Sub-plan
- USC Traffic & Transport CEMP Sub-plan

Flood Emergency Response

It is noted that Elizabeth Drive is the only evacuation route to the subject site. As the section of Elizabeth Drive between Clifton Avenue and Mamre Road is located within high-risk flood zone. Early evacuation or warning should be provided prior to and during major flooding events. Consultation is required with TfNSW M12 Motorway project whether any new flood emergency route will be available via the M12 Motorway in future.

Traffic and Transport

The following recommendations must be considered and undertaken.

Action	
A	It is noted that construction traffic will result in an increase in traffic of greater than 5% on road links that are already over capacity including Elizabeth Drive and Cowpasture Road. As a result, Council is to be consulted by Sydney Water or the contractors for any works which may have noticeable impacts on these roads
B	<p>A number of major transport and infrastructure projects are under construction within the close proximity to Elizabeth Drive. Transport for NSW (TfNSW), Councils, Sydney Metro are to be informed for any activity which will result in partial or full road closure along Elizabeth Drive.</p> <p>It is suggested that Sydney Water/contractors are to consult Sydney Metro for the proposed treated wastewater pipeline section underneath the Metro railway track at Elizabeth Drive.</p>
C	A copy of detailed design plans for the proposed pipelines along roads within Liverpool Local Government Area should be submitted to Council's Transport Management team for comment prior to the commencement of the works.
D	<p>A site-specific Construction Traffic Management Plan (SSCTMP) is to be prepared and submitted to Council for review prior to the commencement of any works. A SSCTMP is to include (but not being limited) to the following:</p> <ul style="list-style-type: none">• Number of daily and peak hour vehicle, pedestrian and cyclist movements, particularly heavy vehicle movements generated from the proposed works;• Heavy vehicle haulage routes as per the approved EIA report and/or Council's approved routes;• Access arrangements for each construction compound and zone;• On-site construction car parking arrangement and traffic circulation;

	<ul style="list-style-type: none"> Vehicle Movement Plans (VMP), Pedestrian Movement Plan (PeMP), and Parking Management Plan (PaMP); Outlining the needs for a Road Occupancy Permit issued by Council or Road Occupancy Permit issued by the Transport Management Centre. Works within the road reserve shall not commence until the relevant traffic management plans and associated TCPs and VMPs have been endorsed by the relevant road authority.
E	The Driver Code of Conduct is to be prepared and included in the relevant CTMP and SSCTMP. The drivers should use the approved haulage routes
F	<p>Sydney Water/contractors shall seek road occupancy, road opening permits, and works zone approval from Council if required prior to undertaking any works within public road reserve. The application forms are available on Council's website or can requested from the Council's Customer Services.</p> <p>Prior to commencement of any works a Traffic Control Plan including details for pedestrian and cyclist access management, shall be prepared in accordance with AS1742.3 "Traffic Control Devices for Works on Roads" and the Roads and Maritime Services publication "Traffic Control at Worksites" and certified by an appropriately accredited Roads and Maritime Services Traffic Controller, and submitted to Council or the relevant road authority for approval.</p> <p>Traffic control measures shall be implemented during the construction phase of the development in accordance with the certified plan. A copy of the plan shall be available on site at all times.</p> <p>Note: A copy of the Traffic Control Plan shall accompany the Notice of Commencement to Liverpool City Council.</p>
G	Any removals of on-street parking must be approved by Council prior to the implementation. Community consultation and notification are required for the on-street parking removals.
H	<p>A project specific Communications Management Plan for staging construction activities is to be prepared and submitted to Council for approval. The plan is to outline community consultation methodologies, approaches and timeline of consultation process and complaint handling process.</p> <p>Consideration is to be given to include consultation measures such as letterbox drops for affected community, advertisement in local newspapers, VMS sign notification, local community and interest group consultation meetings, and consultation process(s) with key stakeholders such as Councils, TfNSW, Transport Management Centre, bus operators, school, police and emergency service.</p> <p>TfNSW and Sydney Metro host regular traffic control working groups. Council also has regular community forums. It is recommended that the project team can provide updates at the working groups and Council's community forums. A request can be sent to Council for attendance by email: districtforums@liverpool.nsw.gov.au. Full details can be found on the website: Liverpool District Forums Liverpool Listens (nsw.gov.au).</p>

I	<p>The CTMP, SSCTMP and Communications Management Plan are to include key contact details of principal, contractors, and public agencies. The following Council contact details are to be included in Project Contacts:</p> <ul style="list-style-type: none"> Charles Wiafe – Manager Transport Management, wiafec@liverpool.nsw.gov.au, 02 8711 7452 Jeya Shanmuganathan – Maintenance Planning and Reporting Coordinator, shanmuganathanj@liverpool.nsw.gov.au, 02 8711 7016
J	Council is to be informed for any complaints received and a response provided by Sydney Water and/or the relevant contractors.
K	A Pre-construction Dilapidation Report shall be submitted to Liverpool City Council for approval prior to the commencement of construction.
L	A Road Safety Audit shall be prepared prior to the commencement of any works and provided to Council for review.
M	Council's on-street assets such as footpath should be protected at all times. Any damages should be rectified to Council satisfaction.

Previous Comments

Dated 31 March 2023, the following comments were previously sent regarding Heritage and Biodiversity.

Heritage Sub-Plan

Council's internal officers have thoroughly reviewed the submitted sub-plans for Heritage. Note that Heritage matters were previously commented on during the initial planning stage. No issues have been raised with the proposal and approach taken for the CEMP.

Biodiversity Sub-Plan

The following changes have been recommended for the Biodiversity sub-plan:

3.2 Targets – Page 12

Original Text	Suggested Replacement
<i>Minimise fauna fatalities resulting from construction activities. Ensure no threatened species fatalities.</i>	<i>Avoid fatalities to fauna resulting from construction activities. Ensure no threatened species fatalities.</i>
<i>No disturbance to flora within the project boundary which is non-compliant with project approval conditions.</i>	<i>No disturbance to flora within the project boundary which is non-compliant with project approval conditions and large remnant trees that are not to be removed are to be tagged for identification.</i>

<i>No transfer of pathogen / disease from one project area to another</i>	<i>No transfer of pathogen / disease from one project area to another. All safeguards for pathogens will be followed every morning and afternoon. Phytophthora has been found north of Gurner Avenue, Austral and other Sydney water sites in the locality, please refer to Phytophthora Management Plan for Gurner Ave, Austral Document for further information.</i>
<i>No wilful pollution or sedimentation of aquatic ecosystems; threatened ecological communities or threatened species habitat.</i>	<i>Ensure to avoid pollution or sedimentation of aquatic ecosystems; threatened ecological communities or threatened species habitat.</i>

Page 13- Section 3.3 Environmental Outcomes - How performance outcomes would be achieved.

The below bullet points are recommended additions for the Environmental outcomes section 3.3:

- Compensatory revegetation of native plants.
- Avoid adverse impacts to native habitat.

If you do not understand this letter/application, please ring the Telephone Interpreter Service (131 450) and ask them to contact Council (1300 362 170). Office hours are 8.30 am to 5.00 pm, Monday to Friday.

ARABIC

إذا لم تستطع فهم هذا الطلب ، الرجاء الاتصال بخدمة الترجمة الهاتفية على رقم 131 450 واسألهم أن يتصلوا بالبلدية على رقم 1300 362 170 . دوام ساعات العمل هي من الساعة 8.30 صباحاً إلى 5.00 بعد الظهر من الاثنين إلى الجمعة.

CHINESE

如您看不懂此信 / 申請書，請打電話給「電話翻譯服務台」(131 450)，請他們聯絡市政廳(市政廳電話 1300 362 170)。市政廳辦公時間：星期一至星期五，上午八時三十分至下午五時。

CROATIAN

Ako ne razumijete ovo pismo/aplikaciju, molimo nazovite Službu prevodilaca i tumača (Translating and Interpreting Service - na broj 131 450) i zamolite ih da nazovu Općinu (na 1300 362 170). Radno vrijeme je od 8.30 ujutro do 5.00 popodne, od ponedjeljka do petka.

GERMAN

Wenn Sie diesen Brief/Antrag nicht verstehen können, rufen Sie bitte den Telefon Dolmetscher Dienst (Telephone Interpreter Service) (131 450) an und lassen Sie sich vom Personal mit dem Gemeinderat (Council) in Verbindung setzen (1300 362 170). Geschäftsstunden sind von 8:30 bis 17:00 Uhr, montags bis freitags.

GREEK

Αν δεν καταλαβαίνετε αυτή την επιστολή/αίτηση, σας παρακαλούμε να τηλεφωνήσετε στην Τηλεφωνική Υπηρεσία Διερμηνέων (131 450) και να τους ζητήσετε να επικοινωνήσουν με το Δημοτικό Συμβούλιο (1300 362 170). Τα γραφεία του είναι ανοιχτά από τις 8.30π.μ. μέχρι τις 5.00μ.μ. από Δευτέρα μέχρι και Παρασκευή.

HINDI

अगर आप इस पत्र/आवेदन को पढ़कर समझ नहीं पा रहे हैं तो कृपया टेलीफोन संवाद-सहायक सेवा (131 450) को फोन करें और उनसे काउंसिल (1300 362 170) से संपर्क करने को कहें। कार्यालय का समय सोमवार से बुधवार तक प्रातः ८:३० बजे से सायं ५:०० तक है।

ITALIAN

Se non comprendi questa lettera/questo modulo di domanda, telefona al Servizio traduzioni e interpreti al numero 131 450 chiedendo di essere messo in contatto con il Comune (telefono 1300 362 170). Orario d'ufficio: ore 8.30 -17.00, dal lunedì al venerdì.

KHMER

បើលោកអ្នកមិនយល់ពីអត្ថន័យប្រការប្រតិបត្តិនេះទេ សូមទូរស័ព្ទទៅសេវាបកប្រែភាសាភាសាខ្មែរស័ព្ទ (លេខ 131 450) ហើយស្នើសុំឱ្យគេទាក់ទងសាលាក្រុង (លេខ 1300 362 170)។ ពេលម៉ោងធ្វើការគឺម៉ោង ៨ កន្លះព្រឹកដល់ម៉ោង ៥ ល្ងាច ពីថ្ងៃច័ន្ទដល់ថ្ងៃសុក្រ

MACEDONIAN

Ako ne go razbirate ova pismo/aplikacija, ve molime da se javite vo Telefonската преведувачка служба на 131 450 и замолете ги да стапат во контакт со Општината на 1300 362 170. Работното време е од 8.30 часот наутро до 5.00 часот попладне од понеделник до петок.

MALTESE

Jekk ma tifhimx din l-ittra/applikazzjoni, jekk joghgbok ċempel lis-Servizz ta' l-Interpretu bit-Telefon (131 450) u itlobhom jikkuntattjaw il-Kunsill (1300 362 170). Il-hinijiet ta' l-Uffiċċju huma mit-8.30a.m. sal-5.00p.m., mit-Tnejn sal-Gimgha.

POLISH

Jeśli nie rozumiesz treści niniejszego pisma/podania, zadzwoń do Telefonicznego Biura Tłumaczy (Telephone Interpreter Service) pod numer 131 450 i poproś o telefoniczne skontaktowanie się z Radą Miejską pod numerem 1300 362 170. Godziny urzędowania: 08.30-17.00 od poniedziałku do piątku.

SERBIAN

Ako ne razumete ovo pismo/aplikaciju, molimo vas da nazovete Telefonsku prevodilačku službu (131 450) i zamolite ih da kontaktiraju Opштину (1300 362 170). Radno vreme je od 8.30 ujutro do 5.00 popodne, od ponedeljka do petka.

SPANISH

Si Ud. no entiende esta carta/solicitud, por favor llame al Servicio Telefónico de Intérpretes (131 450) y pídales que llamen a la Municipalidad (Council) al 1300 362 170. Las horas de oficina son de 8:30 am a 5:00 pm, de lunes a viernes.

TURKISH

Bu mektubu veya müracaatı anlayamazsanız, lütfen Telefon Tercüme Servisi'ne (131 450) telefon ederek Belediye ile (1300 362 170) ilişkiye geçmelerini isteyiniz. Çalışma saatleri Pazartesi - Cuma günleri arasında sabah saat 8:30 ile akşam 5:00 arasındır.

VIETNAMESE

Nếu không hiểu thư/đơn này, xin Quý Vị gọi cho Telephone Interpreter Service (Dịch Vụ Thông Dịch Qua Điện Thoại), số 131 450, và nhờ họ liên lạc với Council (Hội Đồng), số 1300 362 170. Giờ làm việc là 8 giờ 30 sáng đến 5 giờ 00 chiều, Thứ Hai đến Thứ Sáu.

Appendix 5 – Fairfield City Council – Evidence of Consultation

From: [Alyce Harrington-JHG](#)
To: [Mira Segaran-JHG](#)
Subject: FW: Fairfield Council meeting minutes 13.03.2023
Date: Friday, 28 April 2023 7:43:35 AM
Attachments: [Fairfield City Council Early Coordination Meeting.pdf](#)
[20230313_Fairfield Council meeting minutes_FINAL.pdf](#)
[image001.png](#)
[image002.png](#)
[image003.png](#)
[image004.png](#)
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[image010.png](#)
[image011.png](#)
[image012.png](#)

Alyce Harrington
Planning, Environment & Approvals Director
Upper South Creek

**JOHN
HOLLAND**

Level 3, 65 Pirrama Road, Pyrmont NSW
M. +61 409 633 908
E. Alyce.Harrington@jhg.com.au



Make flexibility work – if you receive an email from me outside of normal business hours, it's because I'm sending it at a time that suits me. I'm not expecting you to read it or reply until normal business hours.

From: Rama Sapkota-JHG <Rama.Sapkota@jhg.com.au>
Sent: Thursday, 30 March 2023 4:31 PM
To: amortimer@fairfieldcity.nsw.gov.au; mshah@fairfieldcity.nsw.gov.au;
AMooney@fairfieldcity.nsw.gov.au
Cc: Alyce Harrington-JHG <Alyce.Harrington@jhg.com.au>; Michael Robertson
<michael@mrcommunications.com.au>; Aidan O'Driscoll-JHG <Aidan.O'Driscoll@jhg.com.au>;
Mark Trethewy-JHG <Mark.Trethewy@jhg.com.au>; Darragh O'Brien-JHG
<Darragh.O'Brien@jhg.com.au>; Belinda Dechnik-JHG <Belinda.Dechnik@jhg.com.au>
Subject: Fairfield Council meeting minutes 13.03.2023

Hi All,

Please see attached meeting minutes from 13.03.2023.

The 50% design drawings are within the attached slide pack.

Thank you,

Rama Sapkota
Senior Community Engagement Advisor - Upper South Creek project

Meeting Minutes

Title	Stakeholder meeting with Fairfield City Council on 50% design completion
Date	13/03/2023
Time	3:00pm
Held at	Teams Meeting
Chaired by	Michael Robertson
Minuted by	Rama Sapkota
Distribution Date	

Attendees List

Aidan O'Driscoll (AO), Construction Manager, JHG
 Michael Robertson (MR), Community Manager, JHG
 Mark Trethewey (MT), Sustainability Manager, JHG
 Darragh O'Brien (DO), Environment Lead, JHG
 Rama Sapkota (RS), Senior Community Advisor, JHG
 Andrew Mooney, Executive Strategic Planner, Fairfield City Council
 Kerren Ven, Strategic Planner, Fairfield City Council
 Mursaleen Shah, Design Coordinator, Fairfield City Council
 Zahid Hassan, Asset Manager - Civil and Built, Fairfield City Council

Apologies List

Alyce Harrington (AH), Environment & Approvals Manager, JHG

Description / Action	By Whom	By When
Acknowledgement of Country	MR	
An introduction of the project and the meeting attendees.	MR	
AO went through the treated pipeline water overview, overview of the project in the area and gave overview of timing of design process. He mentioned there will be impacts to local streets and residential roads, work underneath the Sydney Trains corridor at Cabramatta, under Cowpasture Road and on TfNSW Roads.	MR	

AO advised that works will impact parking lane on North Liverpool Road and Montgomery Road.

MS enquired about the pipe size.

AO clarified the pipe size has been updated and explained.

MS enquired if EPA has been consulted, impacts during construction, hazards of the materials that is going to be discharged (Class 2 discharge material).

AO explained the process of design process of the valve and material discharge. It will be discharged into an existing sewer.

MS enquired about the emergency procedure of a leak or any incident and how it will be managed?

ACTION: AO to provide information on emergency protocol and send it to Council. Link to EIS Chapter 4 Section 4.6.2 ([Volume 2 Project Information and Construction Part 2 \(nsw.gov.au\)](#)). Complete

Council enquired about construction impacts and ongoing impacts, private property impact of trenches or will it be on the roadway. What will be the construction timing? What will be impact on the roads and public infrastructure? Impact to maintenance of SW asset?

AO explained the construction methodology and scour chambers. It is designed for no rework and asset is expected last for 100 years. EIS exhibition was carried out in the planning phase which address the concerns raised. The site mobilisation in July.

AM requested for the MCOA and planning approvals.

ACTION: FCC to review Community & Stakeholder Engagement Plan and comment on the planned engagement activities and stakeholders- [Upper South Creek Advanced Water Recycling Centre | Planning Portal - Department of Planning and Environment \(nsw.gov.au\)](#). Link to project website: [www.sydneywatertalk.com.au/uppersouthcreek](#)

MS enquired about how the ROLs will be managed.

AO advised that site specific traffic management plan is currently being prepared and would like to get Council feedback.

ACTION: FCC to provide Traffic management team contact.

MS provided advice on Traffic construction plan. The day work time and night time work; start and finish time will be provided in the TCP. It will be indicative times.

Council enquired how will the project rectify Council asset? They wanted clarification on who will carry out the restoration?

ZH spoke about the Council requirement and apply for a Road Reserve Clearance Certificate Application.

AO advised that the project team will carry out restoration upon completion.

MS enquired if the pipeline will go through CBD?

AO advised the project avoids CBD but does go through busy streets.

What is the duration of the project?

AO advised that it will conclude around mid 2025.

MS enquired about the HDPE lifecycle? He mentioned that it usually comes with a 25 years lifecycle.

AO advised the HDPE will have a longer life cycle than 25 years.

MS enquired about how the trenching will be carried out?

MR advised that trenching methodology and the construction approach.

Council enquired about the risk during ongoing construction to Council asset; existing stormwater. How to avoid that?

AO advised it is addressed in the 90% design which will be finalised in six weeks' time and will show all Council assets.

MS enquired if pipes will be in the centre of the road?

AO advised that pipes will go in the parking lane? Most of the pipes is under the curb.

MS enquired if there will be road closures?

AO advised the plan is to take two of the four lanes.

MS enquired about how is the noise and dust going to be managed, environment impacts, complaints and night works?

Note: Addressed in the environment management plans, FCC to review the CEMP and sub-plans emailed to dbegnell@fairfieldcity.nsw.gov.au for council review and complaints line 1800 064 127.

DO spoke about the mitigation of the dust, noise, complaints and out of hour work. He spoke about the mitigation measures during works.

AO went through the key construction areas.

MS enquired about booster stations along the way.

AO advised that there will be valves but no booster stations.

ZH enquired will the permanent restoration be completed to Council Specs?

AO advised that it will be done to Council Specs.

MS requested for the slides.

ACTION: RS to send the slides and meeting minutes. Complete

MS advised to have early consultation with residents about parking space impacts. Council would like to work with JHG about the parking impacts and have early conversation with residents.

AO advised that consultation will be carried out prior to any impacts to residents.

DO went through the environment slides.

MS enquired if the EPL will be publicly available?

DO advised that EPL application is underway and going through the process currently.

MS enquired about the water discharge and water quality? He noted these are question the community will ask them.

ACTION: CEMP has been sent to council. It outlines mitigation measures around water discharge and quality. Complete

MT went through the sustainability slides and request for Council input.

MT requests if Fairfield Council could please identify the best environment or sustainability contact to address further council and USC collaboration opportunities proposed on Sustainability slides (e.g. asset resilience in response to climate change, material/water/waste reuse/recycling opportunities).

MS enquired about how will contaminated materials is found during trenching be disposed of?

MT advised that it is more of an environmental query.

AO advised contaminated material will be taken offsite and be disposed at a licenced facility and it will be tracked. AO advised its covered under the EPL.

MS advised that Council must be notified of the contamination and requested to be notified? In case there are questions from landowners.

MR went through the community slides and requested for any upcoming Council festivals? Also, shared the Community Engagement Plan and requested to pass on to their community team.

AM mentioned that there is a Fairfield markets every weekend if you want to do a pop up. Advised the festivals will be too hectic not as beneficial as the weekend market.

ACTION: Council to review Community & Stakeholder Engagement Plan and comment on the planned engagement activities and stakeholders

www.sydneywatertalk.com.au/53513/widgets/322594/documents/251449

Link to the project website: www.sydneywatertalk.com.au/uppersouthcreek

MS enquired about the parameters of the materials that is going to be transported – type of water or material. BUD, CUD, dissolve solid, bio solids – requested share EPL.

MR advised that most of these are in the EIS and will point in the right section of the EIS.

ACTION: EIS Chapter 8 Section 8.7 ([Volume 3 Impact Assessment Part 1 \(nsw.gov.au\)](#)) EIS Appendix F Section 6 ([Appendix F Hydrodynamic and Water Quality Impact Assessment Part 1 \(nsw.gov.au\)](#)) . Complete

ACTION: There will be specific targeted meetings on an as-needs basis going forward and will arrange specific teams to attend the meeting.

AM advised that contact MS will be the main point of contact.

Summary of key issues or interests raised by Council

- Construction impacts and mitigation measures
- Night work
- Construction duration
- Risk management (from potential pipe leak)
- Planning approvals and Minister's Conditions of Approval
- Road applications and restoration approach
- If construction will be through any town centres
- Pipe life – any operational impact to Council from the pipe being in the road?
- Pipe locations
- Pipe materials
- Type of water in the brine pipe – chemical make up of the water
- Would like to review design drawings (**ACTION: RS to share 50% design drawings via the attached slide pack**) Complete
- Keen to stay involved and review construction and traffic management approach
- Copy of EPL
- Unexpected finds policy – Council doesn't want to have to pay for any finds
- Fairfield Markets are a good opportunity to meet the community

Could council please confirm the above list to allow the Project to be aware that council's key concerns are understood?

From: [Alyce Harrington-JHG](#)
To: dbegnell@fairfieldcity.nsw.gov.au; mail@fairfieldcity.nsw.gov.au
Cc: [CAHILL, CHERYL](#); [Cameron Varricchio](#); [Rob Cranston-JHG](#); [Jason Julius-JHG](#); [Michael McIlveen-JHG](#); [Michael Robertson-JHG](#); [Darragh O'Brien-JHG](#); [Mira Segaran-JHG](#)
Subject: Upper South Creek (SSI 8906189) CoA C4(c) - Soils & Contamination CEMP Sub-plan - for consultation (FCC)
Date: Saturday, 11 March 2023 1:24:41 PM
Attachments: [USCP-JHG-MPL-ENV-0008 Upper South Creek CEMP \(Rev 04\) clean and consolidated.pdf](#)
[USCP-JHG-MPL-ENV-0003 Soils and Contamination CEMP Sub-plan \(Rev 04\) clean and consolidated.pdf](#)
[image001.png](#)
[image002.png](#)
[image003.png](#)
[image004.png](#)
[image005.png](#)
[image006.png](#)

Good afternoon Daniel,

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CoA C4 and CoA C13 requires a number of CEMP Sub-plans and Construction Monitoring Programs, respectively, to support the CEMP and they must be developed in consultation with relevant government agencies, including Fairfield City Council (FCC). A list of the plans and programs relevant to FCC is provided below.

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- a. Surface Water & Groundwater CEMP Sub-plan (USCP-JHG-MPL-ENV-0001) (SWGCSPP)
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- g. Heritage CEMP Sub-plan (USCP-JHG-MPL-ENV-0006) (HCSP)
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C13

- a. Surface Water Quality Construction Monitoring Program (Appendix E of the SWGCSP)
- c. Noise & Vibration Construction Monitoring Program (Appendix E of the NVCSP)

John Holland proposes to issue the relevant plans and programs progressively, following review and approval by Sydney Water. As such, John Holland on behalf of Sydney Water, is please to present to FCC, the **Soils & Contamination CEMP Sub-plan** (SCCSP, C4(c)). Please note that as there are a number of references to sections within the CEMP throughout the SCCSP, John Holland has also provided a copy of the CEMP for FCC reference.

It would be greatly appreciated if any comments regarding this submission are provided by close of business Friday 24 March 2023.

If you have any questions regarding this submission, please contact me.

Thank you,

Alyce Harrington

Planning, Environment & Approvals Director
Upper South Creek

**JOHN
HOLLAND**

Level 3, 65 Pirrama Road, Pyrmont NSW

M. +61 409 633 908

E. Alyce.Harrington@jhg.com.au



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From: [Alyce Harrington-JHG](#)
To: [Mira Segaran-JHG](#)
Subject: FW: Upper South Creek (SSI 8906189) CoA C4(c) - Soils & Contamination CEMP Sub-plan - for consultation (FCC)
Date: Friday, 24 March 2023 3:09:39 PM
Attachments: [image008.png](#)
[image020.png](#)
[image021.png](#)
[image022.png](#)
[image025.png](#)
[image007.png](#)
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[image013.png](#)
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[image002.png](#)
[image003.png](#)
[image004.png](#)
[image005.png](#)
[image006.png](#)

Alyce Harrington
Planning, Environment & Approvals Director
Upper South Creek

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From: Dolores Schembri <DSchembri@fairfieldcity.nsw.gov.au>
Sent: Friday, 24 March 2023 1:11 PM
To: Alyce Harrington-JHG <Alyce.Harrington@jhgc.com.au>
Subject: RE: Upper South Creek (SSI 8906189) CoA C4(c) - Soils & Contamination CEMP Sub-plan - for consultation (FCC)

Good afternoon Alyce,

Thank you for providing Fairfield City Council the opportunity to review reports as part of this approved project.

As stated on page 26 and 27 of the Construction Environmental Management Plan an independent environmental representative and acoustic advisor has been engaged to oversee compliance with the Project Planning Approval and be the main point of advice on the environmental performance of works.

It is noted that a Contamination Site Auditor has also been secured for the duration of the project. Sydney Water Environmental Leads will also monitor environmental performance of the project. It is understood that John Holland will also have an

environmental manager to ensure overall environmental compliance.

The purpose of this SCCSP is to describe measures for managing soils and contamination risks during construction, heavily relying on and in accordance with the outlined Specific, Measurable, Achievable, Realistic and Timely (SMART) principles.

Overall, Council is satisfied with the preliminary performance measures as presented, noting that further reports and studies will be prepared closer to site preparation.

Given that the project falls within the Fairfield LGA, it is expected that a closer review of those properties and occupants likely to be affected by the works be individually identified and a sound and direct consultation and communications plan be developed as part of the construction plans.

This to ensure that any occupants likely to be impacted are successfully reached/notified and given ample notice prior to the commencement of works and means of addressing and resolving any issues that may arise during the various stages of the project.

Thank you again for the referral of these reports to Council and working together on minimising any potential impacts on the local environment.

Regards
Dolores

Dolores Schembri

Coordinator Public Health, Food Safety and Environment
City Development and Compliance

PO Box 21 Fairfield NSW 1860
P 9725 0283

www.fairfieldcity.nsw.gov.au
mail@fairfieldcity.nsw.gov.au



From: Alyce Harrington-JHG <Alyce.Harrington@jhg.com.au>

Sent: Saturday, 11 March 2023 1:24 PM

To: Daniel Begnell <DBegnell@fairfieldcity.nsw.gov.au>; Mail Mail
<mail@fairfieldcity.nsw.gov.au>

Cc: CAHILL, CHERYL <CHERYL.CAHILL@sydneywater.com.au>; Cameron Varricchio

<CAMERON.VARRICCHIO@sydneywater.com.au>; Rob Cranston-JHG
<Rob.Cranston@jhg.com.au>; Jason Julius-JHG <Jason.Julius@jhg.com.au>; Michael McIlveen-JHG <Michael.McIlveen@jhg.com.au>; Michael Robertson-JHG
<Michael.Robertson@jhg.com.au>; Darragh O'Brien-JHG <Darragh.O'Brien@jhg.com.au>; Mira Segaran-JHG <Mira.Segaran@jhg.com.au>

Subject: Upper South Creek (SSI 8906189) CoA C4(c) - Soils & Contamination CEMP Sub-plan - for consultation (FCC)

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CoA C4 and CoA C13 requires a number of CEMP Sub-plans and Construction Monitoring Programs, respectively, to support the CEMP and they must be developed in consultation with relevant government agencies, including Fairfield City Council (FCC). A list of the plans and programs relevant to FCC is provided below.

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- b. Flood Emergency Response CEMP Sub-plan (USCP-JHG-MPL-ENV-0002) (FERCSPP)
- c. Soils & Contamination CEMP Sub-plan (USCP-JHG-MPL-ENV-0003) (SCCSP)
- d. Biodiversity CEMP Sub-plan (USCP-JHG-MPL-ENV-0004) (BCSP)
- e. Noise & Vibration CEMP Sub-plan (USCP-JHG-MPL-ENV-0007) (NVCSP)
- f. Traffic & Transport CEMP Sub-plan (USCP-JHG-MPL-ENV-0005) (TTCSP)
- g. Heritage CEMP Sub-plan (USCP-JHG-MPL-ENV-0006) (HCSP)
- h. Air Quality CEMP Sub-plan (USCP-JHG-MPL-ENV-0009) (AQCSP)

C13

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- c. Noise & Vibration Construction Monitoring Program (Appendix E of the NVCSP)

John Holland proposes to issue the relevant plans and programs progressively, following review and approval by Sydney Water. As such, John Holland on behalf of Sydney Water, is please to present to FCC, the **Soils & Contamination CEMP Sub-plan** (SCCSP, C4(c)). Please note that as there are a number of references to sections within the CEMP throughout the SCCSP, John Holland has also provided a copy of the CEMP for FCC reference.

It would be greatly appreciated if any comments regarding this submission are provided by close of business Friday 24 March 2023.

If you have any questions regarding this submission, please contact me.

Thank you,

Alyce Harrington

Planning, Environment & Approvals Director

Upper South Creek

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E. Alyce.Harrington@jhg.com.au



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Appendix 6 – Canterbury Bankstown City Council – Evidence of Consultation

From: [Alyce Harrington-JHG](#)
To: [Mira Segaran-JHG](#)
Subject: FW: Canterbury-Bankstown Council meeting minutes 17.03.2023
Date: Friday, 28 April 2023 7:43:24 AM
Attachments: [20230317_Canterbury Bankstown Council meeting minutes_FINAL.pdf](#)
[image001.png](#)
[image002.png](#)
[image003.png](#)
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[image005.png](#)
[image006.png](#)
[Bankstown City Council Early Coordination Meeting1 \(1\).pdf](#)
[image007.png](#)
[image008.png](#)
[image009.png](#)
[image010.png](#)
[image011.png](#)
[image012.png](#)

Alyce Harrington
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From: Rama Sapkota-JHG <Rama.Sapkota@jhg.com.au>
Sent: Thursday, 30 March 2023 3:41 PM
To: Paul.Angel@cbc.city.nsw.gov.au; Tim.IRELAND@cbc.city.nsw.gov.au;
Peter.Lay@cbc.city.nsw.gov.au; michael.conway@cbc.city.nsw.gov.au;
Anna.Griggs@cbc.city.nsw.gov.au; cameron.crawford@cbc.city.nsw.gov.au
Cc: Alyce Harrington-JHG <Alyce.Harrington@jhg.com.au>; Michael Robertson-JHG
<Michael.Robertson@jhg.com.au>; Mark Trethewy-JHG <Mark.Trethewy@jhg.com.au>; Aidan
O'Driscoll-JHG <Aidan.O'Driscoll@jhg.com.au>
Subject: Canterbury-Bankstown Council meeting minutes 17.03.2023

Hi All,

Please see attached meeting minutes from 17.03.2023.

The 50% design drawings are within the attached slide pack.

Thank you,

Rama Sapkota
Senior Community Engagement Advisor - Upper South Creek project

Meeting Minutes

Title	Stakeholder meeting with Canterbury Bankstown Council on 50% design completion
Date	17/03/2023
Time	2:00pm
Held at	Teams Meeting

Chaired by	Michael Robertson
Minuted by	Rama Sapkota
Distribution Date	

Attendees List

Aidan O'Driscoll (AO), Construction Manager, JHG
 Michael Robertson (MR), Community Manager, JHG
 Alyce Harrington (AH), Environment & Approvals Manager, JHG
 Mark Trethewey (MT), Sustainability Manager, JHG
 Rama Sapkota (RS), Senior Community Advisor, JHG
 Cameron Crawford (CC), Environmental Planner, Canterbury-Bankstown Council
 Glen Moody (GM), Coordinator Asset Planning, Open Space and Buildings, Canterbury-Bankstown Council
 David Milner (DM), Senior Infrastructure Services Officer, Canterbury-Bankstown Council
 Paul Angel (PA), Bushcare coordinator, Canterbury-Bankstown Council

Apologies List

Description / Action	By Who	By When
Acknowledgement of Country	MR	
An introduction of the project and introduced the meeting attendees.	MR	
AO provided an overview of the project in the area, treated and brine pipeline and gave overview of timing of design process.		
DM enquired if the trenching was at bottom end of the sewer?		
GM enquired if 750m of the project is within their LGA?		

AO confirmed yes.

CC enquired about the timing of the project.

AO went through the project milestone.

AO advised the site set up for this area and will have machinery for a large underbore. This set up will be early due to the sizeable work at this location.

DM enquired about the approach to Lansdowne Reserve?

AO explained the approach methodology including rig set up on either side of the Lansdowne Reserve.

PA advised at the earlier planning stage the approach to the Lansdowne Reserve was different and concerned about impact on biobank site; why is the pipe being pulled from Lansdowne side and not the Chipping Norton side?

AO advise that methodology of coming in from the Lansdowne side.

PA advised that what he has heard previously is opposite to what the current methodology is. Nine months ago it was the opposite as Sydney Water was trying to avoid impacts to Lansdowne biobanking area.

CC explained the methodology in detail, and this will not go through the bio bank.

PA spoke about the heavy truck access to the bore hole site.

ACTION: John Holland will confirm approach for construction within Lansdowne Reserve and the heavy vehicle approach to site.

AO explained the proposed connection to existing sewer and alternate access will be from Henry Lawson Drive.



PA enquired about the image above.

AH explained the construction boundary, showed layers on the GIS and spoke about the revised design as originally approved in the EIS. She also spoke about the Impact Assessment Area. She spoke to the practicality of the EIS access and proposed an alternate access through the fire trail which will give an opportunity to reduce the impact.

AH noted council's concern.

PA concerned about the access from the North as the access routes are not in place. PA spoke about access via western side from Henry Lawson Drive would be better. It may need some work to enable vehicles to come through but at least you don't need to clear bush from the north (with the EIS option). Less disturbance to bush and undisturbed soils. Disturbance and then revegetation from the fire trail to the southwest makes sense and the revegetation will be more beneficial to an already disturbed area.

AH advise that that's what they want to speak to Council about.

GM - is the alternate access the replacement or additional access?

AH advise this is the alternate access and the proposed new access will have less impact to bio diversity. Proposed new access would be instead of the access from Tillett Pde from the north rather than in addition to.

PA advised Council favours the southern access.

AO advised the original access as per EIS will have a bigger impact and will require more vegetation clearing.

Henry Lawson Drive – will there be TfNSW approval around the amount of vehicles accessing in and out of site?

AO advised that it will go through TMC and necessary TfNSW approvals will be sought prior to works.

PA enquired if there is a depot site at the location – advised that there are opportunities to use the open space to use Henry Lawson Drive which can be turned into a lane.

AH went through the environmental slides and advised the sub-plans were issued to Council. Would appreciate any feedback from Council.

DM advised the sub-plans need to come directly to them. Advised that 4/5 subplans have come through. He will check with PA.

NOTE: Send a list of subplans to DM and he will issue accordingly.

MT went through the slides and requested if Council could please identify the best environment or sustainability contact to address further council and USC collaboration opportunities proposed on Sustainability slides (e.g. asset resilience in response to climate change, material/water/waste reuse/recycling opportunities).

DM advised that they will send the sustainability contact to JHG.

ACTION: Council to send sustainability contact to JHG.

MR went through the community slides and requested for any upcoming Council festivals? Also, shared the Community Engagement Plan and requested to pass on to their community team.

ACTION: Council to review Community & Stakeholder Engagement Plan and comment on the planned engagement activities and stakeholders

www.sydneywatertalk.com.au/53513/widgets/322594/documents/251449

Link to the project website: www.sydneywatertalk.com.au/upperouthcreek

Link to planning documents: [Upper South Creek Advanced Water Recycling Centre | Planning Portal - Department of Planning and Environment \(nsw.gov.au\).](http://Upper South Creek Advanced Water Recycling Centre | Planning Portal - Department of Planning and Environment (nsw.gov.au).)

PA enquired about the vegetation and maintenance. Council invested money was the vegetation offset, now the trees are maturing and shared concerns that mature trees will be destroyed during this work. Will the council land be re-vegetated and how will the land be restored?

AH informed that bio diversity offset has been approved and will take back to SW what mitigation was proposed.

AH advised there is a rehabilitation plan and it will in agreement with Sydney Water.

ACTION: AH to Send Rehabilitation Management Plan.

CM shared concern that it is hard to comment on the design without knowing the rehabilitation plan.

DM noted that SW property should be in contact with the Council's property team. There are Council requirements to get access and would like to have early conversation to facilitate it.

ACTION: Pass on Council details to SW property team to liaise directly. Completed by MR.

PA shared concerns about the rehabilitation, advised that it will be better to go through the disturbed area and rehabilitate from the Northern end.

AO advised they are looking at alternate access from the south.

MR summarised the issues and asked if there were more questions.

Summary of key issues or interests raised by Council

- Duration in the reserve
- Boring from Lansdowne Reserve
- Impact on biobank site – why is the pipe being pulled from Lansdowne side and not the Chipping Norton side? Nine months ago it was the opposite as Sydney Water was trying to avoid impacts to Lansdowne biobanking area
- Key interest in bio banking
- Any clearing of offset vegetation
- Access via western side from Henry Lawson Drive would be better. It may need some work to enable vehicles to come through but at least you don't need to clear bush from the north (with the EIS option). Less disturbance to bush and undisturbed soils. Disturbance and then revegetation from the fire trail to the southwest makes sense and the revegetation will be more beneficial to an already disturbed area.
 - Proposed new access would be instead of the access from Tillett Pde from the north rather than in addition to – preferred by Council too
- Reviews needed by TfNSW and Council for access off Henry Lawson Drive – for noting
- Acquisition of land / property impacts
- Traffic impacts
- Rehabilitation Management Plan
- Permits for access, construction and ongoing maintenance – request an agreement before work starts – what legislation will this work be done under?

Could council please confirm the above list to allow the Project to be aware that council's key concerns are understood?

From: [Alyce Harrington-JHG](#)
To: [Mira Segaran-JHG](#)
Subject: FW: Upper South Creek (SSI 8906189) CoA C4(c) - Soils & Contamination CEMP Sub-plan - for consultation (CBCC)
Date: Monday, 13 March 2023 8:44:22 AM
Attachments: [USCP-JHG-MPL-ENV-0008 Upper South Creek CEMP \(Rev 04\) clean and consolidated.pdf](#)
[USCP-JHG-MPL-ENV-0003 Soils and Contamination CEMP Sub-plan \(Rev 04\) clean and consolidated.pdf](#)
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[image002.png](#)
[image003.png](#)
[image004.png](#)
[image005.png](#)
[image006.png](#)

Alyce Harrington
Planning, Environment & Approvals Director
Upper South Creek

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From: Alyce Harrington-JHG
Sent: Saturday, 11 March 2023 1:27 PM
To: Tim Ireland <Tim.IRELAND@cbc.city.nsw.gov.au>; Paul.ANGEL@cbc.city.nsw.gov.au;
David.Lowery@cbc.city.nsw.gov.au; Asad.Suman@cbc.city.nsw.gov.au
Cc: CAHILL, CHERYL <CHERYL.CAHILL@sydneywater.com.au>; Cameron Varricchio
<CAMERON.VARRICCHIO@sydneywater.com.au>; Rob Cranston-JHG
<Rob.Cranston@jhg.com.au>; Jason Julius-JHG <Jason.Julius@jhg.com.au>; Michael McIlveen-JHG <Michael.McIlveen@jhg.com.au>; Michael Robertson-JHG
<Michael.Robertson@jhg.com.au>; Darragh O'Brien-JHG <Darragh.O'Brien@jhg.com.au>
Subject: Upper South Creek (SSI 8906189) CoA C4(c) - Soils & Contamination CEMP Sub-plan - for consultation (CBCC)

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It would be greatly appreciated if any comments regarding this submission are provided by close of business Friday 24 March 2023.

If you have any questions regarding this submission, please contact me.

Thank you,

Alyce Harrington
Planning, Environment & Approvals Director
Upper South Creek

**JOHN
HOLLAND**

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E. Alyce.Harrington@jhq.com.au



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From: David Milner
To: Alyce Harrington-JHG
Cc: Michael Robertson-JHG; Rama Sapkota-JHG; Darragh O'Brien-JHG; Mira Segaran-JHG; Aidan O'Driscoll-JHG; Tim Ireland; Paul Angel; David Lowery; Asad Suman; Cameron Crawford
Subject: RE: Upper South Creek (SSI 8906189) - CEMP & sub-plans
Date: Thursday, 30 March 2023 3:04:02 PM
Attachments: [image001.png](#)
[image006.png](#)
[image021.png](#)
[image022.png](#)
[image028.png](#)
[image029.png](#)
[image030.png](#)
[image031.png](#)
[image032.png](#)
[image033.png](#)

Hi Alyce,

Have received confirmation that there are no comments on the Soils & Contamination CEMP Sub-plan.

Regards



David Milner - Senior Infrastructure Services Officer
T 9707 9345
E David.Milner@cbccity.nsw.gov.au
www.cbccity.nsw.gov.au



From: David Milner
Sent: Wednesday, 29 March 2023 9:54 AM
To: Alyce Harrington-JHG <Alyce.Harrington@jhg.com.au>
Cc: Michael Robertson-JHG <Michael.Robertson@jhg.com.au>; Rama Sapkota-JHG <Rama.Sapkota@jhg.com.au>; Darragh O'Brien-JHG <Darragh.O'Brien@jhg.com.au>; Mira Segaran-JHG <Mira.Segaran@jhg.com.au>; Aidan O'Driscoll-JHG <Aidan.O'Driscoll@jhg.com.au>; Tim Ireland <tim.ireland@cbccity.nsw.gov.au>; Paul Angel <paul.angel@cbccity.nsw.gov.au>; David Lowery <David.Lowery@cbccity.nsw.gov.au>; Asad Suman <Asad.Suman@cbccity.nsw.gov.au>; Cameron Crawford <Cameron.Crawford@cbccity.nsw.gov.au>
Subject: RE: Upper South Creek (SSI 8906189) - CEMP & sub-plans

Hi Alyce,

See below comments received at this time.
I have not yet received comments on the Heritage and Soils & Contamination CEMPs.
I have passed on details as to request that all comments are received by Tuesday 4 April 2023.

Flood Emergency Response CEMP Sub-plan:

Comments from our Urban Policy and Planning team

- Section 2.1 (context) reported as This Floor Emergency Response CEMP Sub-plan (FERCSP) should be amended as This Flood Emergency Response CEMP Sub-plan (FERCSP)
- Section 4 LEGISLATIVE AND GUIDANCE REQUIREMENTS reported Canterbury-Bankstown Council LGA, Georges River Floodplain Risk Management Study and Plan (Bewsher Consulting Pty Ltd, 2014) published year should be amended as 2004
- Hazard near me app (developed by the NSW Government) should be also be listed in Section 8.2

Biodiversity CEMP Sub-plan:

Comments from our Urban Policy and Planning team

The biodiversity CEMP covers issues relating to biodiversity impacts and mitigation quite comprehensively, however it does not specifically reference locations so I would like to confirm the following points:

- All vegetation impacted within Canterbury Bankstown, particularly that in Lansdowne Reserve will be regenerated or revegetated with Cumberland Plain Woodland as per CoA E20?
- All areas impacted can be revegetated and the new infrastructure will not result in areas remaining cleared following the development.
- Higher quality vegetation within the impact footprint, like that on the southern side of Tillett Parade will be prioritised for retention over lower quality vegetation like that on the northern side of Tillett Parade.
- No vegetation in the Biodiversity Stewardship Site will be impacted by the proposal.



Noise & Vibration CEMP Sub-plan:

Reviewed by our Environmental Health team and they advised they have no comment

Air Quality CEMP Sub-plan:

Reviewed by our Environmental Health team and they advised they have no comment

Regards



David Milner - Senior Infrastructure Services Officer
 T 9707 9345
 E David.Milner@cbccity.nsw.gov.au
www.cbccity.nsw.gov.au



From: Alyce Harrington-JHG <Alyce.Harrington@jhg.com.au>

Sent: Tuesday, 28 March 2023 10:52 PM

To: David Milner <David.Milner@cbccity.nsw.gov.au>

Cc: Michael Robertson-JHG <Michael.Robertson@jhg.com.au>; Rama Sapkota-JHG <Rama.Sapkota@jhg.com.au>; Darragh O'Brien-JHG <Darragh.O'Brien@jhg.com.au>; Mira Segaran-JHG <Mira.Segaran@jhg.com.au>; Aidan O'Driscoll-JHG <Aidan.O'Driscoll@jhg.com.au>; Tim Ireland <Tim.IRELAND@cbccity.nsw.gov.au>; Paul Angel <Paul.ANGEL@cbccity.nsw.gov.au>; David Lowery <David.Lowery@cbccity.nsw.gov.au>; Asad Suman <Asad.Suman@cbccity.nsw.gov.au>

Subject: Upper South Creek (SSI 8906189) - CEMP & sub-plans

Good evening David,

Recently, Canterbury-Bankstown City Council has kindly participated in a stakeholder engagement meeting with John Holland in anticipation of the commencement of construction work within the relevant council area.

During the meeting, we made reference to the CEMP and associated sub-plans and that John Holland would re-issue the plans that had been issued in the lead up to the meeting to ensure they have reached the appropriate audience and subject matter experts within CBCC. The documents are as follows:

- Air Quality CEMP Sub-plan (AQCSPP)
- Flood Emergency Response CEMP Sub-plan (FERCSP)
- Heritage CEMP Sub-plan (HCSP)
- Biodiversity CEMP Sub-plan (BCSP)
- Noise & Vibration CEMP Sub-plan (NVCSPP)
- Soils & Contamination CEMP Sub-plan (SCCSP)

Progressive submission of these documents commenced on Wednesday 01 March and it would be greatly appreciated if all comments regarding the submissions provided to date are returned by close of business Tuesday 4 April 2023.

Please note that the final CEMP sub-plan (surface water and groundwater) is scheduled to be issued for CBCC review and comment by the end of this week.

If you have any further questions, please do not hesitate to contact me.

Thank you,

Alyce Harrington
Planning, Environment & Approvals Director
Upper South Creek



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E. Alyce.Harrington@jhq.com.au



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Appendix 7 – Consultation Summary Register

Upper South Creek - Consultation Register - Soils and Contamination Sub-Plan

Document	Consultation Register
Date Issued	12/05/2023
Docu	
Date Due	

Reviewer Name 1	Daniel Burchmore, Canterbury Bankstown, Fairfield, Liverpool
Reviewer Name 2	
Reviewer Name 3	

[illegible]

APPENDIX E – Auditor Advice

9 December 2022

Cheryl Cahill
Environment Lead
Major Projects
Sydney Water

Via email: CHERYL.CAHILL@sydneywater.com.au

**L02 Interim Audit Advice (0503-2307-02) – Sydney Water Corporation – Upper South Creek
Advanced Water Recycling Centre – Unexpected Finds Protocol**

Dear Cheryl,

1. Introduction and Background

Andrew Lau of JBS&G Australia Pty Ltd (JBS&G), has been engaged by Sydney Water Corporation (SWC, the client) to conduct a site audit(s) related to the Upper South Creek Advanced Water Recycling Centre (USC AWRC) and associated pipelines. The USC AWRC is located at Clifton Avenue, Kemps Creek and the site is identified as Lot 211 DP1272676, Part of Lot 21 DP 258414 and Part of Lot 104 DP1271336. The USC AWRC occupies an area of approx. 78 ha.

The pipelines occupy lands between the USC AWRC and Lansdowne Reserve in Lansdowne for approx. 24 km (“the brine pipeline”) and land between the USC AWRC and the Nepean River in Wallacia for approx. 16.7 km (“the treated water pipeline”).

The USC AWRC site is owned by SWC and is zoned RU2 Rural Landscape and ENZ Environment and Recreation. The pipeline land is variously zoned as shown:

- Brine pipeline: RU2, RU4, ENZ, Western Sydney Parklands, RE1, R3, R1, SP2, R4 and B5.
- Treated pipeline: ENZ, ENT, AGB, RU1, RU5, SP2.

SWC received Ministerial approval for the USC AWRC project on 28th November 2022 as a state significant infrastructure project (Application Number SSI-8609189) (“the consent”).

2. Document Reviewed

The following document was reviewed/referred to as part of preparation of this Interim Audit Advice (IAA):

- *Unexpected Finds Procedure for Contamination*, John Holland, issued 07/12/2022, document number USCP-POL-G-002 (“the UFP”) (**Attachment 2**).

3. Objective of this Interim Advice

The objective of this interim advice is to review the suitability of the Unexpected Finds Protocol developed for the works at the site and provide audit opinions on the appropriateness of the UFP. This is required under Conditions C8(g), E74(f) and E88 of the consent and these are listed in the UFP.

4. Unexpected Finds Procedure

The auditor has reviewed the unexpected finds procedure and his assessment is shown in **Table 1**.

Table 1 – Audit review of the Unexpected Finds Procedure

Element	UFP	Audit Comment
Communications and Training	All personnel will be inducted to the site and receive on-going training via toolbox talks and pre-start meetings. Content for induction, training and awareness material to be developed by John Holland Environment Manager.	Adequate
Procedure	Observations of soil/ground during excavation work. Document in site diary records, soil during excavations for any indicators of contamination. The UFP provides a list of indicators as follows: <ul style="list-style-type: none"> • Fibre cement or other asbestos containing materials • Discolouration of the soil including staining • Odorous soil or groundwater (including seepage) • Buried chemical drums or containers • Brightly or unusually coloured material • Tar-like or ashy material 	Adequate.
	Assessment: If contamination is observed the UFP requires the following: <ul style="list-style-type: none"> • Work to stop and area kept clear. Establishment of a no-go zone. • Construction team to cover, bund or contain the contaminated material. • Provide information to Environment Team: location, visual appearance, odour, depth, surrounding material and mode of discovery, containment method. The environment team is identified as: <ul style="list-style-type: none"> • JH Construction Manager/Environment Manager. • Contamination Consultant • EPA Accredited Site Auditor (as required) • SWC Environment Lead. 	Adequate
	Management and implementation strategy. The environment team will develop and implement a plan for the management and remediation of the find, including: <ul style="list-style-type: none"> • Waste classification • Obtain further approvals as required • Ensure disposal occurs at a facility licenced to accept the contaminated waste. • Maintain records If necessary, additional monitoring will be performed. Contaminated material will be removed and validated or left in situ and managed in accordance with an agreed plan.	Records should be kept of additional monitoring for inclusion in a Validation Report.
	Works can continue when the area is safe, remediated or where works will not exacerbate contamination or hinder future remediation work.	Adequate

5. Audit Opinions

Based on a review of the information provided and subject to the limitations in **Attachment 1**, the following audit opinions are presented:

1. The UFP is appropriate.

2. The UFP should be applied to all environmental media.
3. As part of ongoing environmental management protocols, periodic review of the Unexpected Finds Procedure should be undertaken to include any learnings/understanding that arise during the project.
4. Records should be kept of additional monitoring for inclusion in a Validation Report.

Please note that this interim advice does not constitute a Site Audit Statement or a Site Audit Report but is provided to assist in the assessment and management of contamination issues at the site in regard to requirements of the site audit. The information provided herein should not be considered pre-emptive of the final audit conclusions, but rather represent the findings of the audit based on a preliminary review of available site information. Furthermore, the interim advice should not be regarded as approval of any proposed investigations or remedial activities, as any such approval is beyond the scope of an independent auditor.

Should you require clarification, please contact the undersigned on 02 8245 0300 or by email alau@jbsg.com.au.

Yours sincerely:



Andrew Lau
NSW EPA Accredited Site Auditor
Accreditation Number 0503
JBS&G Australia Pty Ltd

Attachments (1) Limitations
 (2) Unexpected Finds Proceedure

Attachment 1 – Limitations

This audit was conducted with a reasonable level of scrutiny, care and diligence on behalf of the client for the purposes outlined in s.47 (1) of the *Contaminated Land Management Act 1997*. The data used to support the conclusions reached in this audit were obtained by other consultants and the limitations which apply to the consultant's report(s) apply equally to this audit report.

Every reasonable effort has been made to identify and obtain all relevant data, reports and other information that provide evidence about the condition of the site, and those that were held by the client and the client's consultants, or that were readily available. No liability can be accepted for unreported omissions, alterations or errors in the data collected and presented by other consultants. Accordingly, the data and information presented by others are taken and interpreted in good faith.

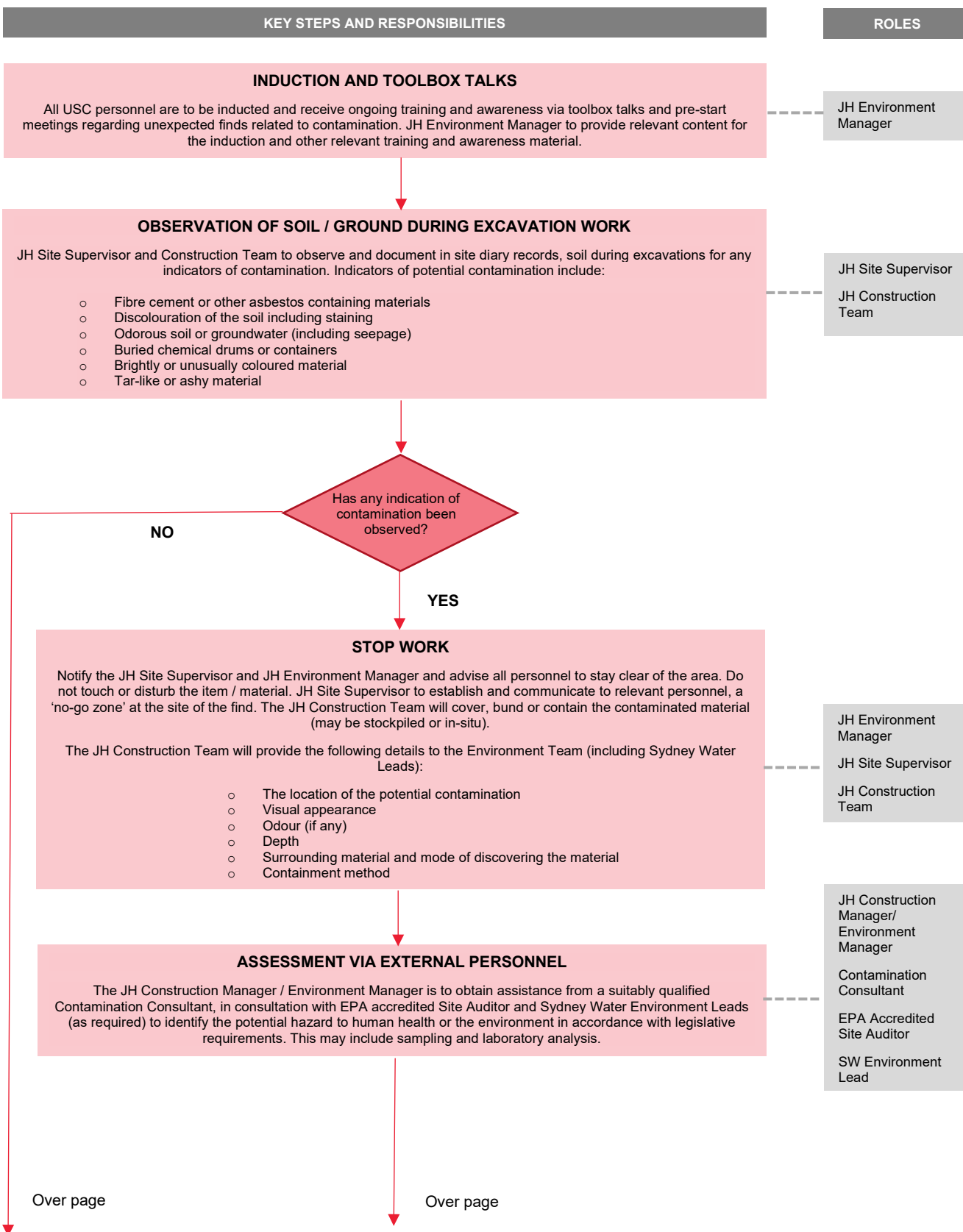
Sampling and chemical analysis of environmental media is based on appropriate guidance documents made and approved by the relevant regulatory authorities. Conclusions arising from the review and assessment of environmental data are based on the sampling and analysis considered appropriate based on the regulatory requirements. Limited sampling and laboratory analyses were undertaken as part of the investigations reviewed, as described herein. Ground conditions between sampling locations and media may vary, and this should be considered when extrapolating between sampling points. Chemical analytes are based on the information detailed in the site history. Further chemicals or categories of chemicals may exist at the site, which were not identified in the site history and which may not be expected at the site.

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

Attachment 2 – Unexpected Finds Procedure

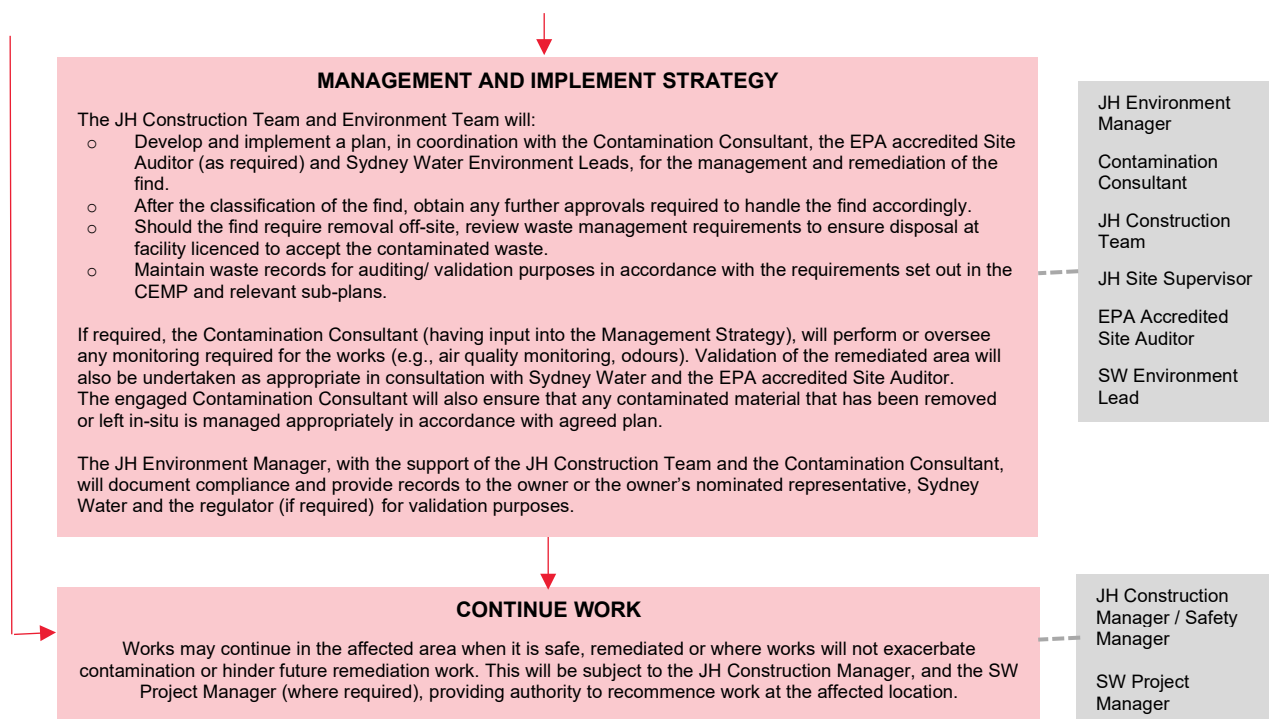
Unexpected Finds Procedure for Contamination

Scope: This Procedure has been prepared in accordance with Environmental Planning and Assessment Act 1979 (EP&A Act), Protection of the Environment Operations Act 1997 and the Contaminated Land Management Act 1997 (CLM Act) for the management of unexpected contamination finds on the Upper South Creek Advanced Water Recycling Centre Project (USC).



Unexpected Finds Procedure for Contamination

Scope: This Procedure has been prepared in accordance with Environmental Planning and Assessment Act 1979 (EP&A Act), Protection of the Environment Operations Act 1997 and the Contaminated Land Management Act 1997 (CLM Act) for the management of unexpected contamination finds on the Upper South Creek Advanced Water Recycling Centre Project (USC).



Unexpected Finds Procedure for Contamination

Scope: This Procedure has been prepared in accordance with Environmental Planning and Assessment Act 1979 (EP&A Act), Protection of the Environment Operations Act 1997 and the Contaminated Land Management Act 1997 (CLM Act) for the management of unexpected contamination finds on the Upper South Creek Advanced Water Recycling Centre Project (USC).

Table 1: Relevant Conditions of Approval

Condition	Condition Requirement	How Addressed
C8 (g)	Measures to detail unexpected finds consistent with the Unexpected Finds Procedure for Contamination required under Condition E88. The procedure must include details of who will be responsible for implementing the Unexpected Finds Procedure for Contamination and the roles and responsibilities of all parties involved.	In accordance with MCoA C4(b), a project-specific Soils & Contamination CEMP sub-plan will be developed and implemented for the duration of the project. As required by MCoA C8(g) the sub-plan will include detail around the project's approach to unexpected contamination finds and will be consistent with the Unexpected Finds Procedure for Contamination required under MCoA E88.
E74 (f)	<p>A NSW EPA accredited Site Auditor(s) must be engaged before the commencement of contamination investigations until the completion of construction to ensure that any Work required in relation to contamination is appropriately managed. The Site Auditor is to be provided with all documentation relevant to the consideration of contamination risk and the management of contamination for the project, including previous site audits and site audit statements. The Site Auditor is to review all relevant documentation and provide a written opinion on the contamination risk and the appropriateness of the reports and any proposed management measures of the site, including (but not limited to):</p> <ul style="list-style-type: none"> Unexpected Finds Procedure for Contamination in Condition E88. 	<p>SW has engaged an EPA Accredited Site Auditor (Andrew Lau, JBS&G). This procedure has been provided to the Site Auditor for review prior to issuing to the Planning Secretary in accordance with MCoA E88.</p> <p>Evidence of this review will be provided to DPE.</p>
E88	An Unexpected Finds Procedure for Contamination must be prepared before the commencement of Work and must be followed should unexpected contamination or asbestos (or suspected contamination) be excavated or otherwise discovered. The procedure must include details of who will be responsible for implementing the unexpected finds procedure and the roles and responsibilities of all parties involved. The Procedure must be reviewed by the Site Auditor and interim audit advice or a Section B Site Audit Statement provided certifying that the Unexpected Finds Procedure is appropriate. The Unexpected Finds Procedure must be submitted to the Planning Secretary for approval at least one month prior to the commencement of Work and a copy of the interim audit advice or Section B Site Audit Statement attached. The Unexpected Finds Procedure for Contamination must be implemented throughout Work.	This document is the Upper South Creek Unexpected Finds Procedure for Contamination and specifically addresses the requirements of MCoA E88. This procedure has been provided to the Site Auditor for review prior to issuing to the Planning Secretary for approval at least one month prior to commencement of work. This procedure will form part of the CEMP and sub-plans for implementation throughout the Work.

17 March 2023

Cheryl Cahill
Environment Lead
Major Projects
Sydney Water

Via email: CHERYL.CAHILL@sydneywater.com.au

L03 Interim Audit Advice (0503-2307-03) – Sydney Water Corporation – Upper South Creek Advanced Water Recycling Centre – Review of the Upper South Creek Advanced Water Recycling Centre - Soils and Contaminated Land Impact Assessment

Dear Cheryl,

1. Introduction and Background

Andrew Lau of JBS&G Australia Pty Ltd (JBS&G), has been engaged by Sydney Water Corporation (SWC, the client) to conduct a site audit(s) related to the Upper South Creek Advanced Water Recycling Centre (USC AWRC) and associated pipelines. The USC AWRC is located at Clifton Avenue, Kemps Creek and the site is identified as Lot 211 DP1272676, Part of Lot 21 DP 258414 and Part of Lot 104 DP1271336. The USC AWRC occupies an area of approx. 78 ha and is owned by SWC with zoning RU2 Rural Landscape and ENZ Environment and Recreation. A figure relating to the site and surrounds is shown in **Attachment 2**.

SWC received Ministerial approval for the USC AWRC project on 28th November 2022 as a state significant infrastructure project (Application Number SSI-8609189) ("the consent").

The auditor has previously reviewed an Unexpected Finds Protocol for the construction phase of the project and prepared the following letter:

- *L02 Interim Audit Advice (0503-2307-02) – Sydney Water Corporation – Upper South Creek Advanced Water Recycling Centre – Unexpected Finds Protocol*, to Cheryl Cahill of Sydney Water, 9 December 2022.

2. Document Reviewed

The following documents were reviewed in preparation of this Interim Audit Advice (IAA), with regards the AWRC site, only:

- *Upper South Creek Advanced Water Recycling Centre - Soils and Contaminated Land Impact Assessment*, Aurecon ARUP, 27 July 2021 ("the SCLI Assessment");
- *Upper South Creek Wastewater Treatment Plant Options Assessment, Preliminary Site Investigation (Contamination)* Aurecon, 2019 ("the PSI");
- *Upper South Creek Advanced Water Recycling Centre and Pipelines Detailed Site Investigation*, Aurecon ARP, 12 March 2021, (The DSI"); and
- *Memorandum re Hazardous Materials Survey – Upper South Creek Advanced Water Recycling Centre*, Aurecon to Sydney Water, 18 May 2021 ("the HMS").

The PSI included a review of five plots of land, of which the AWRC is one, and in the PSI it was referred to as Plot 1. In this interim audit advice, reference will be made to the PSI, but will be referring to the AWRC site only. Similarly, the SCLI Assessment and the DSI include information relating to the pipelines, but this interim audit advice will be concerned with information regarding the AWRC site, only.

3. Objective of this Interim Advice

The objective of this interim advice is to provide auditor review the PSI, DSI, HMS and SCLI Assessment with regards the USC AWRC. This is required under Conditions E74(b) and E76 of the consent as described below.

- E74 "...The Site Auditor is to review all relevant documentation and provide a written opinion on the contamination risk and the appropriateness of the reports and any proposed management measures of the site, including.... (b) the review of the Proponent's risk rating for Areas of Environmental Concern (AECs)..."
- E75: "Evidence that the NSW EPA accredited Site Auditor has reviewed each of the plans and reports listed in Condition E74, and has issued an interim audit advice or a relevant Site Audit Statement regarding the appropriateness of those plans or reports, must be provided when the plan or report is submitted to the Planning Secretary for information.

Where the NSW EPA accredited Site Auditor confirms that no further investigations are NOT warranted, Conditions E76 to E82 do not apply"; and

- E76: "The NSW EPA accredited Site Auditor must be engaged to review the risk rating for AECs identified in Appendix N (Soils and Contamination Impact Assessment) of the Environmental Impact Statement listed in Condition A1. Following this review, the Site Auditor must issue an interim audit advice confirming whether the risk rating has been undertaken appropriately."

The pipeline sites will not be assessed as part of this Interim Advice but will be assessed under separate cover; this interim audit advice relates solely to the AWRC site and is in partial fulfillment of E74 AND E76.

4. Audit Site Visit – AWRC site

On 3rd March 2023 the auditor's representative attended the AWRC site and the following observations were made.

The site is generally flat and was covered with very dense grass up to 0.75 m in height with the occasional tree. No vegetative stress was observed, and some clumps of blackberries were noted at the site. Piles of waste construction/demolition material including of sheets of metal, timber and fibro were observed at the site. Occasional fence lines, stumps and concrete blocks were noted.

Several single-storey dilapidated buildings were recorded at the site; construction materials included timber, fibro sheeting, tiles, corrugated iron and metal. The buildings were not entered due to their poor condition. At least two of the buildings appeared to be constructed on stumps (not slab on grade). Two metal radio telescope dishes were observed at the site. An unused livestock yard was noted in the southwest corner of the site and no dipping facility was seen in the vicinity.

Due to the dense vegetation the site surface was not visible but was noted to be uneven with preferential drainage lines and small depressions, up to 0.5 m deep and several metres across, as is characteristic of floodplains; in addition, a billabong to the east of South Creek was observed at the site. It was not possible to determine if there were any mounds suggestive of the burial of waste or livestock at the site.

The site was noted to gently slope to the west towards South Creek, with much of the site being slightly elevated above the South Creek flood plain which was noted in the western portion of the site. Three recently installed piezometers were observed in the western portion of the site and John Holland representatives at the site indicated that groundwater was approx. 1.5 m below ground level (BGL) within one piezometer.

A large stockpile of topsoil/clay was noted to be within the site boundary at the southern end adjacent to the entrance gate. The auditor's representative was informed this was spoil associated with the construction of the access road for the AWRC site.

Discussions with the John Holland representative present at the site indicated that electricity had been delivered to the site via a buried electrical conduit. The presence/absence of a diesel generator and AST/UST could not be determined due to the height of the grass at the site. No power poles were observed at the site.

To the north and east the tree line of Kemps Creek was visible but could not be visited as access was limited. To the east a mound appeared to be adjacent to Kemps Creek, possibly constructed for flood mitigation. The auditor's representative was informed this was not within the AWRC site and a fence was noted between the AWRC site and the mound. To the west was South Creek. To the south an access road to the AWRC site being constructed as well as the construction site for the M12 with significant excavations (>5 m deep) underway for the M12. Adjacent to the southwest corner construction for a bridge over South Creek (over the large flood plain that was at lower elevation than much the rest of the AWRC site) was underway.

Horticultural, warehousing and light industrial activities were observed in the vicinity of the AWRC site as well as significant earthworks for road construction. To the south of the AWRC site some compost odours were noted, possibly associated with the surrounding market gardens or nearby Green Serve Recycling facility 900 m to the south east or the Cleanaway Resource Recovery Centre 400 m to the south west of the AWRC site.

5. USC AWRC Site Information

Documents described in **Section 2** were reviewed against the requirements of the relevant consent conditions listed in **Section 3** and the requirements of *Consultants Reporting on Contaminated Land: Contaminated Land Guidelines*, NSW EPA, 2020 (EPA 2020).

5.1 Site History

The PSI summarised several reports that included a heritage assessment and targeted intrusive investigations. The AWRC site was described as being initially settled by Europeans in the early years of the 19th century and used for wheat farming before being "almost comprehensively cleared and divided into fenced paddocks with unspecified farm infrastructure built"; the land was used for cattle grazing prior to being acquired by the CSIRO in 1936 to construct a radio telescope, with others added during the subsequent years. The site was transferred to the University of Sydney in 1963 and further radio telescope arrays were added. In addition, several huts were constructed at the site.

The station was closed in 1991 and in 2005 two of the dish antennae were relocated and most of the improvements left at the site were demolished.

The PSI, DSI and SCLI Assessment variously reported the results of searches on the NSW EPA website for notified contaminated sites the contaminated land register and the register for sites currently or formerly licensed under the *Protection of the Environment, Operations Act* (1997).

No historic land titles or images from the aerial photos were provided to support the site history, however a summary of the aerial photo review and current title holders were provided.

5.2 Site Condition and Surrounding Environment

The PSI indicated that the AWRC site is generally flat and mostly cleared of vegetation, except for the riparian corridors and patches of remnant bushland. Several farm structures and dilapidated items were identified at the site, as well as some radio telescopes. During the site inspection described in the PSI, the AWRC site was used for cattle grazing.

Nearby sensitive land uses were identified as residential dwellings, rural farm dams, South Creek and Kemps Creek.

The PSI stated that the surrounding area was used as described below:

- North – Some Industrial and agricultural areas north of Kemps Creek.
- East – Predominantly rural and primary production areas. Materials storage area for Hi-Quality Group Kemps Creek Quarry adjacent to plots 3, 4 and 5.
- South- Predominantly primary production and agricultural lots, Hi-Quality Group Kemps Creek Quarry, Elizabeth Drive is further south.
- West - Predominantly rural areas. SUEZ Kemps Creek Resource Recovery Park further to west.

5.3 Geology

In terms of regional geology, the PSI stated that AWRC site was underlain by Wianamatta Group unit Rwb (Bringelly Shale) consisting of shale, carbonaceous claystone, claystone, laminate, fine to medium grained lithic sandstone, rare coal and tuff. The lower lying areas around Kemps and South Creeks are covered by Pleistocene-Holocene fluvial deposits of fine-grained sand, silt and clay.

The DSI reported the results of intrusive investigations carried out to target depths of 3 m below ground level (m BGL) or 5 m BGL. The DSI reported that bedrock was encountered between 5.56 and 10.61 m BGL and comprised dark grey to pale grey claystone and sandstone, but bedrock was not shown on any borelogs within the DSI report; the depth of bedrock is understood to have been derived from geotechnical reports.

5.4 Hydrogeology

The PSI reported that the direction of groundwater flow has not been confirmed but is likely to be determined by the proximity to local surface water bodies and areas of higher permeability alluvium. Regional groundwater flow direction is expected to be consistent with the topography.

The PSI identified that a landfill and a quarry are located approx. 0.6 km and 1.4 km, respectively to the southwest of the AWRC site. The impact of these operations upon the hydrogeological regime are unknown, but as they are located on the far side of South Creek and excavated into the underlying Bringelly Shale.

A number of registered bores were identified in the vicinity of the AWRC site associated with monitoring at the SUEZ landfill or a nearby service station.

The SCLI Assessment identifies the Upper South Creek hydrogeological landscape where the AWRC site is located, as characterised by a depth to groundwater of 2 – 6 m BGL and brackish groundwater with an electrical conductivity of 0.8 to 1.6 DS/m, however groundwater quality investigations were not included in any of the reports listed in **Section 2**, above.

5.5 Topography

The SCLI Assessment describes the AWRC site as being located within a regional alluvial plain associated with South and Kemps Creek watercourses. Elevations across the centre of the site generally range between 35 to 40 m Australian Height Datum (m AHD), with the site sloping towards the north.

5.6 Hydrology

The AWRC site is described in the PSI and DSI as being within a floodplain bordered by Kemps Creek to the northeast and South Creek in the west and southwest. Kemps Creek is tributary of South Creek with the confluence approx. 1.1 km north of the AWRC site; South Creek is within the Nepean-Hawkesbury catchment joining the Hawkesbury River at Windsor approx. 30 km to the north northeast of the AWRC site. Other nearby water bodies include rural farm dams and ponds.

5.7 Acid Sulfate Soils

The PSI states that the area has an extremely low probability of encountering acid sulfate soils.

5.8 Contaminants of Potential Concern

The DSI presented contaminants of potential concern (COPCs) as follows:

- Benzene, toluene, ethyl benzene and xylene (BTEX);
- Total recoverable hydrocarbons (TRHs);
- Polycyclic aromatic hydrocarbons (including naphthalene) (PAHs);
- Phenolic compounds;
- Heavy Metals (arsenic, cadmium, chromium, copper, lead, nickel, mercury and zinc);
- Organochlorine pesticides (OCPs) and organophosphate pesticides (OPPs);
- Polychlorinated biphenyl (PCBs);
- Asbestos containing materials (ACM); and
- Per- and poly- fluoroalkyl substances (PFAS)

6. Auditor Assessment

The auditor's assessment of the information presented in the reports listed in **Section 2** and summarised in **Sections 5.1 to 5.8**, above is shown below.

6.1.1 Site History

No historic land titles or images from the aerial photos were provided to support the site history, however a summary of the aerial photo review and current title holders were provided. The auditor is satisfied that sufficient information was provided within the various documents to draw conclusions regarding past potentially contaminating activities and likely contaminants of potential concern.

6.1.2 Site Condition

The auditor considers the information provided regarding the site condition, as well as geology, hydrogeology, topography, hydrology and the potential presence of acid sulfate soils as adequate, noting that limited information regarding site specific hydrogeological conditions is available.

Based on the bore and testpit logs presented in the DSI, the subsurface profile is summarised by the auditor in **Table 1**.

Table 1 Subsurface Profile

Depth (m BGL)	Sub surface Profile
0.0 – 1.1	Occasional FILL re-worked natural gravelly clay. No odours or ACM reported within fill.
0.0 – 0.4	TOPSOIL: Clayey SILT, soft, loose to medium dense, trace gravels, rootlets, brown.
0.4 – 1.7	Silty CLAY, fine to medium grained, firm to stiff, medium to high plasticity, reddish brown to lighter brown with depth and grey mottling.

Depth (m BGL)	Sub surface Profile
0.1 - depth	CLAY, light brown with grey mottling, high plasticity, ironstone gravels.
1.4 – 1.6	Occasional GRAVEL
1.7 - depth	Sandy or silty CLAY, fine to medium grained, soft loose to medium dense, low plasticity, light to orange brown with grey mottling, occasional becoming grey with depth.
2.1 - depth	Clayey SAND

6.1.3 Contaminants of Potential Concern

The PSI identified “contamination hazard” and presented CoPC but did not link these with particular COPCs. The PSI also included landfill gas from an off site source, but the DSI excluded landfill gas as the source is on the other side of South Creek.

A list of COPC was provided within the DSI, but these were not related within the report to particular historic activities or locations within the AWRC site. The auditor has prepared a summary of the COPC and related activities as presented in **Table 2**.

Table 2: Potential Contaminants of Concern

Activity	Location on site	Potential Contaminant
Agriculture	Entire Site	Pesticides/herbicides – OCPs, OPPs
Buildings and structures	Both current buildings and former locations, based on historical review	Asbestos, lead, PCBs
Storage of agricultural materials	Former and current sheds	TRH, BTEX, PAHs, heavy metals, OCPs and OPPs
Potential uncontrolled fill for backfill or levelling purposes. Fly tipping and illegal disposal of waste.	Adjacent to structures and around irrigation lines and electrical conduit	Heavy metals, TRH, BTEX, PAHs, asbestos, OCPs, OPPs, PCBs, phenols.
Irrigation line - conduits	Entire site	Asbestos
Electrical conduit	Unknown	Asbestos.

7. Previous Results

The auditor has reviewed the results presented in the DSI, the HMS and SCLI Assessment and a review of relevant information from these documents is presented below.

7.1 DSI

The DSI presented the results of sampling and analysis for the AWRC site and both pipelines. The discussion below is limited to the AWRC site and the pipeline results will be considered under separate cover.

7.1.1 Data Quality Objectives

Data Quality Objectives (DQOs) were prepared for the site investigation based on the process outlined in the NEPM. The DQOs related to assessing whether the soils at the site were suitable for commercial/industrial use and/or to provide data for remediation, waste classification purposes, risk assessment(s) or management, if necessary, to render the site suitable for the intended land use.

The DQOs were generally appropriate, although the auditor notes the following:

- The sampling strategy was limited to soil and there was no explanation as to why groundwater and soil vapour were not considered. and

- The soil sampling strategy was targeted and there was no justification provided as to why this would provide adequate coverage to enable the derivation of 95% UCLs for the AWRC site.

7.1.2 Assessment Criteria

The DSI included reference to Health Investigation Levels (HILs), Health Screening Levels (HSLs), Ecological Investigation Levels (EILs) and Ecological Screening Levels (ESLs) provided in the NEPM¹ for each of the COPCs and for PFAS chemicals, those levels provided within the PFAS NEMP². In addition, the DSI made reference to *Waste Classification Guidelines – Part 1: Classifying Waste*, (NSW EPA, 2014) (“waste classification guidance”).

7.1.3 Quality Assurance/Quality Control

Table 3 presents the auditor assessment of the quality control/quality assessment for the DSI.

Parameter	DQIs	Requirement	Auditor Assessment
Field and Lab QA/QC			
Precision	Intra-laboratory duplicates (blind)	Collected at a rate of 1 per 20 samples. Analysed for primary contaminants of concern. RPDs less than 50%.	Soil duplicates were collected at a rate of 7% and analysed at a rate of 13% during the DSI and were analysed for targeted contaminants of concern including Heavy metals, TRH, BTEX, PAH, OCPs, OPPs, PCBs. RPDs ranged from 0-50% and were within the acceptable range with a few exceptions. The DSI reported that these were due to sample heterogeneity. The auditor considers this adequate.
	Inter-laboratory duplicates (spilt)	Collected at a rate of 1 per 20 samples. Analysed for primary contaminants of concern. RPDs less than 50%.	Soil triplicates were collected at a rate of 5% during the DSI and were analysed at a rate of 8%. Analysis was for the main contaminants of concern including heavy metals, TRH/BTEX/PAHs/OCPs/OPPs. RPDs were generally within acceptable limits with some exceptions. The DSI reported these. The auditor considers this adequate.
	Laboratory duplicates	One per batch. RPDs less than 50%.	Laboratory duplicates were undertaken by the primary laboratories. The DSI reported no results outside acceptable ranges for the duplicate and triplicate samples. The auditor considers this adequate.
Accuracy	Field rinsate blanks	Collected at a rate of 1 per piece of decontaminated sampling equipment. Analysed for primary contaminants of concern. Laboratory results below the laboratory limit of reporting (LOR).	Field rinsate and trip blanks were collected by Aueron and reported in the DSI. Minor detections of metals and TRH were made and Aurecon concluded that the potential for cross contamination was negligible. The auditor has reviewed the results and has not found a systematic error within the results. The auditor agrees that the potential for cross contamination was negligible.
	Trip blanks	Collected at a rate of 1 per day of sampling where primary contaminants of concern include volatiles.	

¹ National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended 2013, National Environment Protection Council (NEPC 2013)

² PFAS National Environmental Management Plan (PFAS NEMP) (Heads of EPAs, 2020)

Parameter	DQIs	Requirement	Auditor Assessment
		Analysed for volatiles of concern. Laboratory results below laboratory LOR.	
	Trip spike	Collected at a rate of 1 per batch where primary contaminants of concern include volatiles. Laboratory results / recovery within 30 % of the spiked concentration.	No trip spikes were analysed and this has not been discussed in the DSI. Audit review of the results shows the concentrations of volatile TRHs to be <LOR , so the auditor does not consider this omission to be unacceptable.
	Laboratory surrogate spikes	Surrogate spikes to be performed as required by NATA accreditation, generally per sample analysed. Recoveries to be within 70-130 % or 30-130 % (phenols only).	Laboratory surrogate samples were analysed by the laboratories, but the results have not been discussed by Aurecon in the DSI. The auditor reviewed the laboratory sheets and found that the following results were outside the acceptable limits: <ul style="list-style-type: none"> • one result for endrin aldehyde • and one for mevinphos. • One result for total chlordanes • One result for TRH >C10-C16 As all sample results were <LOR for all OCPs at the AWRC site and the result for TRH was a minor breach and does not affect the useability of the data, especially considering that there was no systematic error.
	Laboratory method blanks	Laboratory method blanks to be performed as required by NATA accreditation, generally 1 blank per batch. Results to be below laboratory LOR.	Laboratory method blanks were analysed by the laboratories, but the results have not been discussed by Aurecon in the DSI. The auditor reviewed the laboratory sheets and found all results to be <LOR.
	Laboratory control samples (LCS)	LCS to be performed as required by NATA accreditation, generally one per 20 samples per batch. Recoveries to be within 70-130 % or 30-130 % (phenols only).	LCS recoveries were presented in the laboratory sheets, but the results have not been discussed by Aurecon in the DSI. The auditor reviewed the laboratory sheets and found all results to be within the laboratory control limits.
	Laboratory matrix spikes (MS)	MS to be performed as required as NATA accreditation, generally one per 20 samples per batch. Recoveries to be within 70-130 % or 30-130 % (phenols only).	MS recoveries were presented in the laboratory sheets, but the results have not been discussed by Aurecon in the DSI. The auditor reviewed the laboratory sheets and found all results to be within the laboratory control limits.
Soil Sampling and Analytical Schedule and Sampling Methodology			
Representa-tiveness	Soil sampling locations	Samples to be collected on a representative basis consistent with the CSM.	The sampling density and rationale was based on a targeted sampling strategy. The DSI did not present a rationale for this strategy. The auditor considers that limiting the investigation to soils only and as a targeted rather than on a systematic

Parameter	DQIs	Requirement	Auditor Assessment
			basis is appropriate, given the limited potential for contamination, based on the site history.
	Soil sampling depths and intervals	Soil sampling depths should be consistent with the anticipated distribution of contamination as detailed in the consultant's CSM.	Soil samples were collected from the surface topsoil and surface fill material (where fill occurred), and samples also collected from 0.4 – 0.6 m BGL and then at changes in lithology. The sampling depths and intervals at each of the sampling locations were appropriate given the identified potential contamination sources and the site geology.
	Soil sampling methodology	Soil samples to be collected using a methodology which is appropriate for the primary contaminants of concern.	Soil samples were collected directly from the hand auger, trowel, solid stem flight augers, excavator buckets and/or excavated material during the investigation works. In the DSI Aurecon notes that disposable gloves were worn during the soil sampling works. This is generally appropriate for the COPC encountered at the AWRC site.
Representativeness	Soil and groundwater sampling equipment decontamination	Soil sampling equipment to be decontamination between sampling locations or between sampling depths; and monitoring well locations where significant contamination is encountered.	The DSI reported that all soil sampling equipment was decontaminated between locations.
	Soil sample contamination screening	Soil samples to be screened for contamination via visual / olfactory observations and photo-ionisation detector (PID) measurement.	The DSI included bore logs detailing observations of material types; visual and olfactory observations; sample depths; and groundwater observations. Soil samples were also screened in the field using a PID during the field investigations. These were appropriate.
	Sample storage and transport	Samples to be placed in an insulated container and chilled. Samples to be transported to laboratory under chain of custody conditions.	The DSI reports that all samples were transported in ice-cooled chests, under chain of custody conditions, to laboratories that were NATA accredited for the analyses performed. This is appropriate.
Representativeness	Laboratory sample receipt advice	No damaged containers. No samples submitted in containers which have not been chilled. No samples to be submitted without sufficient times to comply with recommended holding times.	Laboratory sample receipt advice provided by the nominated laboratories confirmed that all samples were received in suitable condition, with completed chain of custody documentation provided in the reports. This is adequate.
	Holding times	Samples to be extracted and analysed within	Holding times were reported as being met in the DSI and auditor review of the consultant's COC documentation and laboratory reports indicates that all samples were

Parameter	DQIs	Requirement	Auditor Assessment
		recommended holding times.	analysed within their holding times for all analyses undertaken.
	Analytical Method	Samples to be analysed using NATA accredited methodology.	Laboratories used included and Eurofins (primary) and ALS (secondary) for investigation works. Laboratory certificates were NATA accredited.
Complete-ness	Sampling, analysis and quality plan completeness	100 % of sampling, analysis and quality plan to be implemented.	An SAQP was developed for the works but was not subject to auditor review, as the auditor was engaged after the DSI was completed.
	Field documentation	All relevant field documentation to be collated including sampling logs and calibration records.	Aurecon included borelogs, field screening results, and calibration records. Not all borelogs reported the PID values. This is adequate.
	Laboratory documentation	All relevant laboratory documentation to be collated, including chain of custody records, sample receipt advice and analytical reports.	The DSI included all relevant COC documentation; laboratory sample receipt advice; and full laboratory certificates in the reports. This is adequate.
	Critical sample validity	All critical sample data to be valid.	The auditor considers that the data is considered reliable, for the purpose of the investigations.
	Sampling, analysis and quality approach	Adequately comparable sampling, analysis and quality approach to be used throughout the project.	The auditor considers that the data is comparable, as consistent sampling methods were employed throughout the direction of the investigation works and subsequent validation program. Consistent field staff were generally employed during DSI, as shown on the borelogs. All laboratory analysis was undertaken by NATA accredited laboratories.

7.1.4 Results

The DSI reported that PID results were negligible to moderate with values ranging from 5 to 5.09 ppm for the AWRC site. In addition, no odours were reported nor was asbestos containing material (ACM) was observed. The hazardous materials survey was appended to the DSI and it noted the presence of presumed ACM at the AWRC site in a number of locations associated with piles of building debris, sheds, and dwellings that are located at the site. Sampling and investigation locations are shown in **Attachment 2**.

In terms of laboratory analytical results, the DSI reported the following:

- No exceedances of heavy metals, aside from two results for chromium and one for nickel that exceeded the general solid waste guideline CT1 criteria;
- some very minor detections of total recoverable hydrocarbons (TRH) that were less than criteria;
- no detections of:
 - Asbestos (nor observations of ACM);
 - benzene, toluene, ethylbenzene, xylenes (BTEX);
 - polyaromatic hydrocarbons (PAHs);

- organochlorine or organophosphate pesticides (OCPs, OPPs);
- phenols;
- polychlorinated biphenyls (PCBs); and
- Per- and poly- fluoroalkyl substances (PFAS).

In addition no acid sulfate soils were detected.

7.1.5 Conceptual Site Model

The DSI presented a brief conceptual site model (CSM) that found that there were no exceedances of Health Investigation Levels however it was reported that asbestos (friable and non-friable) had previously been reported on the ground surface. The DSI found that a potential for exposure of on-site workers to ACM was possible. Other receptors were not identified in the CSM.

The auditor has considered the CSM and does not consider there to be any plausible pathways to other receptors, and therefore the omission of other receptors is acceptable.

7.2 SCLI Assessment

Aside from the results of the DSI and the HMS, the SCLI Assessment listed 44 previous reports that were reviewed relating to both the AWRC site and the pipelines. The auditor has relied on the SCLI Assessment's review with regards those historical reports.

The SCLI Assessment noted that known contamination of shallow soils in certain portions of the AWRC site exists and that contaminated materials existed around former buildings and structures.

7.3 SCLI Assessment Objectives

Section 1.3 of the SCLI Assessment: "...is to assess and address potential soil and contamination impacts associated with the construction and operational phase of the project. It also aims to provide guidance on ways of managing the potential sources of soil and contamination impacts to avoid any environmental degradation."

7.4 Scope of Works

The SCLI Assessment lists the following items within the scope of works (Table 1-1):

1. Verify the risk of acid sulfate soils within the project, and in the area likely to be impacted by the project and assess the impact of the project on acid sulfate soils in accordance with current guidelines; and
2. Assess whether the land is likely to be contaminated and identify if remediation of the land is required.

Other Scope of Work items described in the SCLI Assessment related to assessment of soil salinity, the impact of the project on soil salinity and an assessment of potential impacts of the project on groundwater resources and hydrology and a consideration of erosion risks or hazard. These items are outside the remit of the Contaminated Land audit and discussions relating to these items within the SCLI Assessment are not considered within this Interim Advice. In addition, an item within the Scope of Works related to the assessment of the potential for asbestos contamination around the Core Park area, Megarrity's Creek, Warragamba Viewing Platform and Eighteenth Street, and long-term monitoring requirements and potential for remediation works. These will be considered in the Interim Audit Advice relating to the pipelines.

8. Risk Ratings for Areas of Environmental Concern

As outlined in **Section 3**, this interim audit advice has been prepared to address the requirements of the conditions of consent to confirm whether the risk ratings have been undertaken appropriately.

The auditor finds that the methodology used for the risk rating within the SCLI Assessment is a minor departure from the method described in the NEPM, which develops a Conceptual Site Model (CSM) to enable a consideration of risk from a contaminated land perspective and relies on a thorough site history and sampling and analysis of environmental media to inform an assessment of risk. The risk rating presented in the SCLI Assessment imposes an additional consideration of consequence and likelihood, which is already built into the risk assessment approach outlined in the NEPM.

Nonetheless, the data used to develop the risk ratings has been considered by the auditor, and the SCLI Assessment for the USC AWRC site have been evaluated by the auditor as shown in **Table 4**, below.

Table 4: Audit Review of Risk Ratings

AEC #	Location Details	Potential Contaminating Activities	COPC	Discussion of risk/impact rating	Risk Ranking	Audit Opinion
1	<ul style="list-style-type: none"> Former and current agricultural land usage Current and former structures such as farm sheds and radio towers containing asbestos and heavy metals 	<ul style="list-style-type: none"> Pesticide and herbicide use Chemical/fuel use and storage Structures containing hazardous building materials (HBM), including irrigation lines Historical filling and stockpiles on site 	OCPs, OPPs, ACM Heavy metals PCBs	ACM has been observed at the site. Zinc and copper have minor and localised exceedances of tier 1 screening criteria.	Moderate	<p>The auditor notes the following:</p> <p>As reported in the DSI, TRH, BTEX, PAHs, OCPs and OPPs results were <LOR and all heavy metal results were less than criteria with minor exceedances for some EILs.</p> <p>The sampling strategy was targeted to areas of high likelihood of encountering COPC and the auditor concludes there was no evidence of widespread contamination found in either the site history and via sampling and analysis of soil.</p> <p>The HMS reported the likely presence of ACM and the possible presence of lead and PCBs. The areas where these are likely to occur is limited and evident as buildings, structures and piles of debris and can be managed as areas have already been identified. In addition, an unexpected finds protocol has already been considered by the auditor and this will be used during the construction phase to investigate any contamination that might be encountered during site works.</p> <p>The auditor agrees with the risk rating of moderate.</p>
2	Air Strip on Lot 2/DP88836	Historic use of fire-fighting foams.	PFAS	No exceedances for PFAS were reported, and there is no known history of fire training.	Low	<p>In addition to the conclusions reached by Aurecon in the SCLI Assessment, the auditor notes that the airstrip is not within the AWRC boundary and appears to be small and unlikely to have been used for fire-fighting.</p> <p>The auditor agrees with the risk rating of low.</p>
3	Kemps Creek Rural Fire Service	Historic use of fire-fighting foams.	PFAS	Because there are no known exceedances from investigations undertaken for the project and AEC 3 is about 500 m from the project brine pipeline alignment, the impact significance is low.	Low	<p>The auditor notes that Kemps Creek Rural Fire Service is over 2 km from the AWRC site.</p> <p>The auditor agrees with the risk rating of low.</p>
4	Not relevant for the AWRC site					Will be considered in a subsequent interim audit advice letter that considers the pipelines.

AEC #	Location Details	Potential Contaminating Activities	COPC	Discussion of risk/impact rating	Risk Ranking	Audit Opinion
5	Former Kari & Ghossayn Pty Ltd (Solid Waste Landfill)	Landfilling	TRH, BTEX, ammonia, PAH, heavy metals, OCP, OPP, PCB, nutrients, ACM	Under the column "sites" the table within the SCLI Assessment identifies the AWRC site as potentially impacted, the discussion relates to the brine pipeline, noting that the pipeline is 1.7 km away from the brine pipeline alignment.	Low	The auditor considers this area to not present a risk to the AWRC site and will consider the risk posed in a subsequent interim audit advice letter that considers the pipelines. With regards the AWRC site, the auditor agrees with the risk ranking of low.
6	SUEZ Kemps Creek Resource Recovery Park (now Cleanaway)	Landfilling	TRH, BTEX, ammonia, PAH, heavy metals, OCP, OPP, PCBs, nutrients, ACM	A RMS report reviewed in the SCLI Assessment noted the groundwater containing elevated heavy metals, ammonia and nitrogen and gas containing methane and carbon dioxide were reported adjacent to the site of the M12 motorway. There is potential for contaminated groundwater to migrate to the AWRC site as topography indicates that groundwater is expected to flow from west to east. However, the presence of South Creek between the two sites will act as a barrier or hydrogeological divide to the migration of groundwater and landfill gas. The impact significance for migration of contaminated groundwater is moderate. Landfill gas is deemed to have a low impact significance to the project due to the distance between the two sites (400 m).	Moderate	The auditor notes that the Kemps Creek landfill operates under an environment protection licence (EPL). The auditor considers that the migration of landfill gas is likely limited within the upper soil (unsaturated) zone and the migration of leachate is likely limited within shallow groundwater. The distance and low conductivity of any potential migration via any deeper groundwater systems would be low and unlikely to affect the suitability of the AWRC site for the proposed use. The auditor agrees with the risk rating of moderate, considering that groundwater is not anticipated to be used by human health or ecological receptors at the AWRC site as indicated in the CSM as presented in the DSI. Further, it is noted that the EPL ³ for the landfill includes the generation of electrical power from gas, so there is a landfill gas collection system at the landfill premises which would be anticipated to mitigate the off site migration of landfill gas.

³ [Environment & Heritage | POEO Licences, Application and Notice Detail \(nsw.gov.au\)](#) accessed 20th March 2023

AEC #	Location Details	Potential Contaminating Activities	COPC	Discussion of risk/impact rating	Risk Ranking	Audit Opinion
7	Potential area of fill next to South Creek	Uncontrolled filling	Heavy metals	Because exceedances for copper and zinc in groundwater are expected to be from background levels the impact significance is low.	Low	<p>The auditor notes that the investigations were conducted for RMS for the EIS for the M12 motorway. The results were found in groundwater sampled from an existing borehole on the south western border of South Creek, but on the eastern side of the creek, so therefore within the hydrogeological area of the AWRC site.</p> <p>The auditor notes that in the RMS report for the motorway, the potential areas of existing fill were given a high risk rating, however the project specifications for the RMS report were different, as fill material is needed to be removed from the M12 roadway site for construction purposes. The areas are not identified as being within the AWRC site and the risk posed relates to concentrations of copper, nickel and zinc in groundwater exceeding guideline values.</p> <p>The auditor agrees with the risk rating as low, noting that groundwater is not anticipated to be used by human health or ecological receptors at the site. The exceedances were for ecological receptors and are not relevant to human health exposures so the reported metal concentrations in groundwater do not pose any risk to construction workings, having regard to both drinking water and recreational criteria.</p>
8, 9, 10, 11, 12, 13, 14, 15, 16	Not relevant for the AWRC site					Will be considered in a subsequent interim audit advice letter that considers the pipelines.

9. Audit Opinions and Recommendations

Based on a review of the information provided and subject to the limitations in **Attachment 1**, the following audit opinions are presented.

The auditor agrees with the risk ratings that have been determined for AWRC site.

The auditor provides the following recommendations:

- The site history did not include a title search nor commentary on the potential for ASTs/USTs for the storage of agricultural chemicals/hydrocarbons as fuel. The auditor considers the risk to be very low and the auditor notes that it is being managed by an unexpected finds protocol that the auditor has already reviewed.
- The auditor notes that material will be imported to the site for site levelling purposes and requests that the protocol for sampling and analysis and material tracking be approved by the auditor prior to the importation of materials to the AWRC site.
- It is proposed that impacted material from the pipeline excavations be imported to the AWRC site if the materials are considered suitable. These must be subjected to the importation protocol.
- A draft of the Construction Environmental Management Plan has been provided to the auditor and will be reviewed by him prior to construction commencing. The auditor notes that as a result of this review, consideration will need to be given to risk to workers from hazardous building materials, such as ACM, lead and PCBs at the AWRC site.

Please note that this interim advice does not constitute a Site Audit Statement or a Site Audit Report but is provided to assist in the assessment and management of contamination issues at the site in regard to requirements of the site audit. The information provided herein should not be considered pre-emptive of the final audit conclusions, but rather represent the findings of the audit based on a preliminary review of available site information. Furthermore, the interim advice should not be regarded as approval of any proposed investigations or remedial activities, as any such approval is beyond the scope of an independent auditor.

Should you require clarification, please contact the undersigned on 02 8245 0300 or by email alau@jbsg.com.au.

Yours sincerely:



Andrew Lau
NSW EPA Accredited Site Auditor
Accreditation Number 0503
JBS&G Australia Pty Ltd

Attachments (1) Limitations
 (2) Site Figures.

Attachment 1 – Limitations

This audit was conducted with a reasonable level of scrutiny, care and diligence on behalf of the client for the purposes outlined in s.47 (1) of the *Contaminated Land Management Act 1997*. The data used to support the conclusions reached in this audit were obtained by other consultants and the limitations which apply to the consultant's report(s) apply equally to this audit report.

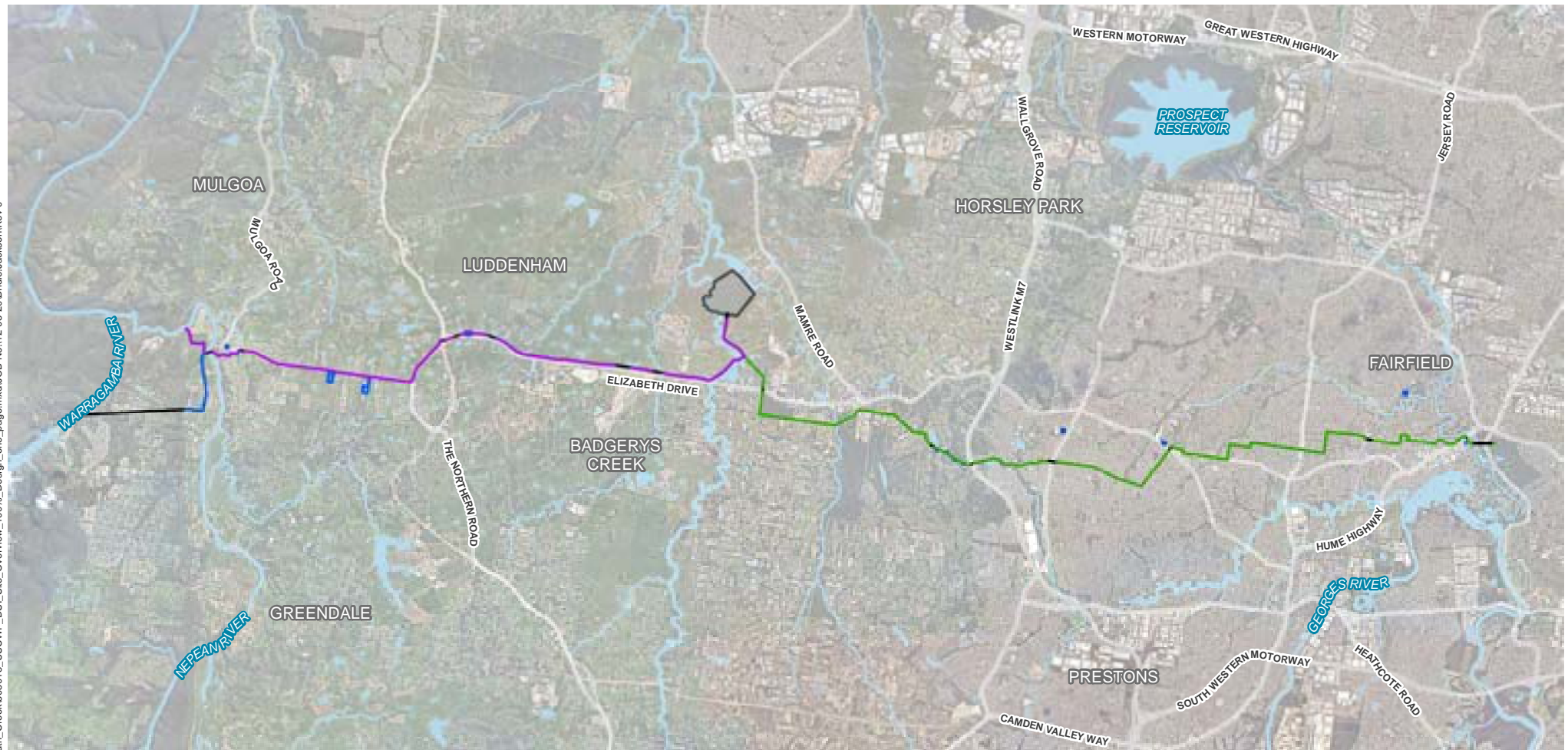
Every reasonable effort has been made to identify and obtain all relevant data, reports and other information that provide evidence about the condition of the site, and those that were held by the client and the client's consultants, or that were readily available. No liability can be accepted for unreported omissions, alterations or errors in the data collected and presented by other consultants. Accordingly, the data and information presented by others are taken and interpreted in good faith.

Sampling and chemical analysis of environmental media is based on appropriate guidance documents made and approved by the relevant regulatory authorities. Conclusions arising from the review and assessment of environmental data are based on the sampling and analysis considered appropriate based on the regulatory requirements. Limited sampling and laboratory analyses were undertaken as part of the investigations reviewed, as described herein. Ground conditions between sampling locations and media may vary, and this should be considered when extrapolating between sampling points. Chemical analytes are based on the information detailed in the site history. Further chemicals or categories of chemicals may exist at the site, which were not identified in the site history and which may not be expected at the site.

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

Attachment 2 – Site Figures

P:\GIS\Project-4\project\505018_Upper_South_Creek_DSI_Site_Overview_100%_Design_one_page.mxd JOB No.112-08-20 Bridle Jackson Rev 0

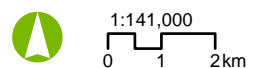


- Environmental Flows Pipeline
- Treated Water Pipeline
- Brine Pipeline
- Underbore
- Advanced Water Recycling Centre
- Compound Locations

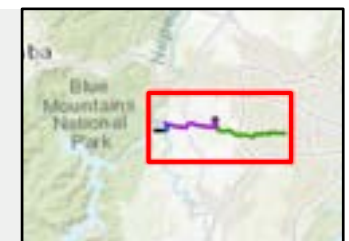
Base Data

- Watercourse
- Waterbody

Source: Aurecon, Sydney Water, LPI, Nearmap, ESRI
Date: 12/08/2020



Projection: GDA2020 MGA Zone 56



Upper South Creek Advanced Water Recycling Centre **DSI**

Figure 1c: Current site overview

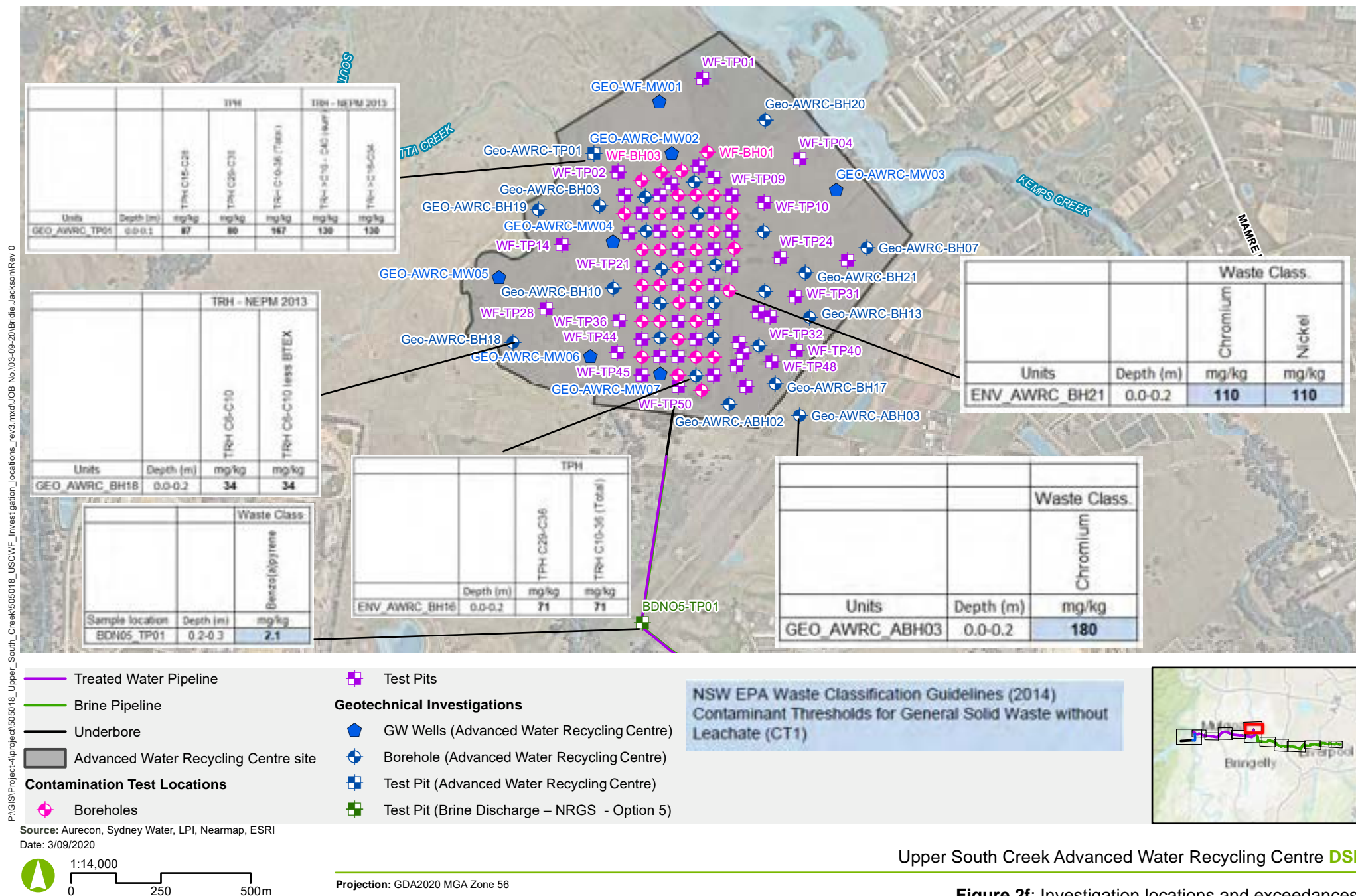
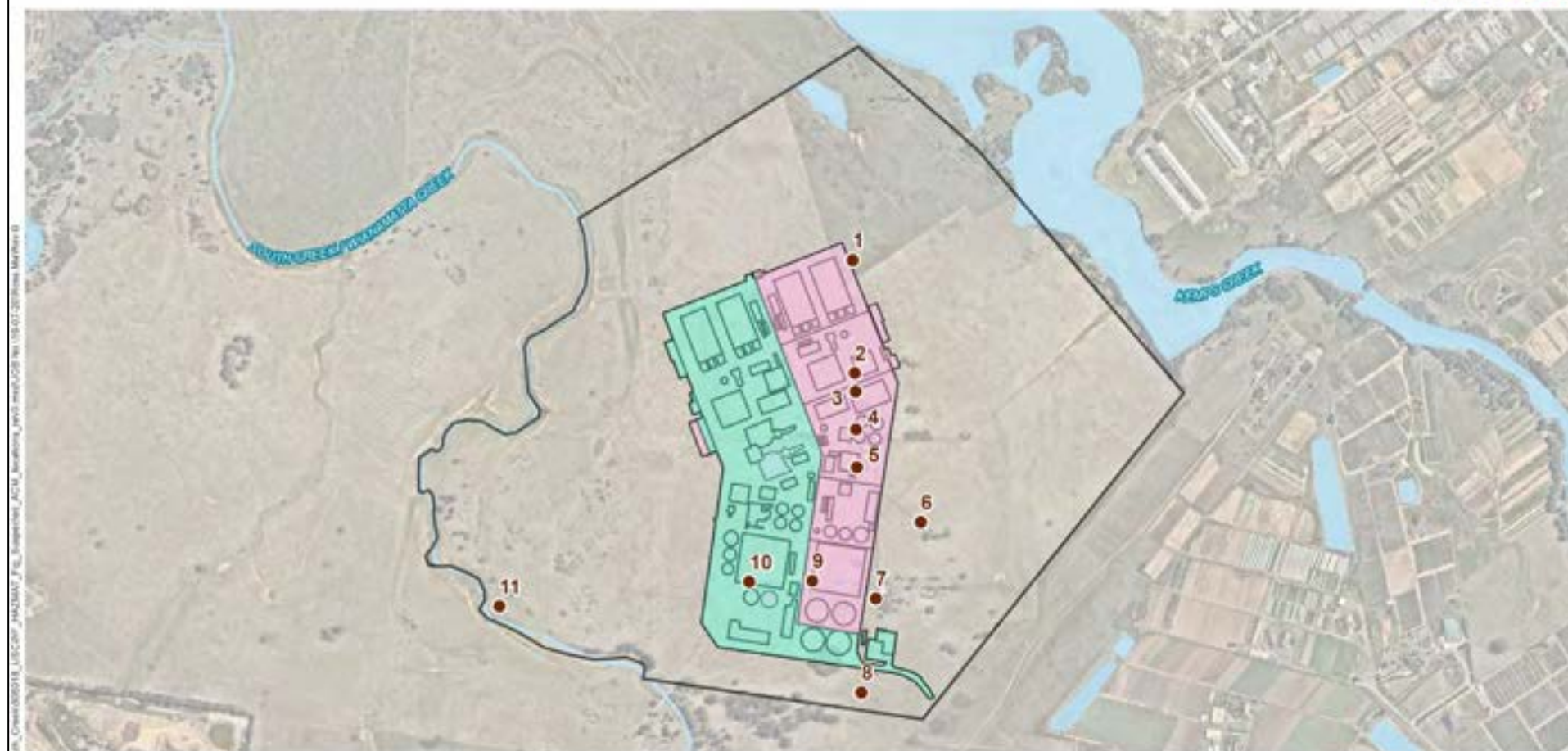


Figure 2f: Investigation locations and exceedances



- Suspect Hazardous Materials Locations
- AWRC Layout (Stage 1)
- AWRC Layout (Stage 2)
- AWRC Footprint
- Advanced Water Recycling Centre



Source: Aurecon, Sydney Water, LPI, Nearmap, ESRI
Date: 16/07/2020



1:9,500
0 100 200m

Projection: GDA2020 MGA Zone 56

Upper South Creek Advanced Water Recycling Centre HazMat Memorandum

Figure: Suspect Hazardous Materials Locations

12 May 2023

Cheryl Cahill
Environment Lead
Major Projects
Sydney Water

Via email: CHERYL.CAHILL@sydneywater.com.au

L04 Interim Audit Advice (0503-2307-04) – Sydney Water Corporation – Upper South Creek Advanced Water Recycling Centre – Review of the Upper South Creek Advanced Water Recycling Centre – Soils and Contamination Construction Environmental Management Plan Sub-Plan

Dear Cheryl,

1. Introduction and Background

Andrew Lau of JBS&G Australia Pty Ltd (JBS&G), has been engaged by Sydney Water Corporation (SWC, the client) to conduct a site audit(s) related to the Upper South Creek Advanced Water Recycling Centre (USC AWRC) and associated pipelines. The USC AWRC is located at Clifton Avenue, Kemps Creek and the site is identified as Lot 211 DP1272676, Part of Lot 21 DP 258414 and Part of Lot 104 DP1271336. The USC AWRC occupies an area of approx. 78 ha and is owned by SWC with zoning RU2 Rural Landscape and ENZ Environment and Recreation. A figure relating to the site and surrounds is shown in **Attachment 2**.

SWC received Ministerial approval for the USC AWRC project on 28th November 2022 as a state significant infrastructure project (Application Number SSI-8609189) ("the consent").

Table 1 shows previously reviewed documents and relevant interim audit advice correspondence.

Document Reviewed	Previous Interim Audit Advice Correspondence
<i>Unexpected Finds Procedure for Contamination</i> , John Holland, issued 07/12/2022, document number USCP-POL-G-002.	<i>L02 Interim Audit Advice (0503-2307-02) – Sydney Water Corporation – Upper South Creek Advanced Water Recycling Centre – Unexpected Finds Protocol</i> , to Cheryl Cahill of Sydney Water, 9 December 2022.
<i>Upper South Creek Advanced Water Recycling Centre - Soils and Contaminated Land Impact Assessment</i> , Aurecon ARUP, 27 July 2021 ("the EIS document")	<i>L03 Interim Audit Advice (0503-2307-03) – Sydney Water Corporation – Upper South Creek Advanced Water Recycling Centre – Review of the Upper South Creek Advanced Water Recycling Centre - Soils and Contaminated Land Impact Assessment</i> to Cheryl Cahill of Sydney Water, 17 March 2023. L03 provided review of the four documents as related to the AWRC parcel of land, only.
<i>Upper South Creek Wastewater Treatment Plant Options Assessment, Preliminary Site Investigation (Contamination)</i> Aurecon, 2019	
<i>Upper South Creek Advanced Water Recycling Centre and Pipelines Detailed Site Investigation</i> , Aurecon ARP, 12 March 2021	
<i>Memorandum re Hazardous Materials Survey – Upper South Creek Advanced Water Recycling Centre</i> , Aurecon to Sydney Water, 18 May 2021	

2. Document Reviewed

The auditor has been provided with the following document:

- *Upper South Creek Advanced Water Recycling Centre and Pipelines Soils & Contamination Construction Environmental Management Plan ("the CEMP")* John Holland, 01/03/2023, USCP-JHG-MPL-ENV-0008 Rev 4.

In preparation of this Interim Audit Advice (IAA) some portions of the above document were reviewed in part and this is indicated where relevant. The following sub-plan was reviewed in fulfillment of condition C8, as described in **Section 3**:

- *Upper South Creek Advanced Water Recycling Centre and Pipelines Soils & Contamination Construction Environmental Management Plan (CEMP) Sub-plan (S&C CEMP sub-plan)*, John Holland, issued 10/05/2023 and earlier drafts (11/03/23, 14/04/2023) (uncontrolled copy) Document No: USCP-JHG-MPL-ENV-0003.

3. Objective of this Interim Advice

The objective of this interim advice is to provide auditor review the S&C CEMP sub-plan. This is required under Condition C8 of the consent as described below.

"C8: The Soils and Contamination CEMP Sub-Plan must be reviewed by the Site Auditor engaged under Condition E74. The Site Auditor must issue interim audit advice or a relevant site audit statement stating whether they consider the Soils and Contamination CEMP Sub-Plan to be adequate. Once reviewed by the Site Auditor and approved by the Planning Secretary, the Soils and Contamination CEMP Sub-Plan must be implemented throughout the duration of construction."

4. Auditor's Assessment

Condition C8 of the consent identifies requirements of the S&C CEMP sub-plan and **Table 2** lists these requirements and indicates how they have been addressed within the S&C CEMP sub-plan.

Table 2 Compliance of the S&C CEMP Sub-Plan with Conditions of Consent

Requirement from consent condition C8	Addressed within S&C CEMP sub-plan (or CEMP, as indicated)	Audit Opinion
Must be prepared by certified Contaminated Land Consultant ¹	The report has been signed by Mr Peter Lavelle of ERM and his seal as a CEnvP SC (EIANZ) is on the front cover of the S&C CEMP.	Adequate
Details of construction activities and their locations which have the potential to expose areas known to contain, or potentially contain, contaminated soils and/or other contaminated materials.	<p><u>Section 5.1</u> describes the activities which “could result in adverse impacts to soils and contamination”, and these include vegetation clearing and topsoil removal, and bulk earthworks & excavations. These were identified as being within the AWRC, treated pipeline and/or the brine pipeline as shown below.</p> <ul style="list-style-type: none"> • Pre-construction activities including utility adjustment, site access provisions, property adjustments; • Vegetation clearing and topsoil removal; • Planned salvage removal of heritage items; • Bulk earthworks and excavations; • Construction of site compounds; • Construction and use of site access including drainage works; • Material stockpiles; • Waste storage and material laydown; • Tunnelling for pipelines at select locations; • Compounds operation including fuel and chemical storage, refuelling and chemical handling; • Removal of groundwater and dewatering; and • Noxious weed treatment including herbicide spraying. 	The list of activities that could result in adverse activities is comprehensive. Adequate.

¹ Contaminated Land Consultant certified under either the Environment Institute of Australia and New Zealand’s Certified Environmental Practitioner (Site Contamination) scheme (CEnvP(SC)) or the Soil Science Australia Certified Professional Soil Scientist Contaminated Site Assessment and Management (CPSS CSAM) scheme.

Requirement from consent condition C8	Addressed within S&C CEMP sub-plan (or CEMP, as indicated)	Audit Opinion
	<p><u>Section 5.2</u> identified potential for impacts relating to soils and contamination in eleven instances during construction activities as shown below.</p> <ul style="list-style-type: none"> • Removal of topsoils, subsoils, and changes in infiltration where earthworks remove the natural soil cover; • Environmental and/or H&S issues resulting from exposure, handling and treatment of acid sulphate soils; • Spread of soil contamination resulting from disturbance of contaminated soils during construction via excavations, including trenches for pipelines and deeper excavations; • Disturbance, mobilisation and spread of contaminants, including leachable contaminants and asbestos, due to soil disturbance, excavation and earthworks; • Environmental and H&S risks resulting from demolition of structures containing hazardous building materials (HBM), including asbestos containing materials (ACM) and lead paints; • Disturbance and removal of vegetation and topsoil and movement of subsoils resulting in increased erosion hazard onsite; • Sediment laden surface and storm waters entering downstream habitats and receiving waterways; • Disturbance, movement and reuse of saline soils excavated near drainage lines and low-lying areas, increasing the salinity release risk to surface waters and groundwater; • Contamination of soils and water from spills and chemical usage; • Importation of contaminated fill material; • Treatment, handling and disposal of contaminated water, increasing the potential for migration of contaminants via leaching, overland flow or subsurface flow. 	<p>The list of activities identifying the impacts from construction activities is comprehensive. Adequate.</p>

Requirement from consent condition C8	Addressed within S&C CEMP sub-plan (or CEMP, as indicated)	Audit Opinion
	<p><u>CEMP - Appendix A4 – Contamination</u> Reference was made to a qualitative risk assessment in the CEMP which listed seven hazards associated with contaminated soil (and groundwater) and listed mitigation strategies. The hazards were:</p> <ul style="list-style-type: none"> • Accidental discharge of potentially contaminated groundwater; • Exposure/ Mistreatment of Acid Sulfate Soils causing pollution or impacting construction in ground; • Contamination of soils and groundwater due to spills or leaks of fuels, oil or other hazardous substances; • Contaminated stockpile storage and containment inadequate in space or Build; • Not recognising/ improperly treating unexpected finds; • Incorrect classification of waste; and • Incorrect disposal of waste. <p>Against each of these, the environmental risk register presented mitigation strategies which consisted of sub-plans, protocols, monitoring programs, permits & licencing, use of appropriately qualified sub-contractors, off-site disposal of waste to appropriate facilities, presence and use of spill kits and bunds, activities conducted in designated areas and training toolbox & induction.</p>	<p>The list of identified hazards was comprehensive. The mitigation strategies were generally appropriate.</p> <p>Future Auditor review: During site visits or upon request, the auditor or representative will inspect the following:</p> <ul style="list-style-type: none"> • Waste tracking register • Site stockpile register • Training register <p>The auditor anticipates that in keeping with the Unexpected Finds Procedure he will be informed of assessments and management & implementation strategies that are developed for any unexpected finds.</p> <p>Records of unexpected finds that are related to contamination must be presented to the auditor for review in the final validation report for the site.</p>
	<p><u>Section 5.2.1</u> discussed the areas of environmental concern (AECs) that were identified in the EIS document and listed potential mitigation measures and recommendations for each of those within the AWRC site. The S&C CEMP sub-plan also noted that the auditor had reviewed the AECs for the AWRC site, but excluding the pipeline sites, which will be undertaken under separate cover.</p>	<p>Table 5.1 lists the AEC and potential mitigation/ recommendations for each. These include further assessments and HAZMAT surveys to inform site specific remediation recommendations, as well as enable earthworks planning so as not to disturb contamination. Each of the measures described are site specific for the location of each AEC.</p> <p>The measures outlined are adequate.</p>
Measures for the handling, treatment and management of hazardous and contaminated soils and materials, including measures to manage and/or minimise worker and public health and safety risks with regard to exposure to contamination;	<p><u>Section 6</u> discussed the soil management practices to be used at the site and notes a series of practices, such as minimising the footprint of land and soil disturbance associated with construction activities, staging activities, storing topsoil and subsoil separately. In addition, stockpiles will be managed in accordance with the Stockpile Management Plan.</p>	<p>The auditor has reviewed the Stockpile Management Plan (update received 4th May 2023) and is satisfied that the measures outlined are adequate.</p>

Requirement from consent condition C8	Addressed within S&C CEMP sub-plan (or CEMP, as indicated)	Audit Opinion
A description of how the effectiveness of the actions and measures for managing contamination impacts would be monitored during the proposed works, clearly indicating how often this monitoring would be undertaken, the locations where monitoring would take place, and how the results of the monitoring would be recorded and reported	<u>Section 7.3</u> describes a program of monitoring and inspections for environmental control measures and will include disturbed areas of contaminated (or suspected contaminated) land. It notes that these will occur weekly and will include commentary on visual and olfactory observations of contamination. A checklist will be used for this process.	The auditor considers weekly inspections and the maintenance of records of checklists to be adequate. Future auditor review: During site visits or upon request, the auditor or representative will review the weekly records of site inspection.
Measures to identify contamination during Works.	<u>Appendix C – Unexpected Finds Procedure.</u>	The auditor has previously reviewed the Unexpected Finds Procedure and this is summarised in <i>L02 Interim Audit Advice (0503-2307-02) – Sydney Water Corporation – Upper South Creek Advanced Water Recycling Centre – Unexpected Finds Protocol</i> , to Cheryl Cahill of Sydney Water, 9 December 2022. Some changes have been made to the Unexpected Finds Protocol since that time in response to review comments from others organisations. The auditor was made aware of these changes in a version provided to him 18 th April 2023. These changes are considered minor and do not affect the auditor's conclusions.
measures to manage asbestos finds		
measures to detail unexpected finds consistent with the Unexpected Finds Procedure for Contamination required under Condition E88. The procedure must include details of who will be responsible for implementing the Unexpected Finds Procedure for Contamination and the roles and responsibilities of all parties involved		
measures to manage acid sulfate soils.	<u>Section 6.3 Acid Sulfate Management</u> Using the Department of Planning, Industry & Environment Acid Sulfate Soils risk map, potential ASS risk areas were identified. These have been identified in the EIS documentation and were listed in Section 6.3. Table 6.1 identified that confirmatory ASS investigations were required around Prospect Creek and, if encountered, mitigation measures would be undertaken under an Acid Sulfate Soil Management Plan (ASSMP). The discussion indicated that the mitigation measures would be in accordance with the NSW Acid Sulfate Soil Manual ² .	The auditor is satisfied that this approach is satisfactory. Future auditor review: the auditor requests that he be provided with the ASSMP for review and comment prior to works commencing, should one be required.

² *Acid Sulfate Soil Manual* NSW Acid Sulfate Soil Management Advisory Committee, August 1998.

In addition to review against the conditions of consent, the auditor has reviewed the S&C CEMP sub-plan against the requirements of the Guidelines for the preparation of Environmental Management Plans.³

Table 3 Compliance of the S&C CEMP Sub-Plan with *Guideline for the Preparation of Environmental Management Plans*

Requirement from Guidelines		Addressed within S&C CEMP sub-plan	Audit Opinion
Background	Introduction	<u>Section 1</u> – see below.	
	Project Description and EMP Context	<u>Sections 1.1 and 1.2</u> describe the project, noting that construction will be staged. Reference is made to the entire CEMP document.	Adequate
	EMP Objectives	<u>Section 2.1</u> the objectives are described as follows: <ul style="list-style-type: none"> • Ensure that all avoidance, mitigation and management measures relevant to soils and contamination risks during construction referred to in the planning approvals (Section 1.1) are adopted and implemented. • Document the procedures to manage construction work activities to avoid or minimise potential contamination and soil impacts, including management of acid sulfate soils and sodic and saline soils. • Ensure that potentially contaminated sites are identified, assessed and managed in accordance with legislative and project specific requirements. • Ensure that migration of contamination off the project site does not occur as a result of construction activities associated with the project. • Define a pathway to manage identified moderate to high risk areas of contamination and make suitable for the final intended land use. • Manage any unexpected finds of contaminated material in a manner that minimises risk to human health and the environment. 	Adequate
	Environmental Policy	<u>Section 3.1</u> Describes the legislation, guideline and standards relevant to the CEMP.	The document does not state JHG’s environmental policy, but references within Section 3.1 are adequate.

³ *Guideline for the Preparation of Environmental Management Plans*, Department of Infrastructure, Planning and Natural Resources, 2004

Requirement from Guidelines		Addressed within S&C CEMP sub-plan	Audit Opinion
Environmental Management	Environmental Management Structure & Responsibility	<u>Section 7.1</u> describes Roles and responsibilities and the role of the site auditor is described. In addition, reference is made to Section 3.3 of the CEMP where the roles of the Environmental Representative and others are described.	Adequate
	Approval & Licencing Requirements	<u>Section 3.2</u> lists the Ministers conditions of approval. <u>Section 3.2.2.2</u> of the CEMP lists other approvals, permits and licences.	Adequate
	Reporting	<u>Table 3.2</u> lists the conditions of consent and the reports required under these conditions.	Adequate
	Environmental Training	<u>Section 7.2</u> describes training and induction that must be undertaken under the S&C CEMP sub-plan. <u>Table 6.2</u> indicates that induction and training records are to be kept.	Adequate
	Emergency Contacts & Response	A table of Emergency and Key Contacts is provided within the CEMP (page 4 of 350).	Adequate
Implementation	Risk Assessment	<u>Section 3.2.1</u> of the CEMP describes the Environmental Risk Assessment process that has been undertaken for the project and these are listed in <u>Appendix A4</u> . The risk assessment is identified as a live document. The auditor has considered the risks and mitigation strategies identified within that document as they relate to contamination and notes that, based on auditor comment, updates to the risk assessment has been made, including changes to the Material Tracking Register.	Adequate
	Environmental Management Activities & Controls	<u>Sections 5& 6</u>	Adequate – refer Table 2 .
	Environmental Management Plans or Maps	<u>Appendices A, B & C</u> describe Imported Material. Spill Response and Unexpected Finds Procedures, respectively.	Adequate
	Environmental Schedules	Pro forma checklists have not been presented. Pro forma registers have been described.	Adequate. The auditor has indicated that he will subject registers to audit review as described in Table 2 .
Monitor & Review	Environmental Monitoring	<u>Section 7.3</u> describes the monitoring program that will be undertaken during the project.	Adequate
	Environmental Auditing	<u>Section 7.1</u> describes the role of the contaminated land auditor.	Adequate
	Corrective Action	<u>Section 8.1</u> identifies the process for corrective and preventative actions to be undertaken.	Adequate

Requirement from Guidelines		Addressed within S&C CEMP sub-plan	Audit Opinion
	EMP Review	<p><u>Section 8.2</u> identifies that the Environmental Manager has the authority to change the environmental management documentation. This can occur under advice from the site auditor and/or based on recommendations made in any Detailed Site Investigation Report(s). This will be on an “if required” basis.</p>	Adequate.

5. Audit Opinions and Recommendations

Based on a review of the information provided and subject to the limitations in **Attachment 1**, the following audit opinions are presented:

1. The S&C CEMP sub-plan is appropriate.
2. The S&C CEMP sub-plan should be applied to all environmental media.
3. As part of ongoing environmental management protocols, periodic review of the S&C CEMP sub plan should be undertaken to include any learnings/understanding that arise during the project.
4. Records should be kept of additional monitoring for inclusion in a Validation Report(s).

The auditor will require inspection by himself or representative during the works of the following documents:

- Waste tracking register;
- Site stockpile register;
- Training register;
- Unexpected finds and related assessments, management and implementation strategies that developed for the unexpected finds;
- Weekly records of site inspections, with regards soil contamination; and
- Should an ASSMP be required, it must be provided to the auditor for review, prior to works commencing.

In addition, records relating to unexpected finds must be kept and presented in a final Validation Report.

Please note that this interim advice does not constitute a Site Audit Statement or a Site Audit Report but is provided to assist in the assessment and management of contamination issues at the site in regard to requirements of the site audit. The information provided herein should not be considered pre-emptive of the final audit conclusions, but rather represent the findings of the audit based on a preliminary review of available site information. Furthermore, the interim advice should not be regarded as approval of any proposed investigations or remedial activities, as any such approval is beyond the scope of an independent auditor.

Should you require clarification, please contact the undersigned on 02 8245 0300 or by email alau@jbsg.com.au.

Yours sincerely:



Andrew Lau
NSW EPA Accredited Site Auditor
Accreditation Number 0503
JBS&G Australia Pty Ltd

Attachment (1) Limitations
 (2) Site Plan

Attachment 1 – Limitations

This audit was conducted with a reasonable level of scrutiny, care and diligence on behalf of the client for the purposes outlined in s.47 (1) of the *Contaminated Land Management Act 1997*. The data used to support the conclusions reached in this audit were obtained by other consultants and the limitations which apply to the consultant's report(s) apply equally to this audit report.

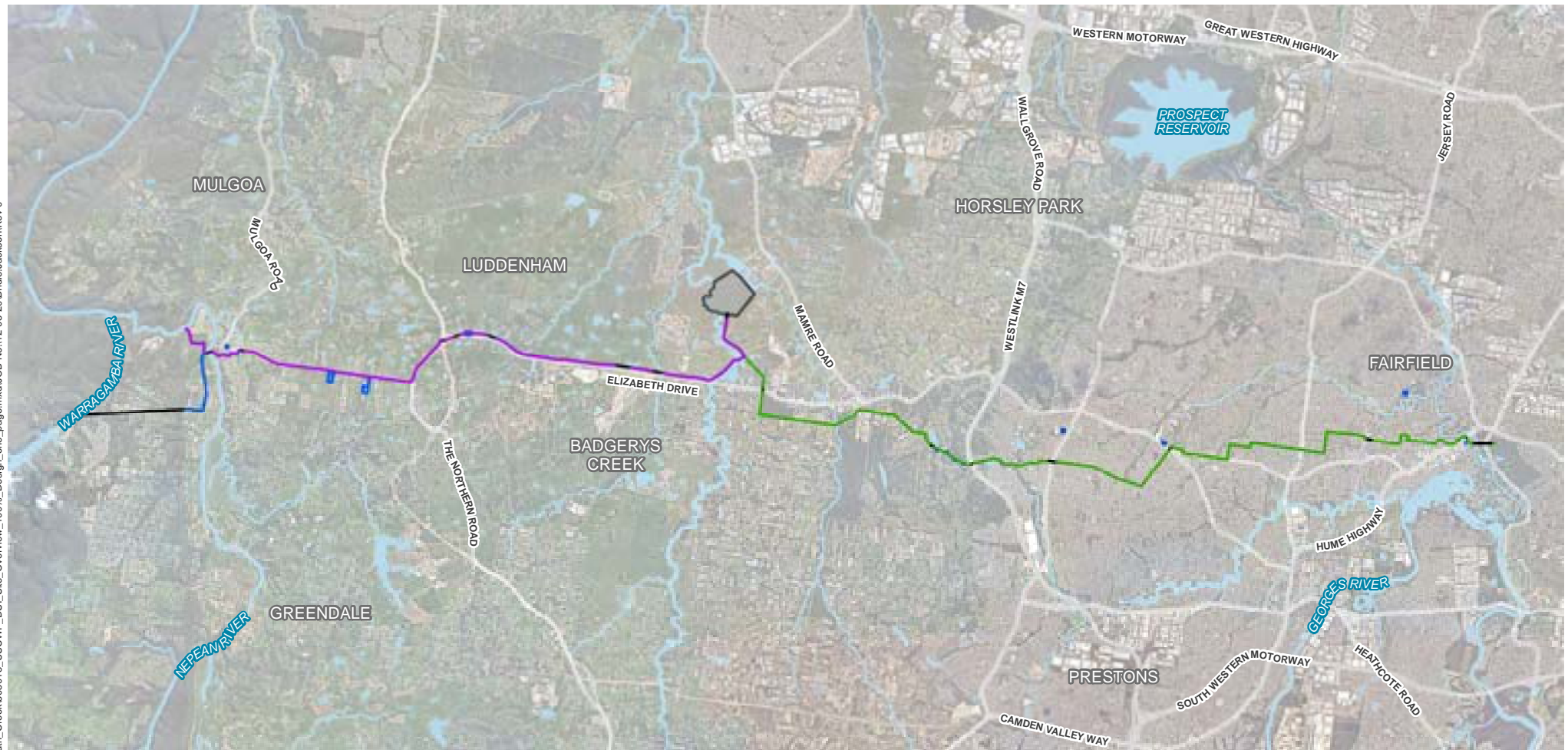
Every reasonable effort has been made to identify and obtain all relevant data, reports and other information that provide evidence about the condition of the site, and those that were held by the client and the client's consultants, or that were readily available. No liability can be accepted for unreported omissions, alterations or errors in the data collected and presented by other consultants. Accordingly, the data and information presented by others are taken and interpreted in good faith.

Sampling and chemical analysis of environmental media is based on appropriate guidance documents made and approved by the relevant regulatory authorities. Conclusions arising from the review and assessment of environmental data are based on the sampling and analysis considered appropriate based on the regulatory requirements. Limited sampling and laboratory analyses were undertaken as part of the investigations reviewed, as described herein. Ground conditions between sampling locations and media may vary, and this should be considered when extrapolating between sampling points. Chemical analytes are based on the information detailed in the site history. Further chemicals or categories of chemicals may exist at the site, which were not identified in the site history and which may not be expected at the site.

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

Attachment 2 – Site Figure

P:\GIS\Project-4\project\505018_Upper_South_Creek_DSI_Site_Overview_100%_Design_one_page.mxd JOB No.112-08-20 Bridle Jackson Rev 0

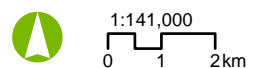


- Environmental Flows Pipeline
- Treated Water Pipeline
- Brine Pipeline
- Underbore
- Advanced Water Recycling Centre
- Compound Locations

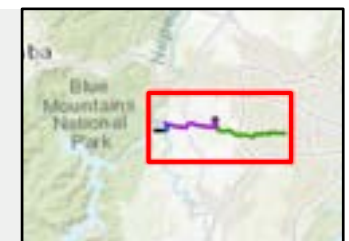
Base Data

- Watercourse
- Waterbody

Source: Aurecon, Sydney Water, LPI, Nearmap, ESRI
Date: 12/08/2020



Projection: GDA2020 MGA Zone 56



Upper South Creek Advanced Water Recycling Centre **DSI**

Figure 1c: Current site overview

16 May 2023

Cheryl Cahill
Environment Lead
Major Projects
Sydney Water

Via email: CHERYL.CAHILL@sydneywater.com.au

L05 Interim Audit Advice (0503-2307-05) – Sydney Water Corporation – Upper South Creek Advanced Water Recycling Centre – Review of the Upper South Creek Advanced Water Recycling Centre - Soils and Contaminated Land Impact Assessment - Pipelines

Dear Cheryl,

1. Introduction and Background

Andrew Lau of JBS&G Australia Pty Ltd (JBS&G), has been engaged by Sydney Water Corporation (SWC, the client) to conduct a site audit(s) related to the Upper South Creek Advanced Water Recycling Centre (USC AWRC) and associated pipelines. The USC AWRC is located at Clifton Avenue, Kemps Creek and the site is identified as Lot 211 DP1272676, Part of Lot 21 DP 258414 and Part of Lot 104 DP1271336. The USC AWRC occupies an area of approx. 78 ha.

The pipelines occupy lands between the USC AWRC and Lansdowne Reserve in Lansdowne for approx. 24 km ("the brine pipeline") and land between the USC AWRC and the Nepean River in Wallacia for approx. 16.7 km ("the treated water pipeline").

The USC AWRC site is owned by SWC and is zoned RU2 Rural Landscape and ENZ Environment and Recreation. The pipeline land is variously zoned as shown:

- Brine pipeline: RU2, RU4, ENZ, Western Sydney Parklands, RE1, R3, R1, SP2, R4 and B5.
- Treated pipeline: ENZ, ENT, AGB, RU1, RU5, SP2.

SWC received Ministerial approval for the USC AWRC project on 28th November 2022 as a state significant infrastructure project (Application Number SSI-8609189) ("the consent").

Table 1 shows previously reviewed documents and relevant interim audit advice correspondence.

Table 1: Previous Interim Audit Advice Correspondence

Document Reviewed	Previous Interim Audit Advice Correspondence
<i>Unexpected Finds Procedure for Contamination</i> , John Holland, issued 07/12/2022, document number USCP-POL-G-002.	<i>L02 Interim Audit Advice (0503-2307-02) – Sydney Water Corporation – Upper South Creek Advanced Water Recycling Centre – Unexpected Finds Protocol</i> , to Cheryl Cahill of Sydney Water, 9 December 2022.
<i>Upper South Creek Advanced Water Recycling Centre - Soils and Contaminated Land Impact Assessment</i> , Aurecon ARUP, 27 July 2021 ("the EIS document")	<i>L03 Interim Audit Advice (0503-2307-03) – Sydney Water Corporation – Upper South Creek Advanced Water Recycling Centre – Review of the Upper South Creek Advanced Water</i>
<i>Upper South Creek Wastewater Treatment Plant Options Assessment, Preliminary Site Investigation (Contamination)</i> Aurecon, 2019	

Document Reviewed	Previous Interim Audit Advice Correspondence
<i>Upper South Creek Advanced Water Recycling Centre and Pipelines Detailed Site Investigation</i> , Aurecon ARP, 12 March 2021	<i>Recycling Centre - Soils and Contaminated Land Impact Assessment</i> to Cheryl Cahill of Sydney Water, 17 March 2023. L03 provided review of the four documents as related to the AWRC parcel of land, only.
<i>Memorandum re Hazardous Materials Survey – Upper South Creek Advanced Water Recycling Centre</i> , Aurecon to Sydney Water, 18 May 2021	
<i>Upper South Creek Advanced Water Recycling Centre and Pipelines Soils & Contamination Construction Environmental Management Plan (“the CEMP”)</i> John Holland, 01/03/2023, USCP-JHG-MPL-ENV-0008 Rev 4, some portions, only.	<i>L04 Interim Audit Advice (0503-2307-04) – Sydney Water Corporation – Upper South Creek Advanced Water Recycling Centre – Review of the Upper South Creek Advanced Water Recycling Centre – Soils and Contamination Construction Environmental Management Plan Sub-Plan</i> to Cheryl Cahill of Sydney Water, 12 May 2023.
<i>Upper South Creek Advanced Water Recycling Centre and Pipelines Soils & Contamination Construction Environmental Management Plan (CEMP) Sub-plan (S&C CEMP sub-plan)</i> , John Holland, issued 10/05/2023 and earlier drafts (11/03/23, 14/04/2023) (uncontrolled copy) Document No: USCP-JHG-MPL-ENV-0003.	

2. Document Reviewed

The following documents were reviewed in preparation of this Interim Audit Advice (IAA):

- *Upper South Creek Advanced Water Recycling Centre - Soils and Contaminated Land Impact Assessment*, Aurecon ARUP, 27 July 2021 (“the SCLI Assessment”)
- *Upper South Creek Water Factory Pipeline Alignments Option Concept Design, Preliminary Site Investigation (Contamination)* Aurecon, 2020 (“the PSI”); and
- *Upper South Creek Advanced Water Recycling Centre and Pipelines Detailed Site Investigation*, Aurecon ARP, 12 March 2021, (The DSI”).

The SCLI Assessment and the DSI include information relating to the AWRC site, but this interim audit advice will be concerned with information regarding the pipeline sites, only. The AWRC site information was reviewed in L03.

3. Objective of this Interim Advice

The objective of this interim advice is to provide auditor review the SCLI Assessment with regards the pipelines. This is required under Conditions E74(b) and E76 of the consent as described below.

- E74 “...The Site Auditor is to review all relevant documentation and provide a written opinion on the contamination risk and the appropriateness of the reports and any proposed management measures of the site, including... (b) the review of the Proponent’s risk rating for Areas of Environmental Concern (AECs)...”; and
- E75: “ Evidence that the NSW EPA accredited Site Auditor has reviewed each of the plans and reports listed in Condition E74, and has issued an interim audit advice...regarding the appropriateness of those plans or reports, must be provided when the plan or report is submitted to the Planning Secretary for information.

“Where the NSW EPA accredited Site Auditor confirms that no further investigations are NOT warranted, Conditions E76 to E82 do not apply”; and

- E76: “The NSW EPA accredited Site Auditor must be engaged to review the risk rating for AECs identified in Appendix N (Soils and Contamination Impact Assessment) of the Environmental Impact Statement listed in Condition A1. Following this review, the Site Auditor must issue an interim audit advice confirming whether the risk rating has been undertaken appropriately.”

4. Program for Audit Site Visit

The auditor or his representative has not made a site visit as Sydney Water (or contractor) does not have control of the pipelines site(s) and potentially contaminating activities, such as fly tipping might still occur prior to works being conducted. A list of pipeline areas where the auditor would like to conduct a site visit are listed below in **Section 9**.

5. Pipelines Alignment Site Information

Documents described in **Section 2** were reviewed against the requirements of the relevant consent conditions listed in **Section 3** and the requirements of *Consultants Reporting on Contaminated Land: Contaminated Land Guidelines*, NSW EPA, 2020 (EPA 2020).

The PSI considered an additional pipeline (“environmental flows” or “e flows”) that was initially scheduled to be part of the project but is no longer to be included; the auditor has therefore not considered data related to the e flows pipeline.

5.1 Site History

The PSI summarised information from a variety of sources including aerial imagery, results of assessment reports prepared for Sydney Water and Roads and Maritime Services (RMS), regulatory searches (NSW Government PFAS Investigation Program, NSW EPA database of notified sites and Department of Defence Unexploded Ordnance database as well as a Sydney Water internal spatial hub. The results of these searches were presented within the PSI, generally as appendices.

Based on the results of these searches, the PSI presented a table showing the “Common Contamination Hazards” and their associated contaminants of potential concern (CoPCs) and another table identifying more site specific “additional contamination hazards” and additional CoPCs relating to particular activities.

5.2 Site Setting

The PSI indicated that the pipelines assessment project considered the pipeline route spans over 34 km from Lansdowne (27 km south west of the Sydney CBD) to Wallacia weir (53 km west of the Sydney CBD). The PSI indicated that a buffer of 200 m either side of the routes for the pipelines was considered as the “investigation area” for aerial photo and public register searches.

The brine pipeline that flows east from the AWRC site to Lansdowne Reserve for approx. 24 km was indicated to pass along roads; the following list indicates the land uses identified in the PSI within the 200 m corridor where the brine pipeline will pass:

- Residential areas that include dwellings, churches, temples, child care centres, preschools, a nursing home;
- Rural areas;
- Rail corridor;
- Waterways and surrounding environmental conservation area;
- Parks and sports fields,
- Commercial businesses; and

- Several service stations, including one that has been notified to the NSW EPA.

The treated water pipeline will flow west from the AWRC site to the Wallacia weir for approx .17 km and the PSI indicated that it will pass through bushland, rural land and rural farmland, with some rural living. Some residential and commercial buildings are present in Wallacia, including a service station.

5.3 Topography

The SCLI Assessment describes the brine pipeline alignment as heading east from the AWRC at an elevation of approx. 40 m AHD rising to 80 m AHD at Cecil Hills before sloping down to Prospect Creek in Fairfield at 10 m AHD. The treated water pipeline alignment is described as heading west from the AWRC and traversing sloping topographies including a ridge of 90 m AHD in the vicinity of The Northern Road, Luddenham.

5.4 Geology

In terms of regional geology, the SCLI Assessment stated that the project is located within the Permo-Triassic Sydney Basin which is characterised by sub-horizontal sedimentary deposits of sandstone interbedded with shale layers.

The DSI included bore logs prepared from intrusive investigations with depths ranging from 3 to 5 m BGL. The DSI tabulated a summary of the borelogs which indicated the following.

The alignment for the pipelines is covered with pavement/asphalt, topsoil or fill, to depths ranging up to 2.1 m BGL. The fill comprised a variety of materials including silty clay, gravely sandy clay, sandy gravelly silt and sandy clay. Anthropogenic inclusions were identified.

The auditor assessment follows in **Section 6**.

5.5 Hydrogeology

The PSI reported that the direction of groundwater flow was likely to be determined by the proximity to local surface water bodies and areas of higher permeability alluvium. Regional groundwater flow direction is expected to be consistent with the topography.

The SCLI Assessment described nine different hydrogeological landscapes that the pipeline alignments would pass through and provided details such as salinity of the water & land and depth to groundwater.

The PSI identified registered groundwater bores within proximity of the pipelines alignment by displaying these on site figures; these showed monitoring, water supply and exploration bores.

5.6 Hydrology

The pipeline alignments is described in the PSI and DSI as crossing a large area, with a number of rivers, creeks and streams running through the alignments. The creeks and rivers for the treated water pipeline alignment are identified as being part of the Hawkesbury-Nepean catchment and so are freshwater.

For the brine water pipeline, the PSI notes that the surrounding receiving waters are likely fresh water, until the eastern end of the Green Valley Creek, which is a tributary of the tidal reaches of Orphan School Creek and then the tidal reaches of Prospect Creek.

Closer to the AWRC and towards the west, other nearby water bodies include rural farm dams and ponds.

5.7 Acid Sulfate Soils

The PSI reviewed information relating to acid sulfate soils (ASS) and concluded that there is some ASS risk in the eastern portions of the brine pipeline in the vicinity of Georges River and Prospect Creek. A map of ASS risk was provided.

5.8 Contaminants of Potential Concern

The DSI presented contaminants of potential concern (COPCs) as follows:

- Benzene, toluene, ethyl benzene and xylene (BTEX);
- Total recoverable hydrocarbons (TRHs);
- Polycyclic aromatic hydrocarbons (including naphthalene) (PAHs);
- Phenolic compounds;
- Heavy Metals (arsenic, cadmium, chromium, copper, lead, nickel, mercury and zinc);
- Organochlorine pesticides (OCPs) and organophosphate pesticides (OPPs);
- Polychlorinated biphenyl (PCBs);
- Asbestos containing materials (ACM); and
- Per- and poly- fluoroalkyl substances (PFAS)

6. Auditor Assessment

The auditor's assessment of the information presented in the reports listed in **Section 2** and summarised in **Sections 5.1 to 5.8**, above is shown below.

6.1.1 Site History

No historic land titles were provided to support the site history. Historic aerial photos were provided however the route of the pipelines were not shown on the aerial photos. Nonetheless a summary of the aerial photo review was provided with regards to the pipelines, as well as details of the public register searches. The auditor is satisfied that sufficient information was provided within the various documents to draw conclusions regarding past potentially contaminating activities and likely contaminants of potential concern that might present a risk to workers installing the pipelines, noting the requirement for an Unexpected Finds Procedure when works are underway; this has been assessed in a previous Interim Audit Advice (L02) prepared by the auditor in December 2022.

6.1.2 Site Setting

The site setting as well as geology, hydrogeology, topography, hydrology and the potential presence of acid sulfate soils are generally adequate.

The auditor notes that within the text of the DSI, the description of the geological profile did not identify the full depth of investigations, which extended to the underlying bedrock. For instance, the pipeline alignment was found to be underlain by mudstone and weathered shale at depths from 2.5 m BGL to depth, with investigations ceasing at differing depths. The shallowest bedrock was encountered at 1.6 m BGL in the pipeline alignment.

The borelogs noted photo ionisation detector (PID) readings, and in some cases these were as high as 60 ppm. This was co-located with hydrocarbon odour observations. Observations regarding PID readings, odours or ACM presence/absence were inconsistently recorded in the bore logs.

With regards the hydrological setting, the auditor notes that the receiving waters are fresh water for much of the pipeline alignment, with possibly marine waters in the east in the tidal reaches of Prospect Creek and its tributaries, such as Orphan School Creek.

6.1.3 Contaminants of Potential Concern

The PSI identified areas of potential environmental concern and linked these with particular contaminants of concern. These were tabulated within the PSI and the auditor is satisfied that the data presented within the tables is adequate.

7. Previous Results

The auditor has reviewed the results presented in the DSI and SCLI Assessment and a review of relevant information from these documents is presented below.

7.1 DSI

The DSI presented the results of sampling and analysis for the AWRC site and both pipelines. The discussion below is limited to the pipeline alignments as the AWRC results were considered in *L03 Interim Audit Advice (0503-2307-03) – Sydney Water Corporation – Upper South Creek Advanced Water Recycling Centre – Review of the Upper South Creek Advanced Water Recycling Centre - Soils and Contaminated Land Impact Assessment* to Cheryl Cahill of Sydney Water, 17 March 2023.

7.1.1 Data Quality Objectives

Data Quality Objectives (DQOs) were prepared for the site investigation based on the process outlined in the NEPM. The DQOs related to assessing whether the soils at the site were suitable for commercial/industrial use, provide an indicative waste classification of spoil and inform any necessary Work Health and Safety (WHS) procedures that may be required.

The DQOs were generally appropriate, although the auditor notes the following:

- The sampling strategy was limited to soil and there was no explanation as to why groundwater and soil vapour were not considered; and
- The soil sampling strategy was targeted but there was no justification provided.

7.1.2 Assessment Criteria

The DSI included reference to Health Investigation Levels (HILs), Health Screening Levels (HSLs), Ecological Investigation Levels (EILs) and Ecological Screening Levels (ESLs) provided in the NEPM¹ for each of the COPCs and for PFAS chemicals, those levels provided within the PFAS NEMP². In addition, the DSI made reference to *Waste Classification Guidelines – Part 1: Classifying Waste*, (NSW EPA, 2014) (“waste classification guidance”).

7.1.3 Quality Assurance/Quality Control

Table 2 presents the auditor assessment of the quality control/quality assessment for the DSI.

Parameter	DQIs	Requirement	Auditor Assessment
Field and Lab QA/QC			
Precision	Intra-laboratory duplicates (blind)	Collected at a rate of 1 per 20 samples. Analysed for primary contaminants of concern. RPDs less than 50%.	Auercon did not report the frequency of the collection of duplicates, but the auditor notes that soil duplicates were analysed at a rate of approx. 1 per 20 in the DSI for targeted contaminants of concern including Heavy metals, TRH, BTEX, PAH, OCPs, OPPs, PCBs. RPDs ranged from 0-50% and were within the acceptable range with some exceptions that were reported by Aurecon. The DSI reported that these were due to sample heterogeneity.

¹ *National Environment Protection (Assessment of Site Contamination) Measure 1999*, as amended 2013, National Environment Protection Council (NEPC 2013)

² *PFAS National Environmental Management Plan (PFAS NEMP)* (Heads of EPAs, 2020)

Parameter	DQIs	Requirement	Auditor Assessment
			The auditor considers this adequate.
	Inter-laboratory duplicates (spilt)	Collected at a rate of 1 per 20 samples. Analysed for primary contaminants of concern. RPDs less than 50%.	Soil triplicates were analysed at a rate of approx. 1 per 20. Analysis was for the main contaminants of concern including heavy metals, TRH/BTEX/PAHs/OCPs/OPPs. RPDs were generally within acceptable limits with some exceptions. The DSI reported the exceptions. The auditor considers this adequate.
	Laboratory duplicates	One per batch. RPDs less than 50%.	Laboratory duplicates were undertaken by the primary laboratories. The DSI reported no results outside acceptable ranges for the duplicate and triplicate samples. The auditor considers this adequate.
Accuracy	Field rinsate blanks	Collected at a rate of 1 per piece of decontaminated sampling equipment. Analysed for primary contaminants of concern. Laboratory results below the laboratory limit of reporting (LOR).	Field rinsate and trip blanks were collected by Aueron and reported in the DSI. Minor detections of metals and TRH were made and Aurecon concluded that the potential for cross contamination was negligible. The auditor has reviewed the results and has not found a systematic error within the results. The auditor agrees that the potential for cross contamination was negligible.
	Trip blanks	Collected at a rate of 1 per day of sampling where primary contaminants of concern include volatiles. Analysed for volatiles of concern. Laboratory results below laboratory LOR.	
	Trip spike	Collected at a rate of 1 per batch where primary contaminants of concern include volatiles. Laboratory results / recovery within 30 % of the spiked concentration.	No trip spikes were analysed and this has not been discussed in the DSI. Audit review of the results shows the concentrations of volatile TRHs to be <LOR , so the auditor does not consider this omission to be unacceptable.
	Laboratory surrogate spikes	Surrogate spikes to be performed as required by NATA accreditation, generally per sample analysed. Recoveries to be within 70-130 % or 30-130 % (phenols only).	Laboratory surrogate samples were analysed by the laboratories, but the results have not been discussed by Aurecon in the DSI. The auditor reviewed the laboratory sheets and found that the following results were outside the acceptable limits: <ul style="list-style-type: none"> • one result for endrin aldehyde • and one for mevinphos. • One result for total chlordanes • One result for TRH >C10-C16 As all sample results were <LOR for all OCPs at the AWRC site and the result for TRH was a minor breach and does not affect the useability of the data, especially considering that there was no systematic error.

Parameter	DQIs	Requirement	Auditor Assessment
	Laboratory method blanks	Laboratory method blanks to be performed as required by NATA accreditation, generally 1 blank per batch. Results to be below laboratory LOR.	Laboratory method blanks were analysed by the laboratories, but the results have not been discussed by Aurecon in the DSI. The auditor reviewed the laboratory sheets and found all results to be <LOR.
	Laboratory control samples (LCS)	LCS to be performed as required by NATA accreditation, generally one per 20 samples per batch. Recoveries to be within 70-130 % or 30-130 % (phenols only).	LCS recoveries were presented in the laboratory sheets, but the results have not been discussed by Aurecon in the DSI. The auditor reviewed the laboratory sheets and found all results to be within the laboratory control limits.
	Laboratory matrix spikes (MS)	MS to be performed as required as NATA accreditation, generally one per 20 samples per batch. Recoveries to be within 70-130 % or 30-130 % (phenols only).	MS recoveries were presented in the laboratory sheets, but the results have not been discussed by Aurecon in the DSI. The auditor reviewed the laboratory sheets and found all results to be within the laboratory control limits.
Soil Sampling and Analytical Schedule and Sampling Methodology			
Representativeness	Soil sampling locations	Samples to be collected on a representative basis consistent with the CSM.	The sampling density and rationale was based on a targeted sampling strategy, noting that sampling locations were at times several kilometres apart along the pipeline alignment. The DSI did not present a rationale for this strategy. In other locations, sample locations were closer together, due to the presence of likely contaminating activities, such as service stations. The auditor considers this to be appropriate for the objectives of the investigation.
	Soil sampling depths and intervals	Soil sampling depths should be consistent with the anticipated distribution of contamination as detailed in the consultant's CSM.	Soil samples were collected from the surface topsoil and surface fill material (where fill occurred), and samples also collected from 0.4 – 0.6 m BGL and then at changes in lithology. Target depths for sampling varied across the investigation. The sampling depths and intervals at each of the sampling locations were appropriate given the identified potential contamination sources and the site geology.
	Soil sampling methodology	Soil samples to be collected using a methodology which is appropriate for the primary contaminants of concern.	Soil samples were collected directly from the hand auger, trowel, solid stem flight augers, excavator buckets and/or excavated material during the investigation works. In the DSI Aurecon notes that disposable gloves were worn during the soil sampling works. This is generally appropriate for the COPC encountered across the pipeline site.
Representativeness	Soil and groundwater sampling equipment decontamination	Soil sampling equipment to be decontamination between sampling locations or between sampling depths; and monitoring well locations where	The DSI reported that all soil sampling equipment was decontaminated between locations.

Parameter	DQIs	Requirement	Auditor Assessment
		significant contamination is encountered.	
	Soil sample contamination screening	Soil samples to be screened for contamination via visual / olfactory observations and photo-ionisation detector (PID) measurement.	The DSI included bore logs detailing observations of material types; visual and olfactory observations; sample depths; and groundwater observations. Soil samples were also screened in the field using a PID during the field investigations. These were appropriate.
	Sample storage and transport	Samples to be placed in an insulated container and chilled. Samples to be transported to laboratory under chain of custody conditions.	The DSI reports that all samples were transported in ice-cooled chests, under chain of custody conditions, to laboratories that were NATA accredited for the analyses performed. This is appropriate.
Representativeness	Laboratory sample receipt advice	No damaged containers. No samples submitted in containers which have not been chilled. No samples to be submitted without sufficient times to comply with recommended holding times.	Laboratory sample receipt advice provided by the nominated laboratories confirmed that all samples were received in suitable condition, with completed chain of custody documentation provided in the reports. This is adequate.
	Holding times	Samples to be extracted and analysed within recommended holding times.	Holding times were reported as being met in the DSI and auditor review of the consultant's COC documentation and laboratory reports indicates that all samples were analysed within their holding times for all analyses undertaken.
	Analytical Method	Samples to be analysed using NATA accredited methodology.	Laboratories used included Eurofins (primary) and ALS (secondary) for investigation works. Laboratory certificates were NATA accredited.
Completeness	Sampling, analysis and quality plan completeness	100 % of sampling, analysis and quality plan to be implemented.	An SAQP was developed for the works but was not subject to auditor review, as the auditor was engaged after the DSI was completed.
	Field documentation	All relevant field documentation to be collated including sampling logs and calibration records.	Aurecon included borelogs, field screening results, and calibration records. Not all borelogs reported the PID values. This is adequate.
	Laboratory documentation	All relevant laboratory documentation to be collated, including chain of custody records, sample receipt advice and analytical reports.	The DSI included all relevant COC documentation; laboratory sample receipt advice; and full laboratory certificates in the reports. This is adequate.
	Critical sample validity	All critical sample data to be valid.	The auditor considers that the data is considered reliable, for the purpose of the investigations.

Parameter	DQIs	Requirement	Auditor Assessment
	Sampling, analysis and quality approach	Adequately comparable sampling, analysis and quality approach to be used throughout the project.	The auditor considers that the data is comparable, as consistent sampling methods were employed throughout the direction of the investigation works and subsequent validation program. Consistent field staff were generally employed during DSI, as shown on the borelogs. All laboratory analysis was undertaken by NATA accredited laboratories.

7.1.4 Results

Sampling and investigation locations are shown in **Attachment 2**.

The DSI reported that PID results were negligible to moderate with values ranging from 0.4 to 6.7 ppm for the pipelines alignment. There was an exception at BP_BH15, where PID values of 60.4 ppm (2.0 m BGL) and 55.2 ppm (3.0 m BGL) were reported.

Audit review of the borelogs indicates that, with the exception of BP_BH15, no odours were reported nor was asbestos containing material (ACM) was observed, aside from hydrocarbon odours noted beneath the asphalt seal coat in some locations, and a “slight hydrocarbon odour” noted at various locations, such as BP_BH28.

The DSI indicated that asbestos containing material was identified at some locations (EED) but these are not part of the pipelines portion of the current project as the auditor understands that the EED samples were collected from an area where an “environmental flow” pipeline might be constructed in the future, but is not part of this current audit.

In terms of laboratory analytical results, the DSI reported the following:

- No exceedances of heavy metals, aside from three results for chromium, six for lead and 13 for nickel that exceeded the general solid waste guideline CT1 criteria;
- some minor detections of total recoverable hydrocarbons (TRH) that were less than criteria, aside from some exceedances at BP_BH15;
- No exceedances of polyaromatic hydrocarbons (PAHs), aside from benzo(a)pyrene (B(a)P) which exceeded the general and restricted solid waste criteria – i.e. CT1 and CT2.
- no exceedances of:
 - benzene, toluene, ethylbenzene, xylenes (BTEX).
- no detections of:
 - Asbestos (nor observations of ACM);
 - organochlorine or organophosphate pesticides (OCPs, OPPs); and
 - polychlorinated biphenyls (PCBs).

In addition no acid sulfate soils were detected aside from the far eastern part of the brine pipeline.

7.1.4.1 Audit Comment - Results

The bore log describes BP_BH15 as being located at “western Sydney” but the engineering log provides an address at Elizabeth Drive, Bonnyrigg. At this location, analytical samples exceeded criteria for TRH C₆-C₁₀ and F1, however results from surrounding locations and at shallower & deeper depths at BH15 were less than criteria. PID results were elevated.

Review of the sample location figures and the bore logs by the auditor suggests that these samples were collected from near a service station located at 709 Cabramatta Road, West Bonnyrigg, and the SCLI Assessment confirms this conclusion.

7.1.5 Conceptual Site Model

The DSI presented a brief conceptual site model (CSM) that found that there were no exceedances of adopted HILs and HSLs, aside from the exceedances at BH15. No ecological receptors were identified in the CSM.

The auditor has considered the CSM and does not consider there to be any plausible pathways to other receptors, and therefore the omission of other receptors is acceptable.

The auditor notes that there have been portions of the pipeline alignments where sampling locations were a long way apart. Considering the site history and the information obtained from publicly available registers, the sampling strategy of generally targeted sampling is appropriate, as it is supported by an Unexpected Finds Procedure described in the Construction Environmental Management Plan (CEMP), that was reviewed by the auditor as described in **Table 1**.

7.2 SCLI Assessment

Aside from the results of the DSI and the HMS, the SCLI Assessment listed 44 previous reports that were reviewed relating to both the AWRC site and the pipelines. The auditor has relied on the SCLI Assessment's review with regards those historical reports.

The SCLI Assessment noted that known and unknown contamination of shallow soils of the pipeline alignments exists and must be managed.

7.3 SCLI Assessment Objectives

Section 1.3 of the SCLI Assessment: "...is to assess and address potential soil and contamination impacts associated with the construction and operational phase of the project. It also aims to provide guidance on ways of managing the potential sources of soil and contamination impacts to avoid any environmental degradation."

7.4 Scope of Works

The SCLI Assessment lists the following items within the scope of works (Table 1-1):

1. Verify the risk of acid sulfate soils within the project, and in the area likely to be impacted by the project and assess the impact of the project on acid sulfate soils in accordance with current guidelines; and
2. Assess whether the land is likely to be contaminated and identify if remediation of the land is required.

Other Scope of Work items described in the SCLI Assessment related to assessment of soil salinity, the impact of the project on soil salinity and an assessment of potential impacts of the project on groundwater resources and hydrology and a consideration of erosion risks or hazard. These items are outside the remit of the Contaminated Land audit and discussions relating to these items within the SCLI Assessment are not considered within this Interim Advice. In addition, an item within the Scope of Works related to the assessment of the potential for asbestos contamination around the Core Park area, Megarrity's Creek, Warragamba Viewing Platform and Eighteenth Street, and long-term monitoring requirements and potential for remediation works. These locations are part of the "environmental flow" pipeline, which is not part of the current project, and will not be considered in this interim audit advice.

8. Risk Ratings for Areas of Environmental Concern

As outlined in **Section 3**, this interim audit advice has been prepared to address the requirements of the conditions of consent to confirm whether the risk ratings have been undertaken appropriately.

The auditor finds that the methodology used for the risk rating within the SCLI Assessment is a minor departure from the method described in the NEPM, which develops a Conceptual Site Model (CSM) to enable a consideration of risk from a contaminated land perspective and relies on a thorough site history and sampling and analysis of environmental media to inform an assessment of risk. The risk rating presented in the SCLI Assessment imposes an additional consideration of consequence and likelihood, which is already built into the risk assessment approach outlined in the NEPM.

Nonetheless, the data used to develop the risk ratings has been considered by the auditor, and the SCLI Assessment for the pipeline alignments and have been evaluated by the auditor as shown in **Table 3**, below.

Table 3: Audit Review of Risk Ratings

AEC #	Location Details	Potential Contaminating Activities	COPC	Discussion of risk/impact rating	Risk Ranking	Audit Opinion
3	Kemps Creek Rural Fire Service – consideration for both the treated water and the brine pipeline alignments	Historic use of fire-fighting foams.	PFAS	Because there are no known exceedances from investigations undertaken for the project and AEC 3 is about 500 m from the project brine pipeline alignment, the impact significance is low.	Low	<p>The auditor notes that Kemps Creek Rural Fire Service is approx. 500 m from the brine pipeline alignment. The auditor notes that the PFAS contamination is being managed via the NSW government's PFAS taskforce. Immediate neighbours have been notified and told not to use potentially impacted surface water for various uses. Liverpool Council, as site owner, is working with NSW EPA to manage stormwater from the site.³</p> <p>The auditor considers that the risks to construction workers during the pipeline construction is low, due to the short duration of the works and the distance from the Kemps Creek Rural Fire Service Site.</p> <p>The auditor agrees with the risk rating of low.</p>
4	Western Road to Brandown Quarry for the brine pipeline alignment	Historic filling	Heavy metals	Because ecological exceedances (ASC NEPM 2013) for zinc, copper and nickel in soil are noted concentrations at background levels, along with pipelines not having future ecological value or landscaping the impact significance is low.	Low	<p>The auditor considers that the exceedances of ecological criteria are very minor.</p> <p>The auditor agrees with the risk rating of low.</p>

³ Kemps Creek Training Facility - NSW Rural Fire Service accessed 16/05/2023

AEC #	Location Details	Potential Contaminating Activities	COPC	Discussion of risk/impact rating	Risk Ranking	Audit Opinion
6	SUEZ Kemps Creek Resource Recovery Park (now Cleanaway) for the treated water pipeline alignment	Landfilling	TRH, BTEX, ammonia, PAH, heavy metals, OCP, OPP, PCBs, nutrients, ACM	<p>A RMS report reviewed in the SCLI Assessment noted the groundwater containing elevated heavy metals, ammonia and nitrogen and gas containing methane and carbon dioxide were reported adjacent to the site of the M12 motorway.</p> <p>There is potential for contaminated groundwater to migrate to the AWRC site as topography indicates that groundwater is expected to flow from west to east. However, the presence of South Creek between the two sites will act as a barrier or hydrogeological divide to the migration of groundwater and landfill gas. The impact significance for migration of contaminated groundwater is moderate. Landfill gas is deemed to have a low impact significance to the project due to the distance between the two sites (400 m).</p>	Moderate	<p>The auditor notes that the Kemps Creek landfill operates under an environment protection licence (EPL).</p> <p>The auditor considers that the migration of landfill gas is likely limited within the upper soil (unsaturated) zone and the migration of leachate is likely limited within shallow groundwater. The distance and low conductivity of any potential migration via any deeper groundwater systems would be low and unlikely to affect the suitability of the AWRC site for the proposed use.</p> <p>The auditor agrees with the risk rating of moderate, considering that groundwater is not anticipated to be used by human health or ecological receptors at the AWRC site as indicated in the CSM as presented in the DSI. Further, it is noted that the EPL⁴ for the landfill includes the generation of electrical power from gas, so there is a landfill gas collection system at the landfill premises which would be anticipated to mitigate the off site migration of landfill gas.</p>

⁴ [Environment & Heritage | POEO Licences, Application and Notice Detail \(nsw.gov.au\)](#) accessed 20th March 2023

AEC #	Location Details	Potential Contaminating Activities	COPC	Discussion of risk/impact rating	Risk Ranking	Audit Opinion
8	Corner of Elizabeth Drive and Range Road, Kemps Creek for the brine pipeline alignment	Illegal dumping of building materials and household waste	ACM	Because of ACM present within the soil to the north of Range Road and parts of AEC 8 are within the impact area for the project and will be disturbed during construction, the impact significance is moderate.	Moderate	The auditor notes that the S&C CEMP sub-plan includes an unexpected finds procedure and measures for managing asbestos finds which were found to be appropriate (as described in L04: <i>L04 Interim Audit Advice (0503-2307-04) – Sydney Water Corporation – Upper South Creek Advanced Water Recycling Centre – Review of the Upper South Creek Advanced Water Recycling Centre – Soils and Contamination Construction Environmental Management Plan Sub-Plan</i> to Cheryl Cahill of Sydney Water, 12 May 2023) The auditor agrees with the risk rating of moderate.
9	Western Sydney Airport for the treated water pipeline alignment	Construction and associated contaminants	TRH, BTEX, PAHs, heavy metals, PCBs, nutrients, ACM	Because there are no adopted tier 1 screening criteria (ASC NEPM 2013) exceedances and the treated water pipeline does not intersect with AEC 9 the impact significance is low.	Low	The auditor agrees with the assessment. The auditor agrees with the risk rating of low.
10	Elizabeth Dr between The Northern Rd and M7 for both the treated water and the brine pipeline alignments	Dumped domestic and C&D waste Suspected ACM Historical filling	TRH, BTEX, PAHs, heavy metals, PCBs, ACM	Because there are no adopted tier 1 screening criteria (ASC NEPM 2013) exceedances in soil and asbestos cement sheeting present in waste piles will not likely be disturbed by construction of the treated water pipeline, the impact significance is low.	Low	As for AEC number 8, the auditor notes that the S&C CEMP sub plan includes an unexpected finds procedure and measures for managing asbestos finds and dumped waste. The auditor agrees with the risk rating of low.
16	Petrol Stations for both the treated water and the brine pipeline alignments	Petrol storage, dispensing and spills	TRH, ACM	Because of the TRH exceedance in soil samples associated with the service station near Cabramatta Rd, West Bonnyrigg, AEC 16 may be subject to disturbance at this location for pipeline construction, therefore the impact significance is moderate.	Moderate	The auditor notes that the SCLI Assessment includes Figures showing the locations of AECs, including each of the petrol stations identified during the PSI and DSI (Figures 6-2a – c). The auditor agrees with the assessment. The auditor agrees with the risk rating of moderate.
11, 12, 13, 14, 15	Not relevant for the AWRC site, nor the pipeline alignments as these AECs are part of the environmental flows pipeline alignment, which is not part of the project.					N/A

9. Audit Opinions and Recommendations

Based on a review of the information provided and subject to the limitations in **Attachment 1**, the following audit opinions are presented.

The auditor agrees with the risk ratings that have been determined for the pipeline alignment sites.

The auditor provides the following recommendations:

- The site history did not include a title search nor commentary on the potential for ASTs/USTs for the storage of agricultural chemicals/hydrocarbons as fuel nor is there consideration given to the potential for mass burial of livestock and the potential for hazardous ground gases that might arise. The auditor considers the risks to be low and the auditor notes that these will be managed by an unexpected finds procedure that the auditor has already reviewed.
- The auditor notes that material from the pipeline alignments will be imported to the AWRC site for site levelling purposes and requests that the protocol for sampling and analysis and material tracking be approved by the auditor prior to the export of materials from the pipeline alignments.
- It is proposed that impacted material from the pipeline alignments excavations be imported to the AWRC site if the materials are considered suitable. These must be subjected to the importation protocol.
- The auditor notes that the SCLI Assessment includes Figures showing the locations of AECs, including each of the petrol stations identified during the PSI and DSI (Figures 6-2a – c). During the DSI, samples collected from soils adjacent to some of these petrol stations reported positive detections of hydrocarbons. The auditor recommends that these locations be highlighted to works crews during toolbox talks so that construction workers are alerted to the potential presence of hydrocarbons in the soil and are aware of the unexpected finds procedure.
- The auditor or his representative will schedule site inspections during the pipeline construction activities. The areas of environmental concern of interest include:
 - AEC 16 – petrol stations – in particular when construction is occurring near the petrol station on Cabramatta Road, Bonnyrigg;
 - AEC 8: Corner of Elizabeth Drive and Range Road, Kemps Creek for the brine pipeline alignment; and
 - AEC 6: SUEZ Kemps Creek Resource Recovery Park (now Cleanaway) for the treated water pipeline alignment.

To this end, the auditor requests that he or his representative be made aware of the construction activities for these areas, with a weeks' notice, where possible, please.

Please note that this interim advice does not constitute a Site Audit Statement or a Site Audit Report but is provided to assist in the assessment and management of contamination issues at the site in regard to requirements of the site audit. The information provided herein should not be considered pre-emptive of the final audit conclusions, but rather represent the findings of the audit based on a preliminary review of available site information. Furthermore, the interim advice should not be regarded as approval of any proposed investigations or remedial activities, as any such approval is beyond the scope of an independent auditor.

Should you require clarification, please contact the undersigned on 02 8245 0300 or by email alau@jbsg.com.au.

Yours sincerely:



Andrew Lau
NSW EPA Accredited Site Auditor
Accreditation Number 0503
JBS&G Australia Pty Ltd

Attachments (1) Limitations
 (2) Site Figures

Attachment 1 – Limitations

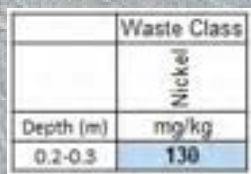
This audit was conducted with a reasonable level of scrutiny, care and diligence on behalf of the client for the purposes outlined in s.47 (1) of the *Contaminated Land Management Act 1997*. The data used to support the conclusions reached in this audit were obtained by other consultants and the limitations which apply to the consultant's report(s) apply equally to this audit report.

Every reasonable effort has been made to identify and obtain all relevant data, reports and other information that provide evidence about the condition of the site, and those that were held by the client and the client's consultants, or that were readily available. No liability can be accepted for unreported omissions, alterations or errors in the data collected and presented by other consultants. Accordingly, the data and information presented by others are taken and interpreted in good faith.

Sampling and chemical analysis of environmental media is based on appropriate guidance documents made and approved by the relevant regulatory authorities. Conclusions arising from the review and assessment of environmental data are based on the sampling and analysis considered appropriate based on the regulatory requirements. Limited sampling and laboratory analyses were undertaken as part of the investigations reviewed, as described herein. Ground conditions between sampling locations and media may vary, and this should be considered when extrapolating between sampling points. Chemical analytes are based on the information detailed in the site history. Further chemicals or categories of chemicals may exist at the site, which were not identified in the site history and which may not be expected at the site.

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

Attachment 2 – Site Figures







- ### Contamination Test Locations

- Boreholes

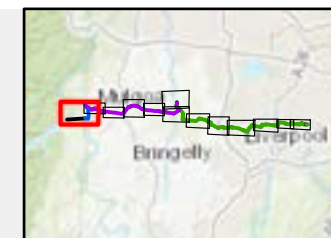
- 
- Test Pits

Geotechnical Investigations

-  Borehole (Effluent Discharge - Option 1)
-  Borehole (Effluent Discharge E-Flows - Option 2 or 2.1)
-  Borehole (Effluent Discharge E-Flows - Option 3)
-  Hand Auger

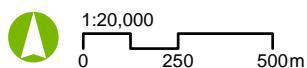
NSW EPA Waste Classification Guidelines (2014) Contaminant Thresholds for General Solid Waste without Leachate (CT1)

NSW EPA Waste Classification Guidelines (2014) Contaminant Thresholds for Restricted Solid Waste without Leachate (CT2)



Source: Aurecon, Sydney Water, LPI, Nearmap, ESRI

Date: 3/09/2020

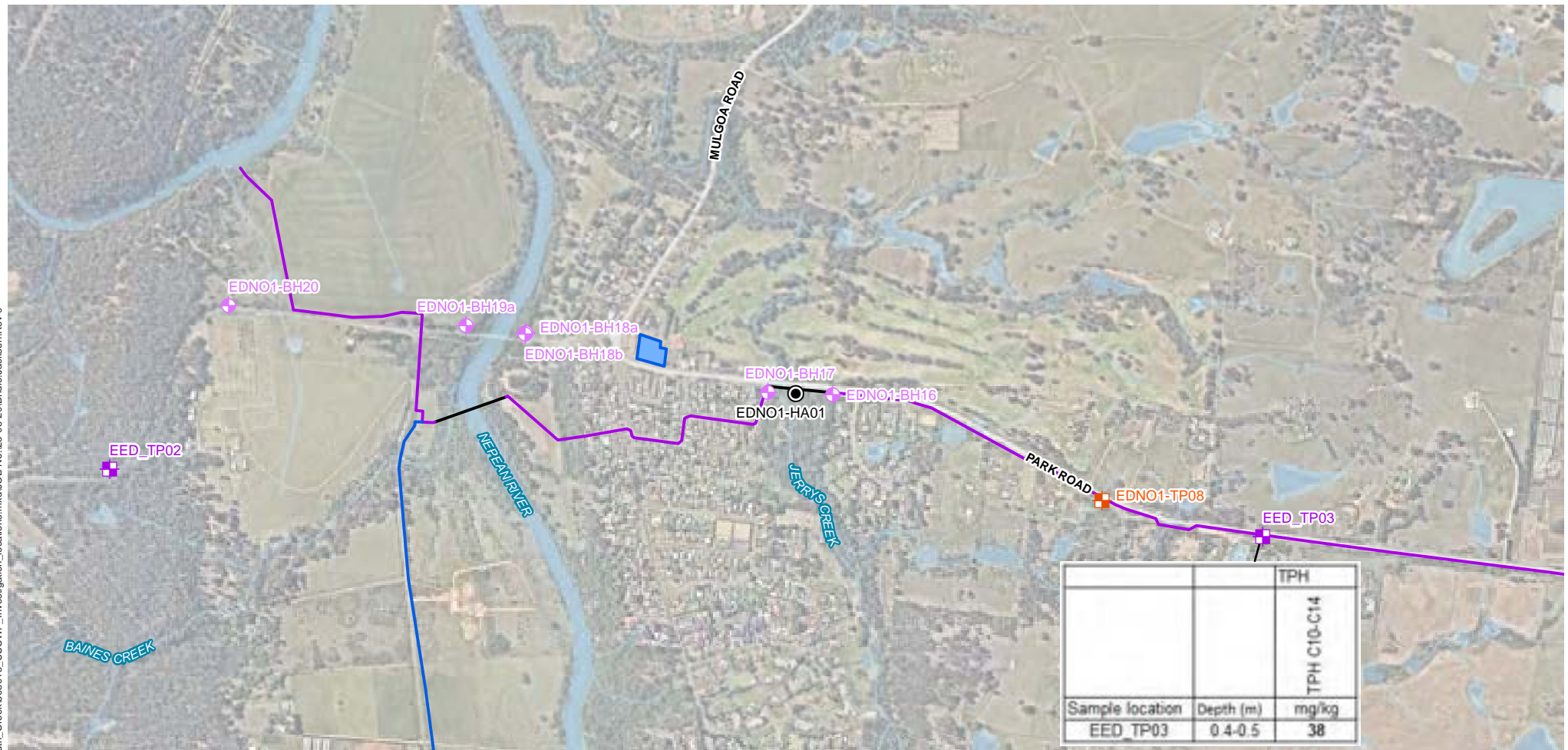


Projection: GDA2020 MGA Zone 56

Upper South Creek Advanced Water Recycling Centre **DSI**

Figure 2a: Investigation locations and exceedances

P:\GIS\Project-4\project\505018_Upper_South_Creek\Investigation_locations.mxd\JOB No.128-08-20\Bridle,Jackson\Rev 0



- Environmental Flows Pipeline
- Treated Water Pipeline
- Underbore
- Site Compounds
- Test Pits

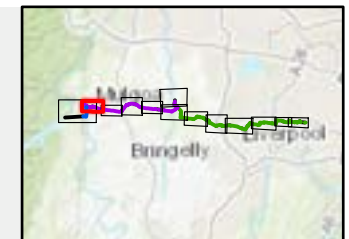
Geotechnical Investigations

- ⬢ Borehole (Effluent Discharge - Option 1)
- ⬢ Test Pit (Effluent Discharge - Option 1)
- Hand Auger

Source: Aurecon, Sydney Water, LPI, Nearmap, ESRI
Date: 28/08/2020



Projection: GDA2020 MGA Zone 56



Upper South Creek Advanced Water Recycling Centre **DSI**

Figure 2b: Investigation locations and exceedances

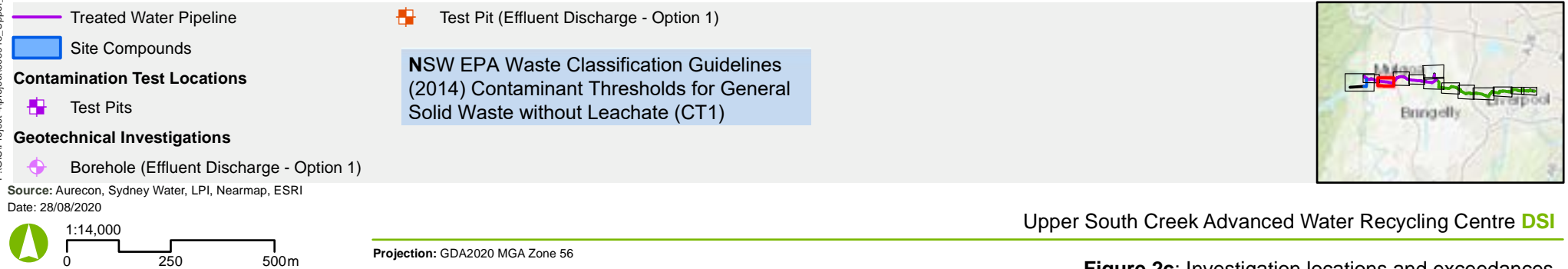
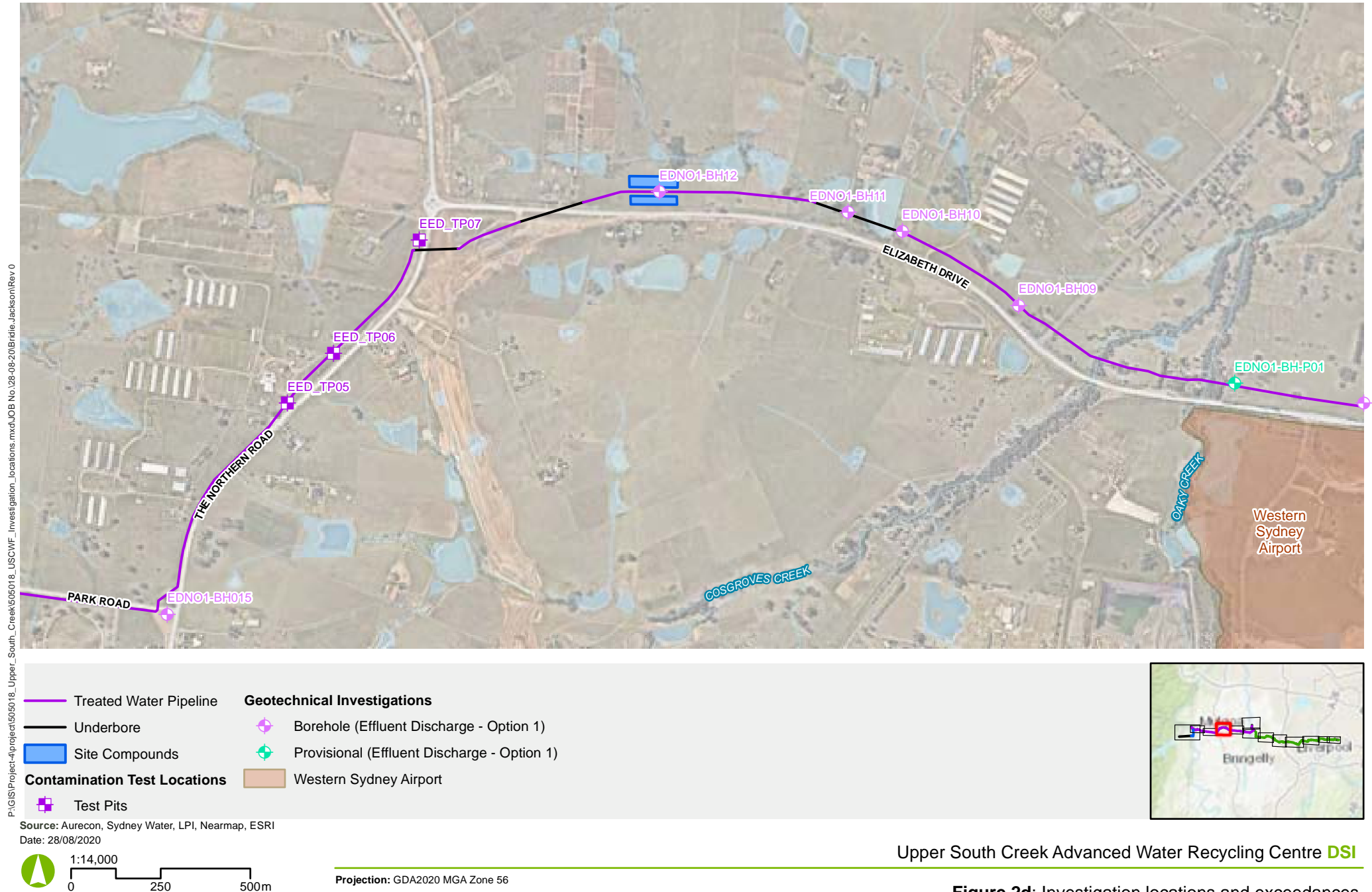
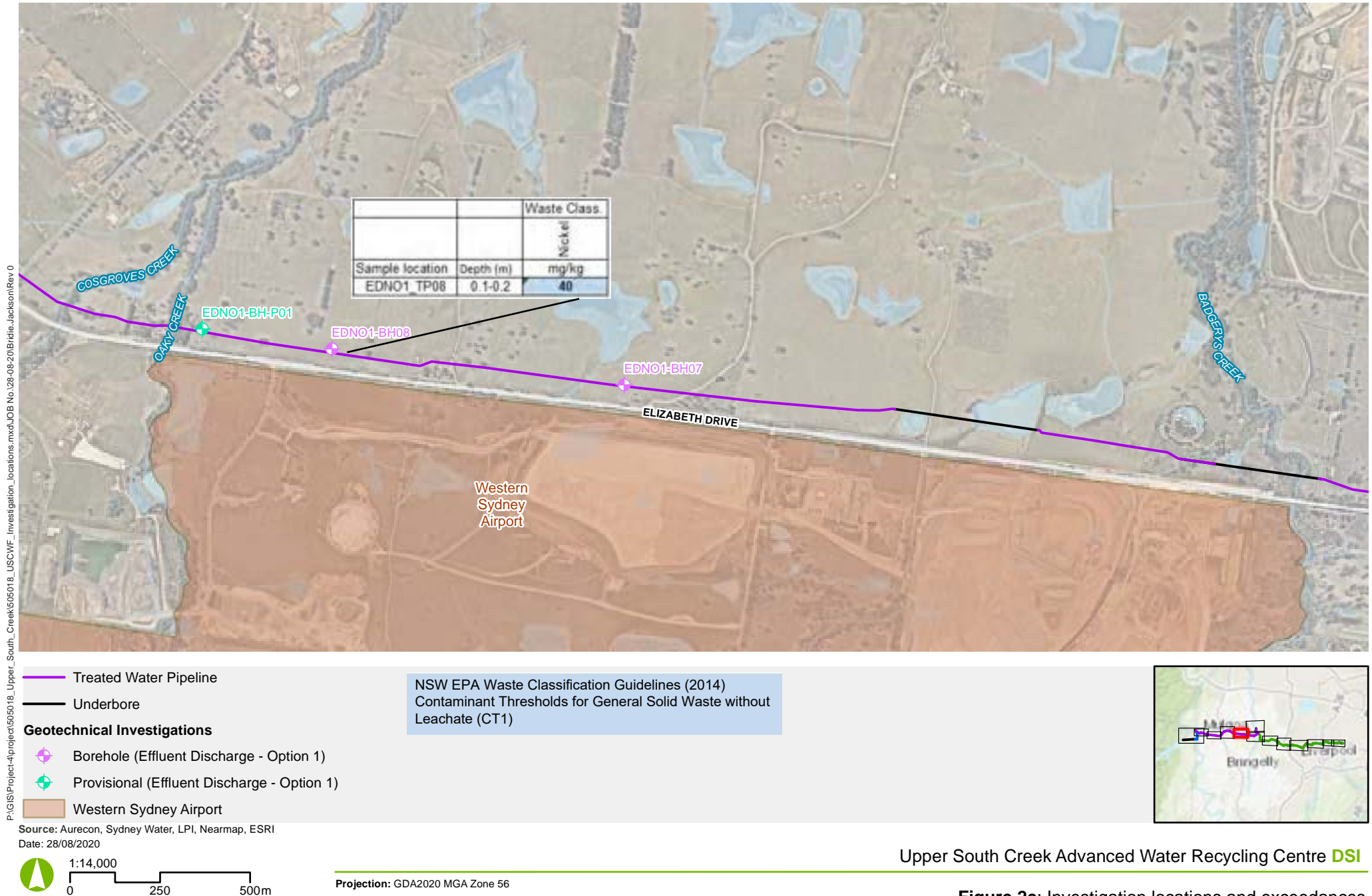


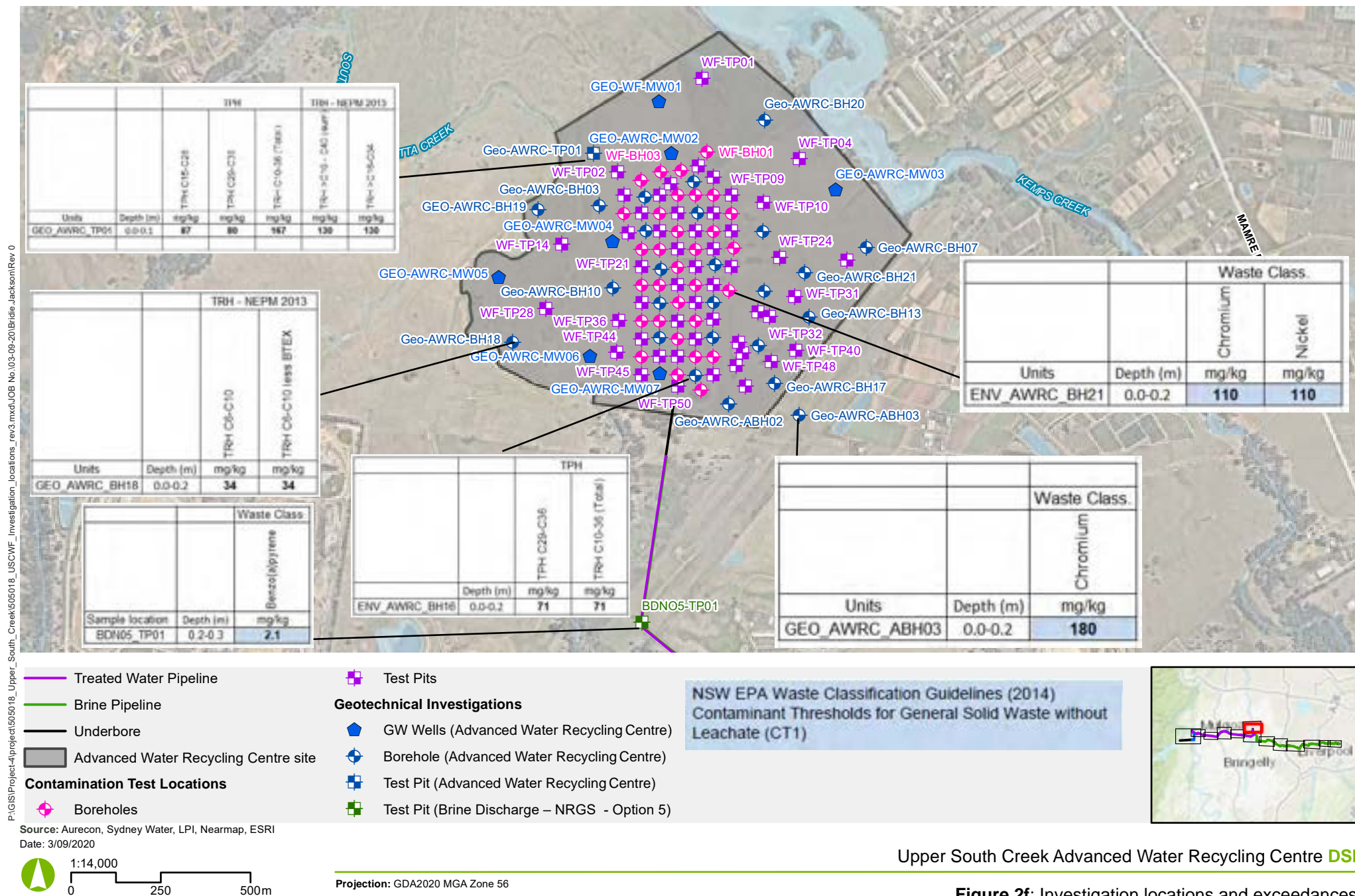
Figure 2c: Investigation locations and exceedances

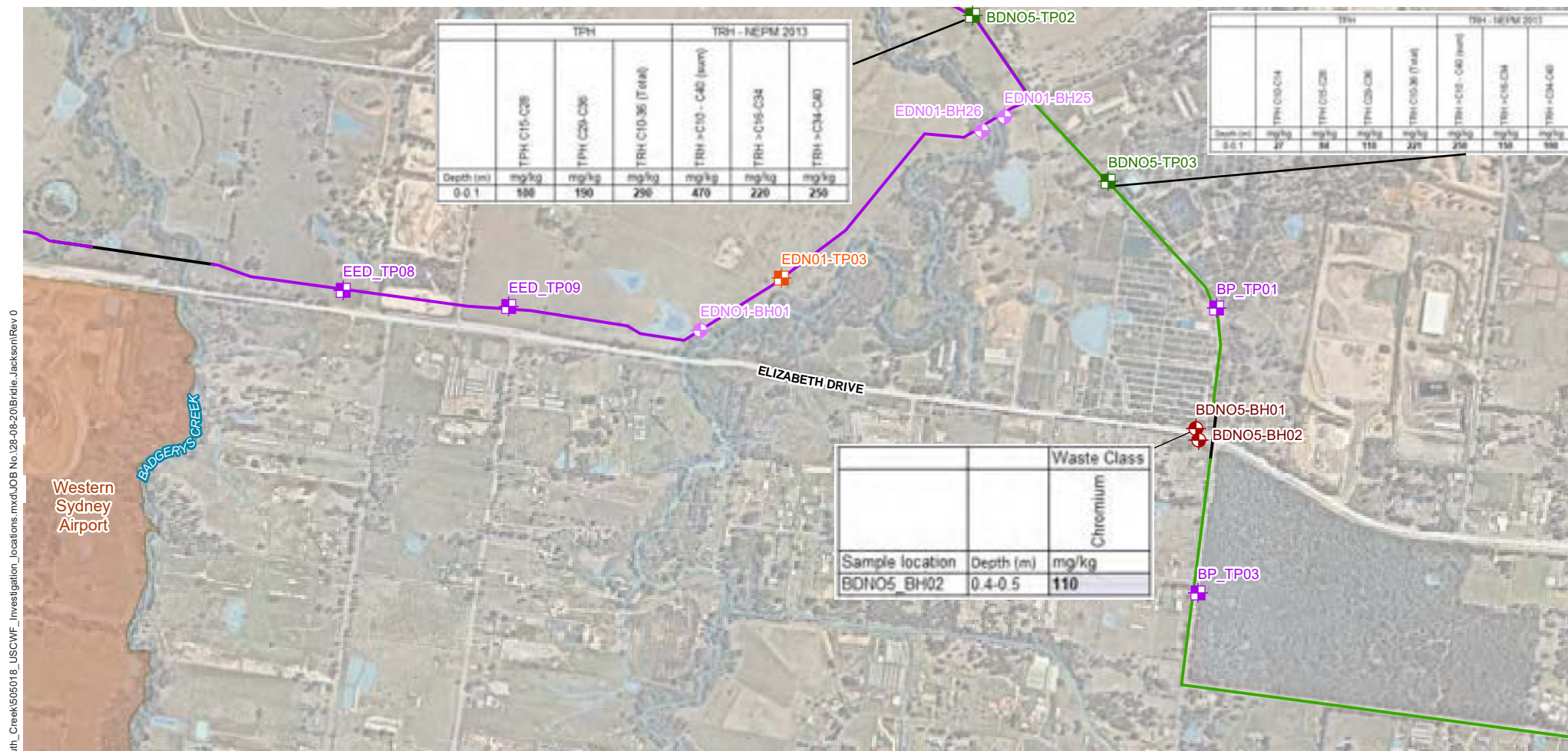


Upper South Creek Advanced Water Recycling Centre **DSI**

Figure 2d: Investigation locations and exceedances



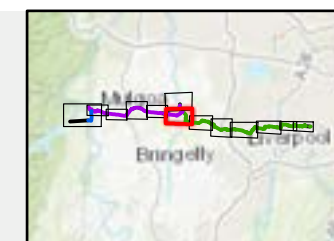




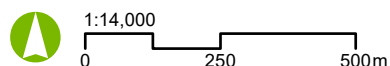
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- Treated Water Pipeline
 - Brine Pipeline
 - Underbore
 - Contamination Test Locations
 - Test Pits
- Geotechnical Investigations**
- Borehole (Effluent Discharge - Option 1)
 - Test Pit (Effluent Discharge - Option 1)
 - Borehole (Brine Discharge – NRGS - Option 5)
 - Test Pit (Brine Discharge – NRGS - Option 5)
 - Western Sydney Airport

NSW EPA Waste Classification Guidelines (2014)
Contaminant Thresholds for General Solid Waste without Leachate (CT1)



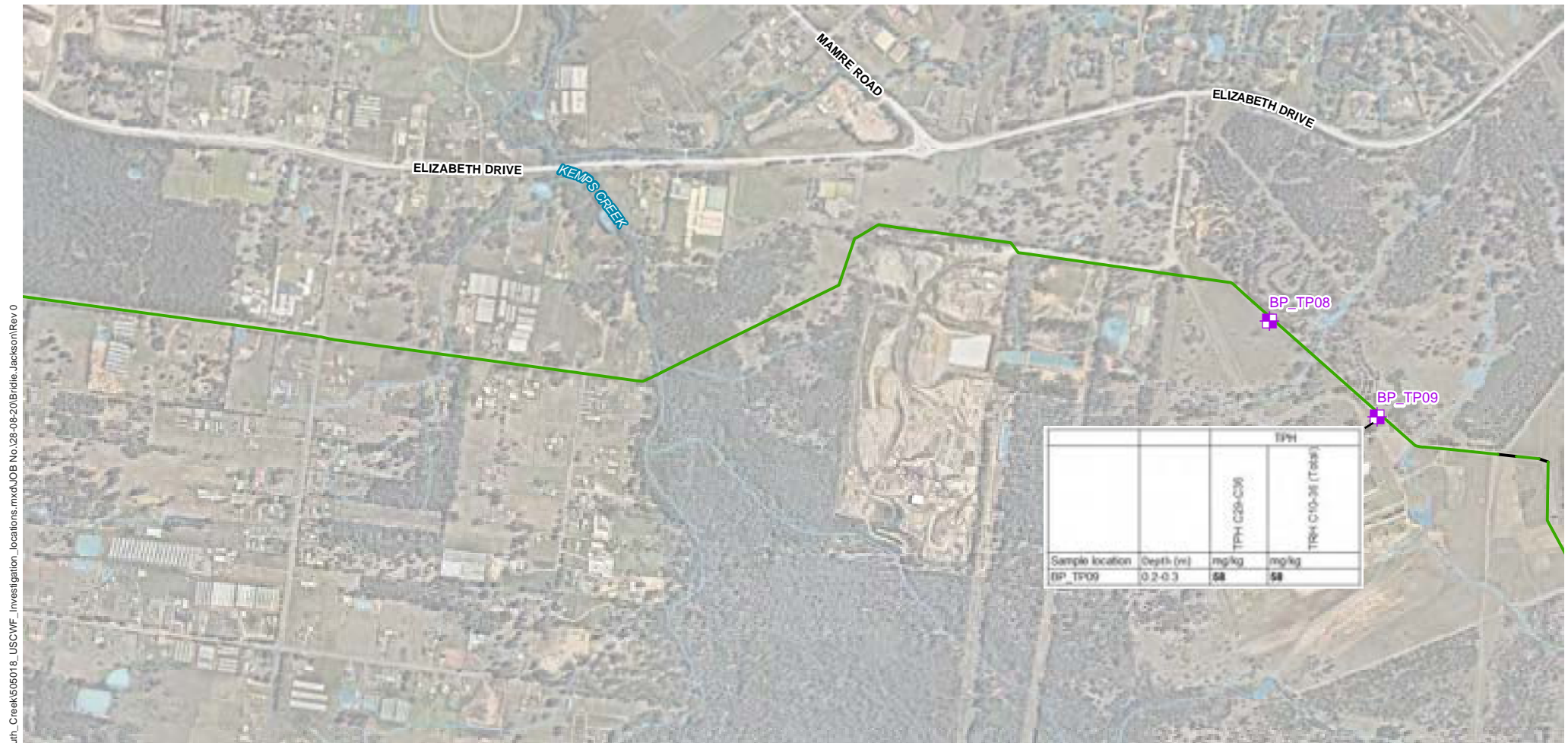
Source: Aurecon, Sydney Water, LPI, Nearmap, ESRI
Date: 28/08/2020



Projection: GDA2020 MGA Zone 56

Upper South Creek Advanced Water Recycling Centre **DSI**

Figure 2g: Investigation locations and exceedances



— Brine Pipeline

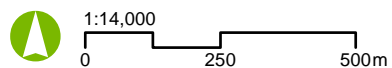
— Underbore

Contamination Test Locations

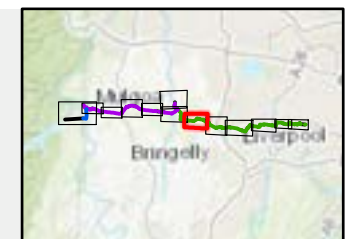
■ Test Pits

Source: Aurecon, Sydney Water, LPI, Nearmap, ESRI

Date: 28/08/2020



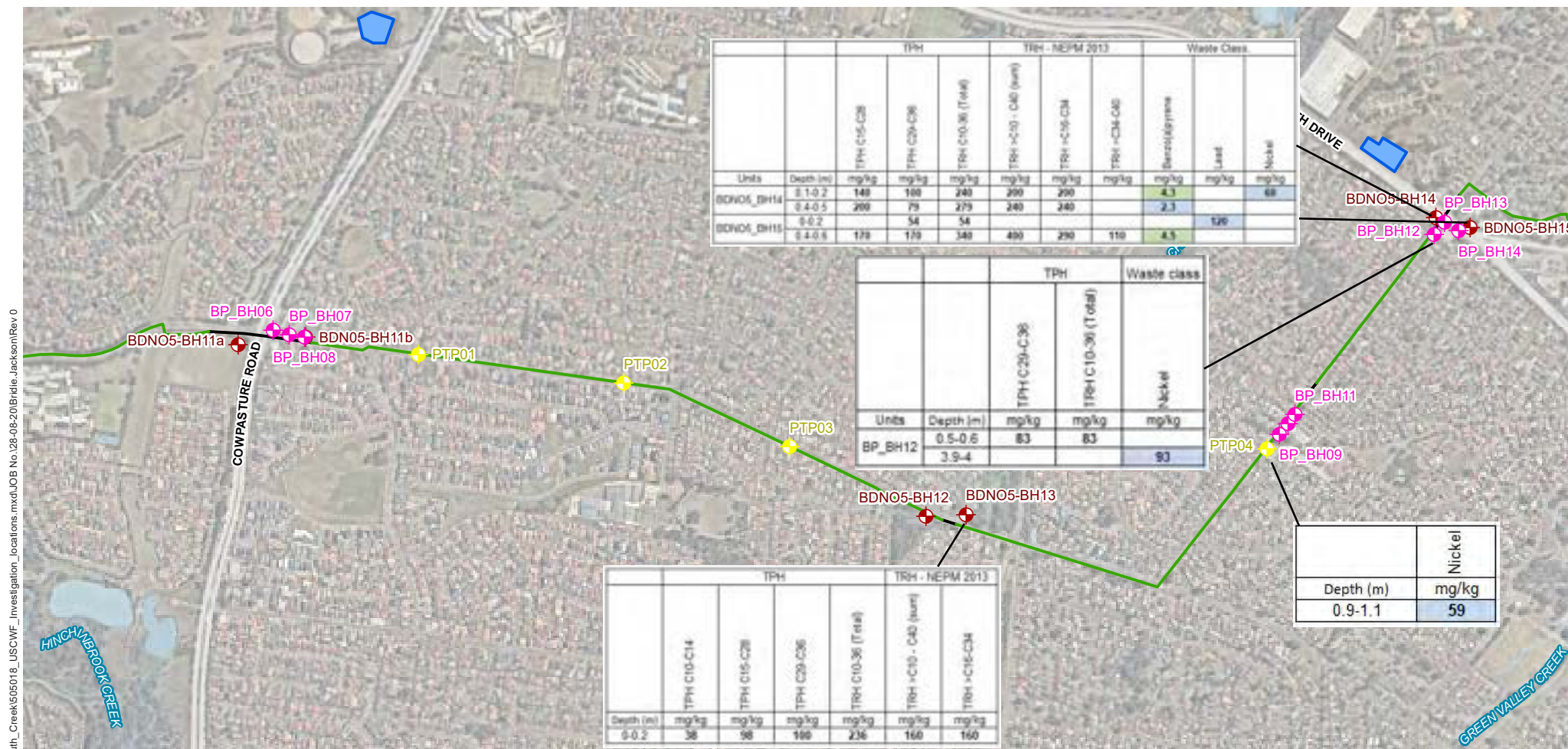
Projection: GDA2020 MGA Zone 56



Upper South Creek Advanced Water Recycling Centre **DSI**

Figure 2h: Investigation locations and exceedances

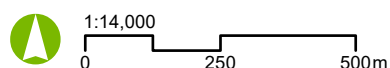




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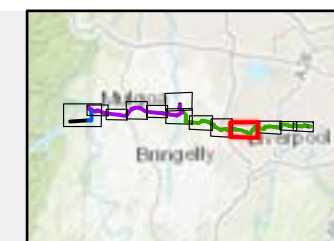
- Brine Pipeline
- Underbore
- Site Compounds
- Contamination Test Locations
- Boreholes
- Geotechnical Investigations
- Pavement Test Pit
- Borehole (Brine Discharge – NRGs - Option 5)

Source: Aurecon, Sydney Water, LPI, Nearmap, ESRI
Date: 28/08/2020



Projection: GDA2020 MGA Zone 56

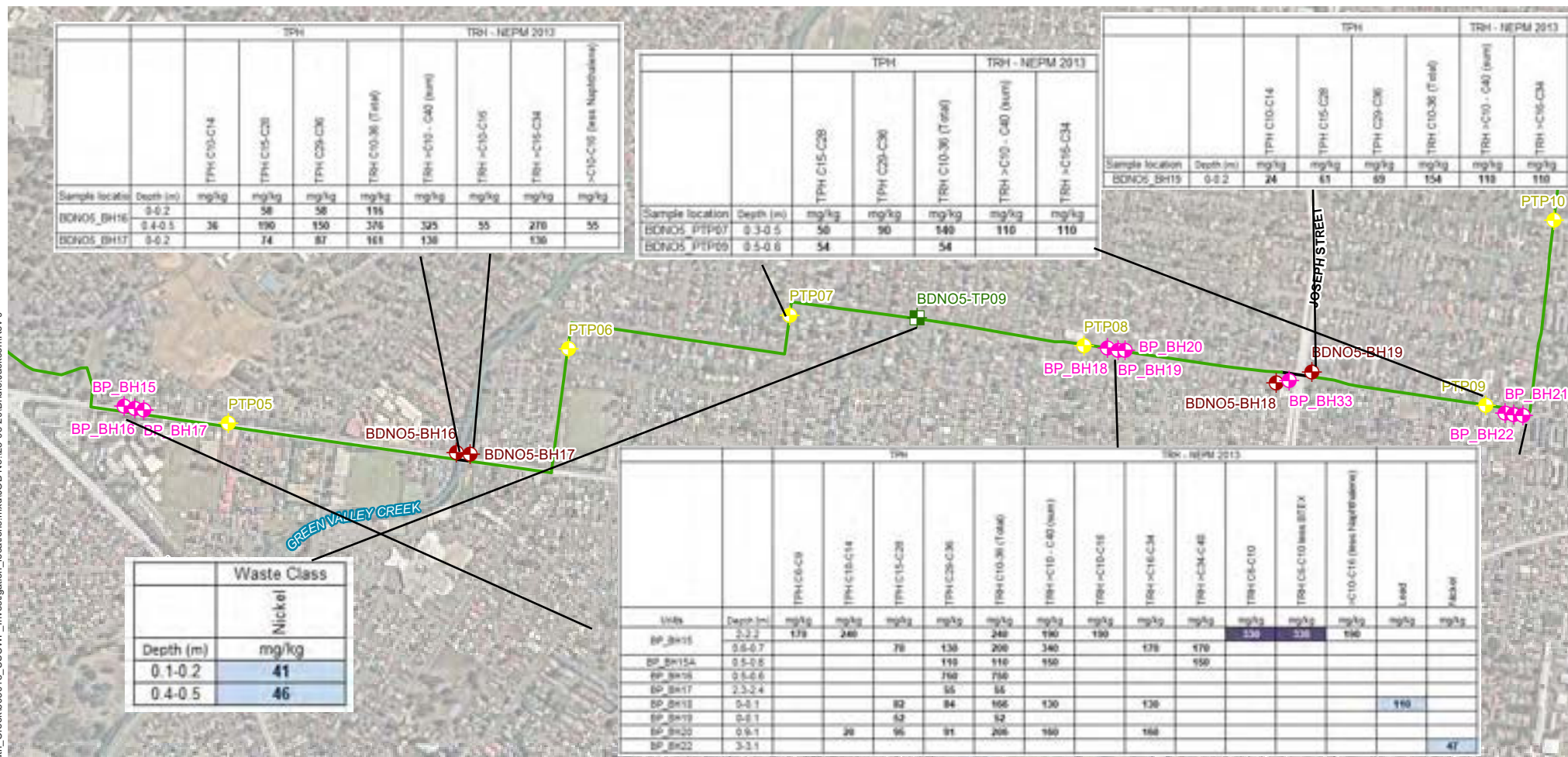
NSW EPA Waste Classification Guidelines (2014) Contaminant Thresholds for General Solid Waste without Leachate (CT1)
NSW EPA Waste Classification Guidelines (2014) Contaminant Thresholds for Restricted Solid Waste without Leachate (CT2)



Upper South Creek Advanced Water Recycling Centre **DSI**

Figure 2j: Investigation locations and exceedances

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- Brine Pipeline
- Underbore
- Borehole (Brine Discharge – NRGS - Option 5)
- Test Pit (Brine Discharge – NRGS - Option 5)

Contamination Test Locations

- Boreholes

Geotechnical Investigations

- Pavement Test Pit

Source: Aurecon, Sydney Water, LPI, Nearmap, ESRI

Date: 28/08/2020



Projection: GDA2020 MGA Zone 56

Upper South Creek Advanced Water Recycling Centre **DSI**

Figure 2k: Investigation locations and exceedances

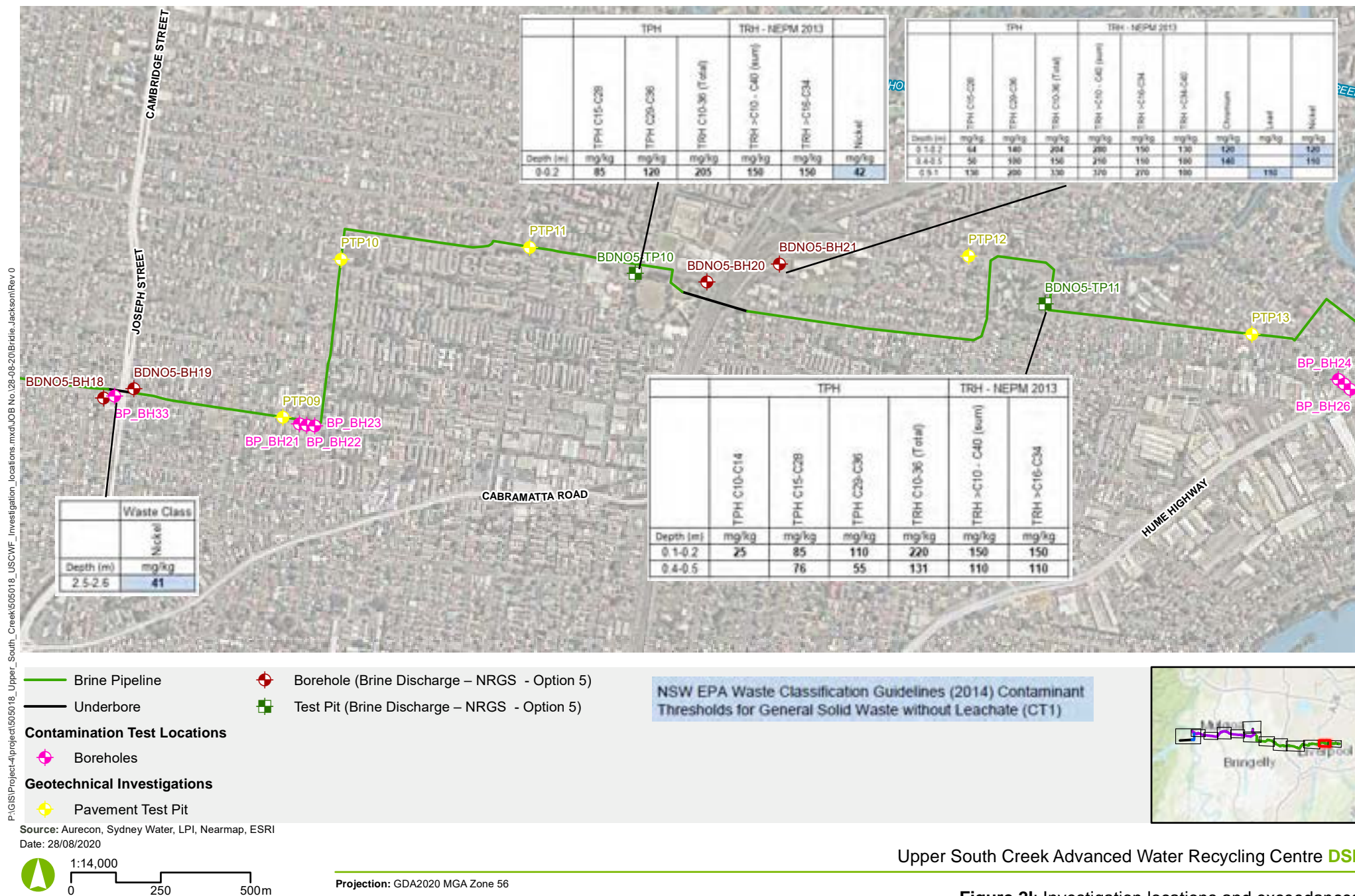
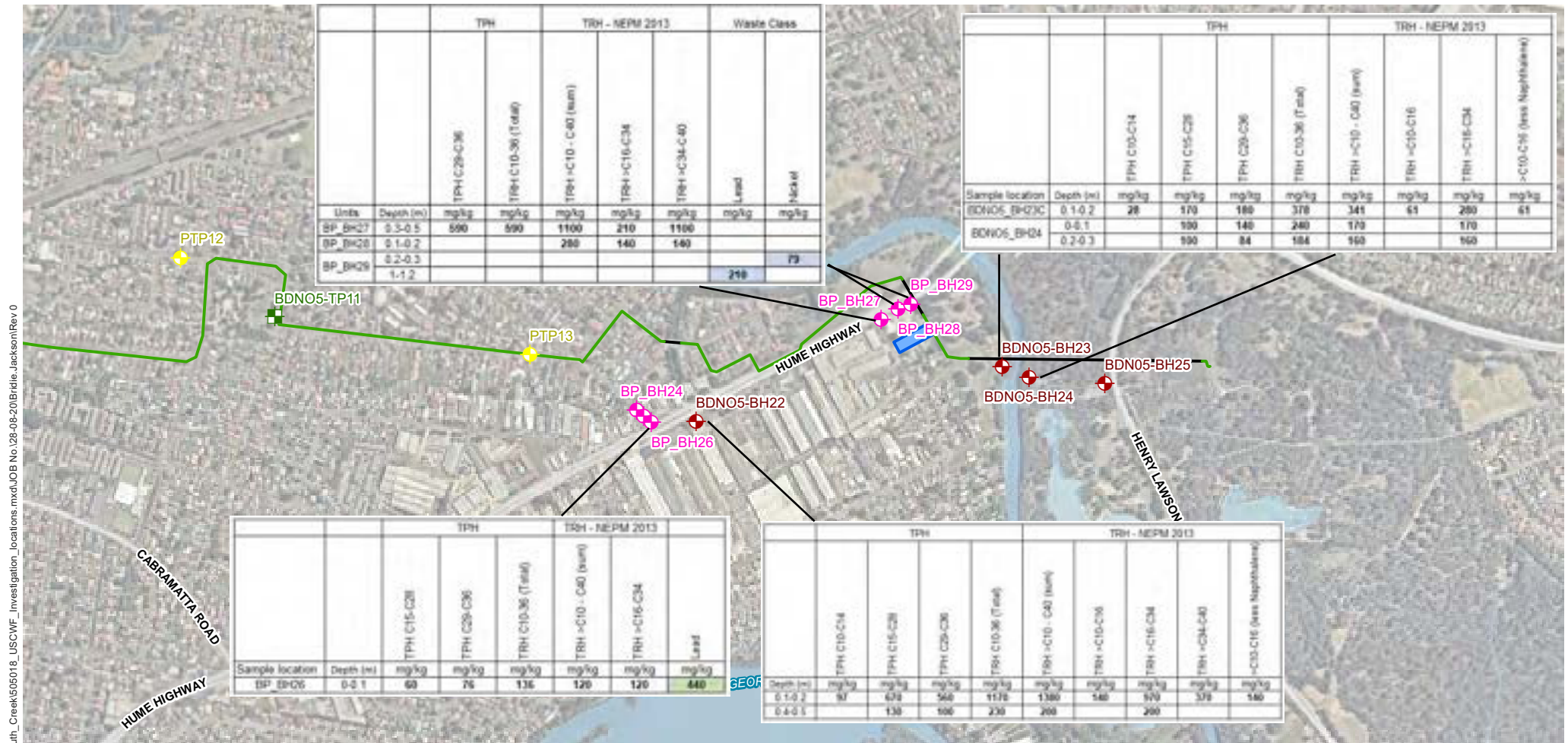


Figure 21: Investigation locations and exceedances

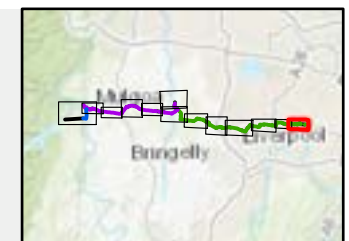


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- Brine Pipeline
 - Underbore
 - Site Compounds
 - Contamination Test Locations
 - Boreholes
- Geotechnical Investigations**
- Pavement Test Pit
 - Borehole (Brine Discharge – NRGS - Option 5)
 - Test Pit (Brine Discharge – NRGS - Option 5)

NSW EPA Waste Classification Guidelines (2014) Contaminant Thresholds for General Solid Waste without Leachate (CT1)

NSW EPA Waste Classification Guidelines (2014) Contaminant Thresholds for Restricted Solid Waste without Leachate (CT2)



Source: Aurecon, Sydney Water, LPI, Nearmap, ESRI
Date: 28/08/2020

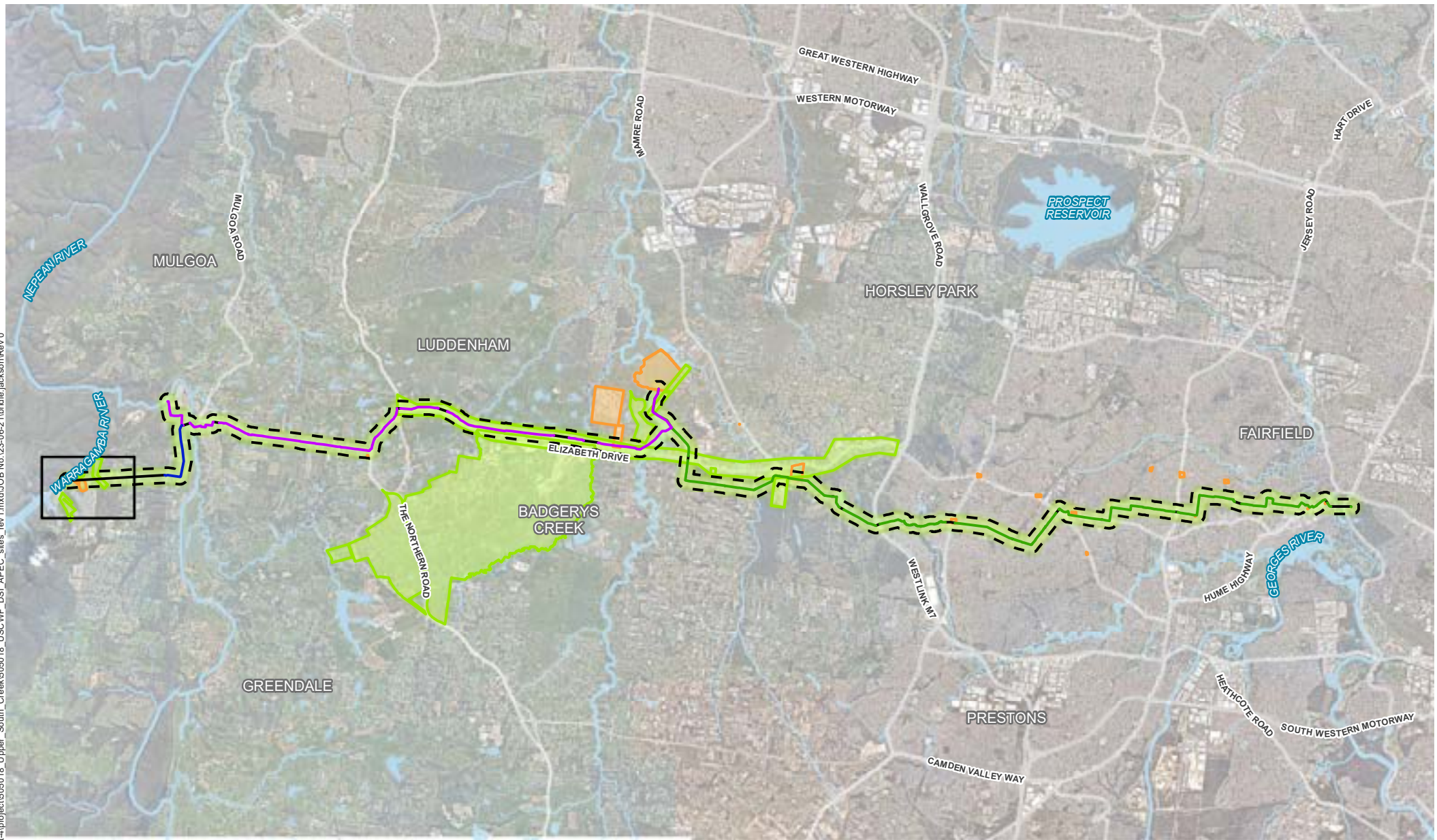


Projection: GDA2020 MGA Zone 56

Upper South Creek Advanced Water Recycling Centre **DSI**

Figure 2m: Investigation locations and exceedances

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- Environmental Flows Pipeline
- Treated Water Pipeline
- Brine Pipeline
- Underbore

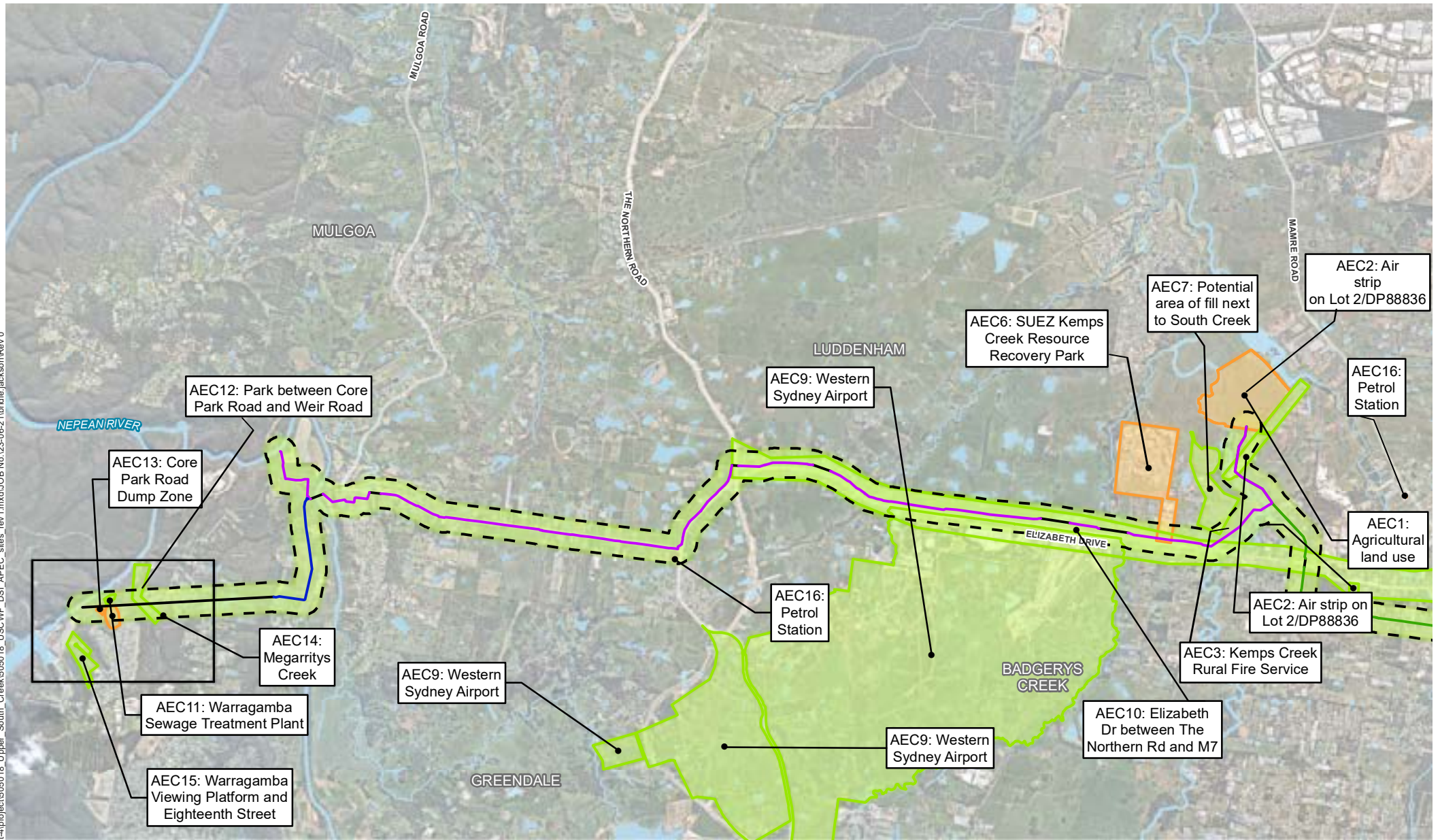
- Areas of Environmental Concern**
- Risk Rating**
- Low
 - Moderate

- Base Data**
- Watercourse
 - Waterbody



Figure 6-2a Pipelines Contamination AECs

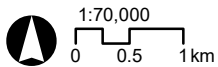
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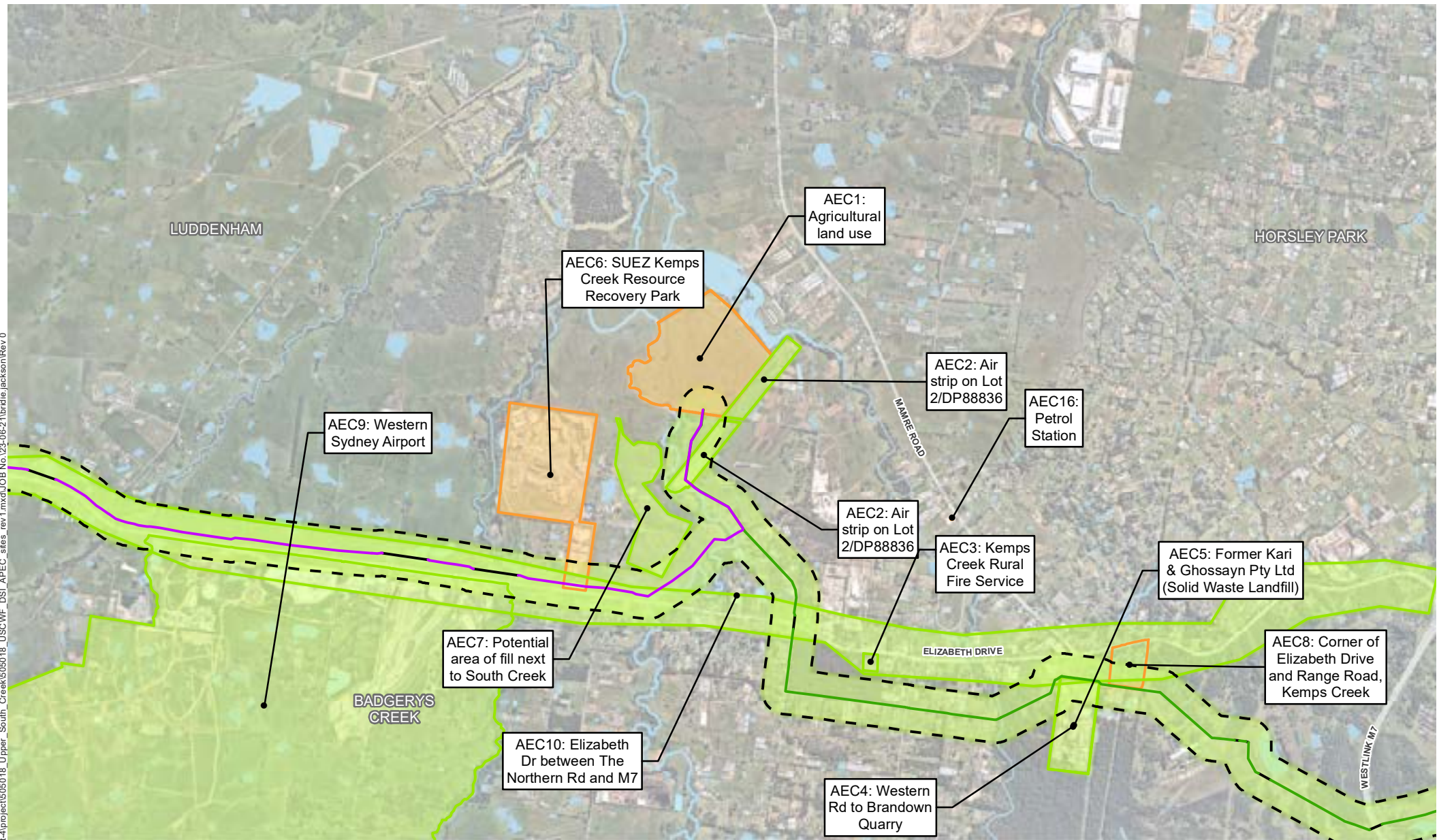
- Environmental Flows Pipeline
 - Treated Water Pipeline
 - Brine Pipeline
 - Underbore
- Areas of Environmental Concern**
- Risk Rating*
- Low
 - Moderate

- Base Data**
- Watercourse
 - Waterbody

Figure 6-2b Pipelines Contamination AECs



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- Treated Water Pipeline
- Brine Pipeline
- Underbore

Areas of Environmental Concern

Risk Rating

- Low
- Moderate

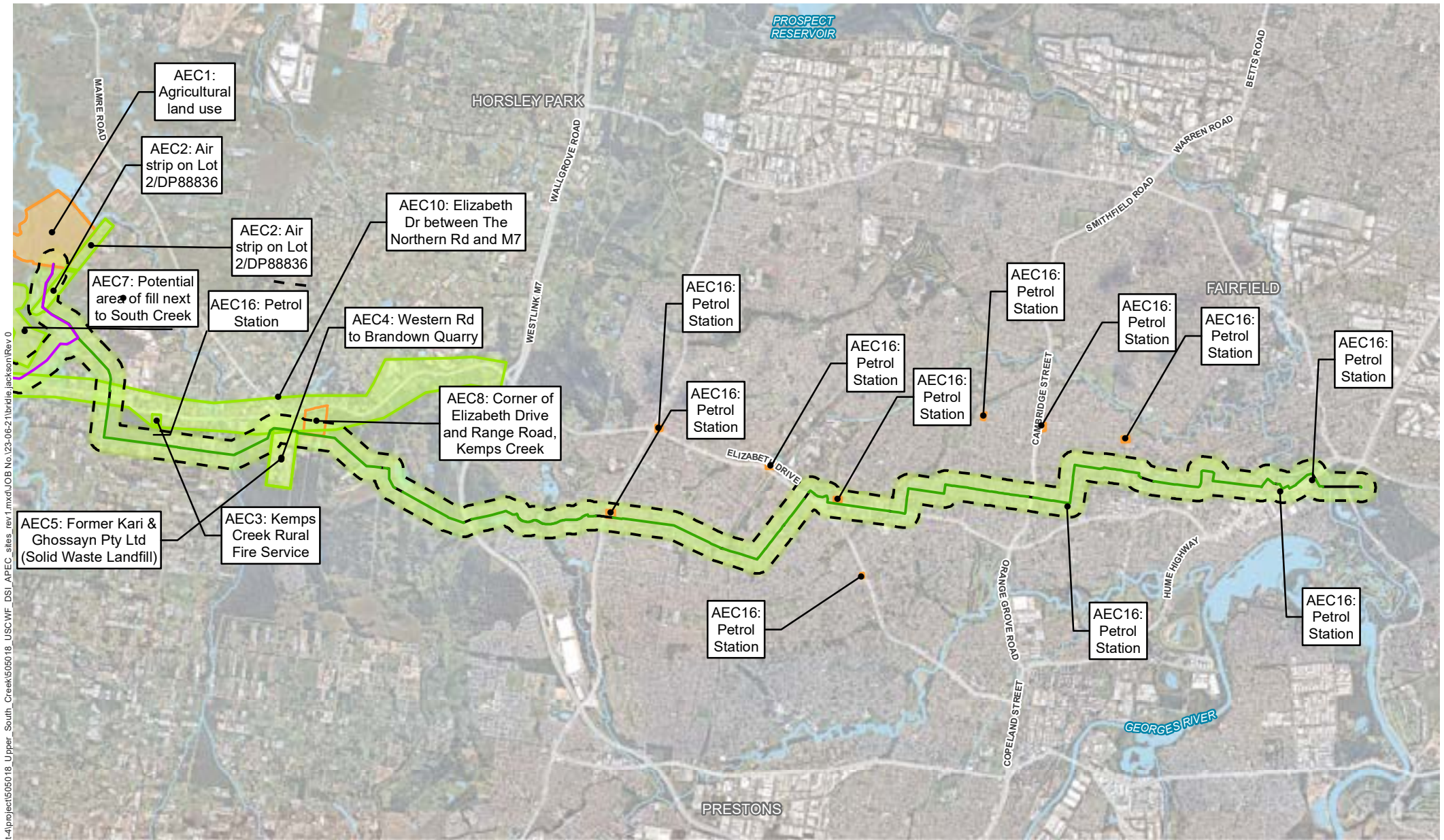
Base Data

- Watercourse
- Waterbody

Figure 6-2c Pipelines Contamination AECs



1:45,000
0 0.5 1km



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- Treated Water Pipeline
- Brine Pipeline
- Underbore

Areas of Environmental Concern

Risk Rating

- Low
- Moderate

Base Data

- ~ Watercourse
- Waterbody

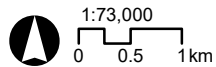


Figure 6-2c Pipelines Contamination AECs

JBS&G 64112 | 152,776

L06 (0503 2307 SWC USC AWRC Plant SAQP) Rev 0

22 June 2023

Cheryl Cahill
Environment Lead, Major Projects, Sydney Water
Via email: CHERYL.CAHILL@sydneywater.com.au

L06 Interim Audit Advice (0503-2307-06) – Sydney Water Corporation – Upper South Creek Advanced Water Recycling Centre – Review of the USC AWRC Plant Sampling and Analysis Quality Plan

Dear Cheryl,

1. Introduction and Background

Andrew Lau of JBS&G Australia Pty Ltd (JBS&G), has been engaged by Sydney Water Corporation (SWC, the client) to conduct a site audit(s) related to the Upper South Creek Advanced Water Recycling Centre (USC AWRC) and associated pipelines. The USC AWRC is located at Clifton Avenue, Kemps Creek and the site is identified as Lot 211 DP1272676, Part of Lot 21 DP 258414 and Part of Lot 104 DP1271336. The USC AWRC occupies an area of approx. 78 ha and is owned by SWC with zoning RU2 Rural Landscape and ENZ Environment and Recreation. A figure relating to the site and surrounds is shown in **Attachment 2**.

SWC received Ministerial approval for the USC AWRC project on 28th November 2022 as a state significant infrastructure project (Application Number SSI-8609189) ("the consent").

Table 1 shows previously reviewed documents and relevant interim audit advice correspondence.

Table 1: Previous Interim Audit Advice Correspondence

Document Reviewed	Previous Interim Audit Advice Correspondence
<i>Unexpected Finds Procedure for Contamination</i> , John Holland, issued 07/12/2022, document number USCP-POL-G-002.	<i>L02 Interim Audit Advice (0503-2307-02) – Sydney Water Corporation – Upper South Creek Advanced Water Recycling Centre – Unexpected Finds Protocol</i> , to Cheryl Cahill of Sydney Water, 9 December 2022.
<i>Upper South Creek Advanced Water Recycling Centre - Soils and Contaminated Land Impact Assessment</i> , Aurecon ARUP, 27 July 2021 ("the SCLI document")	<i>L03 Interim Audit Advice (0503-2307-03) – Sydney Water Corporation – Upper South Creek Advanced Water Recycling Centre – Review of the Upper South Creek Advanced Water Recycling Centre - Soils and Contaminated Land Impact Assessment</i> to Cheryl Cahill of Sydney Water, 17 March 2023.
<i>Upper South Creek Wastewater Treatment Plant Options Assessment, Preliminary Site Investigation (Contamination)</i> Aurecon, 2019	
<i>Upper South Creek Advanced Water Recycling Centre and Pipelines Detailed Site Investigation</i> , Aurecon ARP, 12 March 2021 ("the DSI")	L03 provided review of the four documents as related to the AWRC parcel of land, only.
<i>Memorandum re Hazardous Materials Survey – Upper South Creek Advanced Water Recycling Centre</i> , Aurecon to Sydney Water, 18 May 2021	
<i>Upper South Creek Advanced Water Recycling Centre and Pipelines Soils & Contamination Construction</i>	<i>L04 Interim Audit Advice (0503-2307-04) – Sydney Water Corporation – Upper South Creek Advanced Water</i>

Document Reviewed	Previous Interim Audit Advice Correspondence
<i>Environmental Management Plan ("the CEMP")</i> John Holland, 01/03/2023, USCP-JHG-MPL-ENV-0008 Rev 4, some portions, only.	<i>Recycling Centre – Review of the Upper South Creek Advanced Water Recycling Centre – Soils and Contamination Construction Environmental Management Plan Sub-Plan</i> to Cheryl Cahill of Sydney Water, 12 May 2023.
<i>Upper South Creek Advanced Water Recycling Centre and Pipelines Soils & Contamination Construction Environmental Management Plan (CEMP) Sub-plan (S&C CEMP sub-plan)</i> , John Holland, issued 10/05/2023 and earlier drafts (11/03/23, 14/04/2023) (uncontrolled copy) Document No: USCP-JHG-MPL-ENV-0003.	
The SCLI Assessment and the DSI, as they relate to the pipelines site only.	<i>L05 Interim Audit Advice (0503-2307-05) – Sydney Water Corporation – Upper South Creek Advanced Water Recycling Centre – Review of the Upper South Creek Advanced Water Recycling Centre - Soils and Contaminated Land Impact Assessment – Pipelines</i> to Cheryl Cahill of Sydney Water, 16 May 2023.
<i>Upper South Creek Water Factory Pipeline Alignments Option Concept Design, Preliminary Site Investigation (Contamination)</i> Aurecon, 2020	

2. Document Reviewed

The following document was reviewed in preparation of this Interim Audit Advice (IAA):

- *Sampling and Analysis Quality Plan, Upper South Creek Advanced Water Recycling Centre*, ERM 6 June 2023, ERM and earlier draft ('the SAQP')

3. Objective of this Interim Advice

The objective of this interim advice is to provide an auditor review of the SAQP for the AWRC plant site. This is required under Conditions E74 (c) and E77.

- E74 "...The Site Auditor is to review all relevant documentation and provide a written opinion on the contamination risk and the appropriateness of the reports and any proposed management measures of the site, including.... (c) Sampling and Analysis Quality Plan in Condition E77..."
- E77 "Prior to the commencement of construction, a Sampling and Analysis Quality Plan (SAQP) for medium and high risk AECs, as confirmed by the Site Auditor and identified in the documents referred to in Condition E76, must be prepared to ensure that field investigations and analyses will be undertaken in a way that enables the collection and reporting of reliable data to meet project objectives, including the relevant site characterisation requirements of the detailed site investigations. The SAQP must:
 - (a) "Be prepared (or reviewed and approved) by....Certified Environmental Practitioner (site Contamination)
 - (b) "Be prepared in accordance with relevant guidelines...."

The document referred to in condition E76 is the SCLI Assessment, and Interim Audit Advice L03 fulfilled condition E76, with regards the AWRC plant site.

4. Auditor's Assessment

The auditor notes that the SAQP complies with the requirement that it be prepared/reviewed by a Certified Contaminated Land Consultant. The report has been signed by Mr Peter Lavelle of ERM and his seal as a CEnvP SC (EIANZ) is on the title page of the SAQP, in fulfilment of condition E77(a).

The auditor has considered the SAQP against the requirements of the requirements for SAQPs described in Consultants Reporting on Contaminated land: Contaminated Land Guidelines, NSW EPA, May 2020 (EPA, 2020) as shown in **Table 2**.

Table 2: Compliance of the SAQP (AWRC Plant site) with the requirements of EPA (2020)

Report Section	Required Information	Addressed within the SAQP	Audit Opinion
Document control	Date, version number, author and reviewer (including certification details) and who commissioned the report	Inside Cover	Adequate
Objectives	The objectives of the plan and the broader objectives for the site/investigation	<u>Section 1.2</u> The objectives are to define the Data Quality Objectives and required methodology for undertaking the supplemental DSI, including sampling, analysis and reporting requirements, specific to the AWRC site. The overall objective is to assess the potential contamination management/remediation requirements to enable redevelopment of the site.	Adequate
Scope of work	Scope of work to be performed (and work outside the scope where relevant)	<u>Section 6:</u> outlines the scope of works. This includes site preliminaries such as service location, a preliminary site walkover on a grid after the site has been cleared to visually assess the surface for any evidence of contamination. Also included is a description of intrusive investigations.	Adequate
Site identification and site condition and surrounding environment	Street number, street name and suburb, Lot number and Deposited Plan number, Locality map, neighbouring site uses. Site description such as topography, geology.	<u>Table 2</u> provides the site identification and environmental setting details.	Adequate
Conceptual Site Model (CSM)	Identification of potential and known sources of contamination, affected media, potential and actual pathways and human and ecological media. Data gap analysis. Identification of the potential contaminants of concern.	<u>Section 4:</u> describes the potential sources of contamination as asbestos, heavy metals and PCBs associated with current and former structures and conduits. In addition, uncontrolled fill materials are listed as being a potential source of asbestos, Total Recoverable Hydrocarbons (TRH), benzene, toluene, ethylbenzene, xylenes, heavy metals, polyaromatic hydrocarbons, polychlorinated biphenyls and organochlorine pesticides and organophosphate pesticides. Pathways are listed that relate to soils, surface waters, sediments, transport to groundwater and transport via mechanical means. Receptors are identified as being current and future site users, potential users of groundwater, maintenance workers, groundwater beneath the site and adjacent ecological receptors.	The auditor does not consider the groundwater beneath the site to be a receptor, but a pathway to human health or ecological receptors. Nonetheless, the auditor concludes there are no omissions in the CSM. Adequate.

Report Section	Required Information	Addressed within the SAQP	Audit Opinion
Assessment criteria	A list of criteria and rationale for the criteria, including references.	<u>Section 7</u> identifies that the reference for the assessment criteria is the <i>National Environment Protection (Assessment of Site Contamination) Measure 1999</i> , as amended 2013 (NEPC, 1999); and <i>Health screening levels for petroleum hydrocarbons in soil and groundwater, Part 2: Application document, CRC CARE Technical Report no. 10</i> (CRC CARE, 2011). The rationale provided indicates that ERM have nominated a commercial/industrial land use scenario and have nominated that sands are the underlying stratigraphy.	Reference to CRC Care, 2011 is unnecessary, as NEPM (2013) includes relevant criteria. The choice of sand for the underlying stratigraphy is conservative. Adequate.
Data Quality Objectives (DQOs)	Step 1: State the problem	<u>Section 5.1</u> : The SAQP identifies that there is a potential for contamination within soils to be present at the site and that a supplemental DSI is required to assess the potential contamination. The DSI will also provide preliminary estimates of fill volumes with the site and estimate a conceptual cost estimate for potential management/remediation requirements.	Adequate
	Step 2: Identify the decisions	<u>Section 5.2</u> : The SAQP identified seven decisions. These included noting that decisions will be made based on the results of the supplemental investigation identifying any potential unacceptable risk to human health and/or ecological receptors from contaminants at the site, based around information derived in characterising the site. This information will inform further documents, if required, such as remediation action plan or environmental management plan. In addition, estimates of fill volumes are required.	Adequate
	Step 3: Identify information inputs	<u>Section 5.3</u> : identifies inputs as being derived from both historical reports/investigations, field observations/measurements and laboratory data. The data will be screened against assessment criteria that have been identified and confirmation of the data acceptability against data quality indicators (DQIs).	Adequate
	Step 4: Define the study boundaries	<u>Section 5.4</u> : the AWRC plant site is the spatial boundary and the temporal boundary is limited to the data collected during the	Adequate

Report Section	Required Information	Addressed within the SAQP	Audit Opinion
		investigation works. Limitations were described; topography and presence of underground and overhead utilities.	
	Step 5: Develop the decision rules	<u>Section 5.5</u> : The SAQP listed the seven decisions and a set of decision rules for each.	Adequate. The auditor considers that the decision rules outlined are appropriate and that the investigation described in the SAQP will produce sufficient information to enable the decisions to be made.
	Step 6: Specify limits on decision errors	<u>Section 5.6</u> : The SAQP referred to the pre-determined DQIs that have been developed in line with the process described in the NEPM. The DQIs are stated as being developed in relation to precision, accuracy, representativeness, comparability, completeness and sensitivity (collectively, PARCCS). <u>Table 5.2</u> lists 18 DQIs against each of the PARCCS parameters including field duplicates, sample handling procedures and Limits of reporting.	Adequate
	Step 7: Optimise the design for obtaining data	<u>Section 5.7</u> : the SAQP states that the program has been developed based on relevant information provided by the client and notes that if any changes to the SAQP are required then these will be documented and discussed with relevant stakeholders.	Adequate. The auditor notes that the SAQP does not list relevant stakeholders but requires that his approval be sought prior to any changes to the SAQP being finalised.
Sampling and analysis strategy and sampling methodology	Rationale for the selection of sampling pattern	<u>Section 6.1</u> states that a mix of targeted and grid based sampling pattern will be used in the investigation of 160 locations, to assess the identified area(s) of environmental concern. In addition, a grid-based site walkover will be conducted by ERM once the site has been cleared of vegetation.	Given the site history and observations made during the audit site visit, this is adequate.

Report Section	Required Information	Addressed within the SAQP	Audit Opinion
	Rationale for the selection of sampling density	<u>Section 6.1</u> : states that due to the known and potential presence of asbestos, a higher sampling density than that required in the Sampling Design Guidelines ¹ for other contaminants.	Adequate
	Sampling locations shown on a plan	<u>Appendix A</u>	Adequate
	Sampling depths	<u>Table 6.2</u> states that sampling depths of 0.5 m BGL or occurrence of natural materials (whichever occurs first) will be excavated.	Adequate
	Samples for analysis and analytes	<u>Table 6.5</u> lists the laboratory analytical schedule and notes that all fill materials will be analysed for the contaminants listed in the CSM, and that natural material will be analysed for the same contaminants, except for asbestos.	Adequate.
	Analytical methods	<u>Table 5.2</u> indicates that NATA accredited analytical methods will be used for all analytes	Adequate
	Sample containers and type of seal used	<u>Table 6.2</u> indicates that all samples will be placed in laboratory supplied containers/sample bags.	Adequate
	Sampling devices and equipment	<u>Table 6.2</u> indicates that an excavator will be used to advance investigative testpits and that new disposable gloves will be used to collect each sample.	Adequate
	Decontamination procedures	<u>Table 6.2</u> indicates that all sampling equipment will be decontaminated between sampling locations where disposable equipment is not used.	The methods described are adequate.
	Sample preservation and handling methods	<u>Table 6.3</u> describes sample handling and transport methods to be used and <u>Table 6.4</u> describes the sample nomenclature.	The methods described are adequate.
	Description of field screening protocols	<u>Table 6.2</u> indicates that all soil samples from each location will be screened with a photoionisation detector (PID), which will be calibrated in accordance with manufacturer's instructions.	Adequate
	Data Quality Indicators – field blanks, rinsates, trip blanks, laboratory prepared trip spikes and acceptable limits for field QA/QC.	<u>Table 6.3</u> describes the field QA/QC requirements of the investigation and <u>Table 6.6</u> describes the laboratory QA/QC requirements.	The requirements described are adequate and address the

¹ Sampling Design Guidelines Part 1 – Application, Contaminated Land Guidelines, NSW EPA, 2022.

Report Section	Required Information	Addressed within the SAQP	Audit Opinion
			requirements of the NEPM.
	Reporting	<u>Section 8</u> states that the DSI report will be prepared in accordance with the requirements of the EPA 2020.	Adequate

5. Auditor's Opinion

Based on a review of the information provided and subject to the limitations in **Attachment 1**, the following audit opinions are presented:

- The auditor considers that the SAQP is appropriate for its stated purposes, namely to document the sampling and analytical program required to provide supplemental investigations regarding the contamination status of the site in accordance with relevant guidance;
- In the event of changes to the SAQP, the auditor requires that his approval be sought prior to works commencing;
- This interim audit advice fulfils the requirements of condition E77 of the consent with regards the AWRC plant site; and
- The SAQP is limited to assessment of the site pre-construction and does not include the assessment of material being imported to the AWRC plant site, which will be performed under the soils and contamination sub-plan, which the auditor considered in interim audit advice L04, dated 12 May 2023.

Please note that this interim advice does not constitute a Site Audit Statement or a Site Audit Report but is provided to assist in the assessment and management of contamination issues at the site in regard to requirements of the site audit. The information provided herein should not be considered pre-emptive of the final audit conclusions, but rather represent the findings of the audit based on a preliminary review of available site information. Furthermore, the interim advice should not be regarded as approval of any proposed investigations or remedial activities, as any such approval is beyond the scope of an independent auditor.

Should you require clarification, please contact the undersigned on 02 8245 0300 or by email alau@jbsg.com.au.

Yours sincerely:



Andrew Lau
NSW EPA Accredited Site Auditor
Accreditation Number 0503
JBS&G Australia Pty Ltd

Attachments (1) Limitations
 (2) Site Figures

Attachment 1 – Limitations

This audit was conducted with a reasonable level of scrutiny, care and diligence on behalf of the client for the purposes outlined in s.47 (1) of the *Contaminated Land Management Act 1997*. The data used to support the conclusions reached in this audit were obtained by other consultants and the limitations which apply to the consultant's report(s) apply equally to this audit report.

Every reasonable effort has been made to identify and obtain all relevant data, reports and other information that provide evidence about the condition of the site, and those that were held by the client and the client's consultants, or that were readily available. No liability can be accepted for unreported omissions, alterations or errors in the data collected and presented by other consultants. Accordingly, the data and information presented by others are taken and interpreted in good faith.



Sampling and chemical analysis of environmental media is based on appropriate guidance documents made and approved by the relevant regulatory authorities. Conclusions arising from the review and assessment of environmental data are based on the sampling and analysis considered appropriate based on the regulatory requirements. Limited sampling and laboratory analyses were undertaken as part of the investigations reviewed, as described herein. Ground conditions between sampling locations and media may vary, and this should be considered when extrapolating between sampling points. Chemical analytes are based on the information detailed in the site history. Further chemicals or categories of chemicals may exist at the site, which were not identified in the site history and which may not be expected at the site.

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

Attachment 2 – Site Figures



Legend

-  Site Boundary
-  Cadastre (Lot)

Site is currently disused in
preparation for AWRC construction.

KEMPS CREEK

SOUTH CREEK/WANAMATTA

CLIFTON

Data Source:
NSW DCDB/DTDB 2023
Nearmap Imagery February 2023

Site Layout

Drawing No: 0677828_SAQP_G002_R1.mxd
Date: 16/05/2023 Drawing Size: A4
Drawn By: GC Reviewed By: NG
Coordinate System: GDA 1994 MGA Zone 56

**SAQP - Upper South Creek Advanced Water
Recycling Centre, Kemps Creek, NSW**

Client: John Holland Group

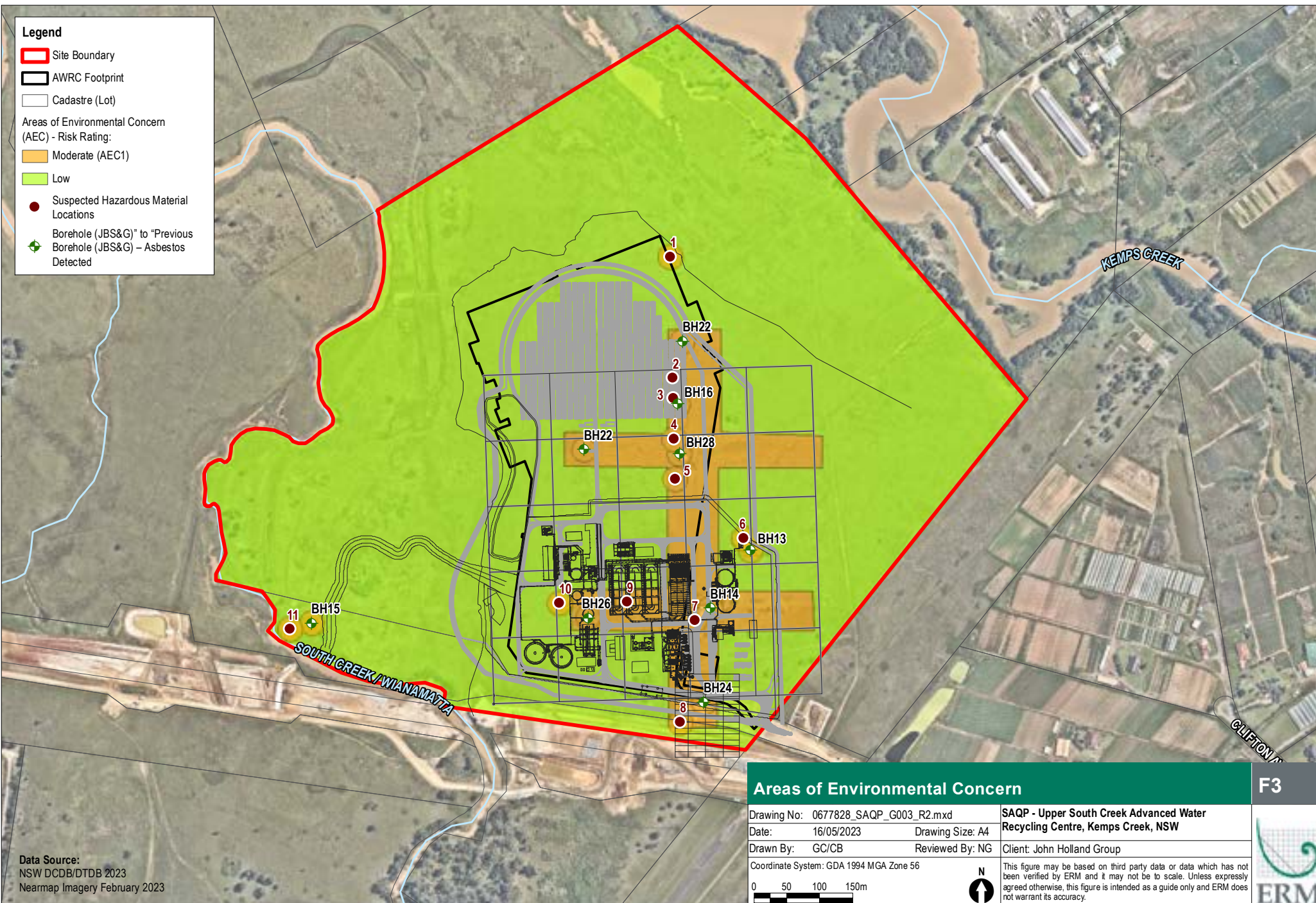
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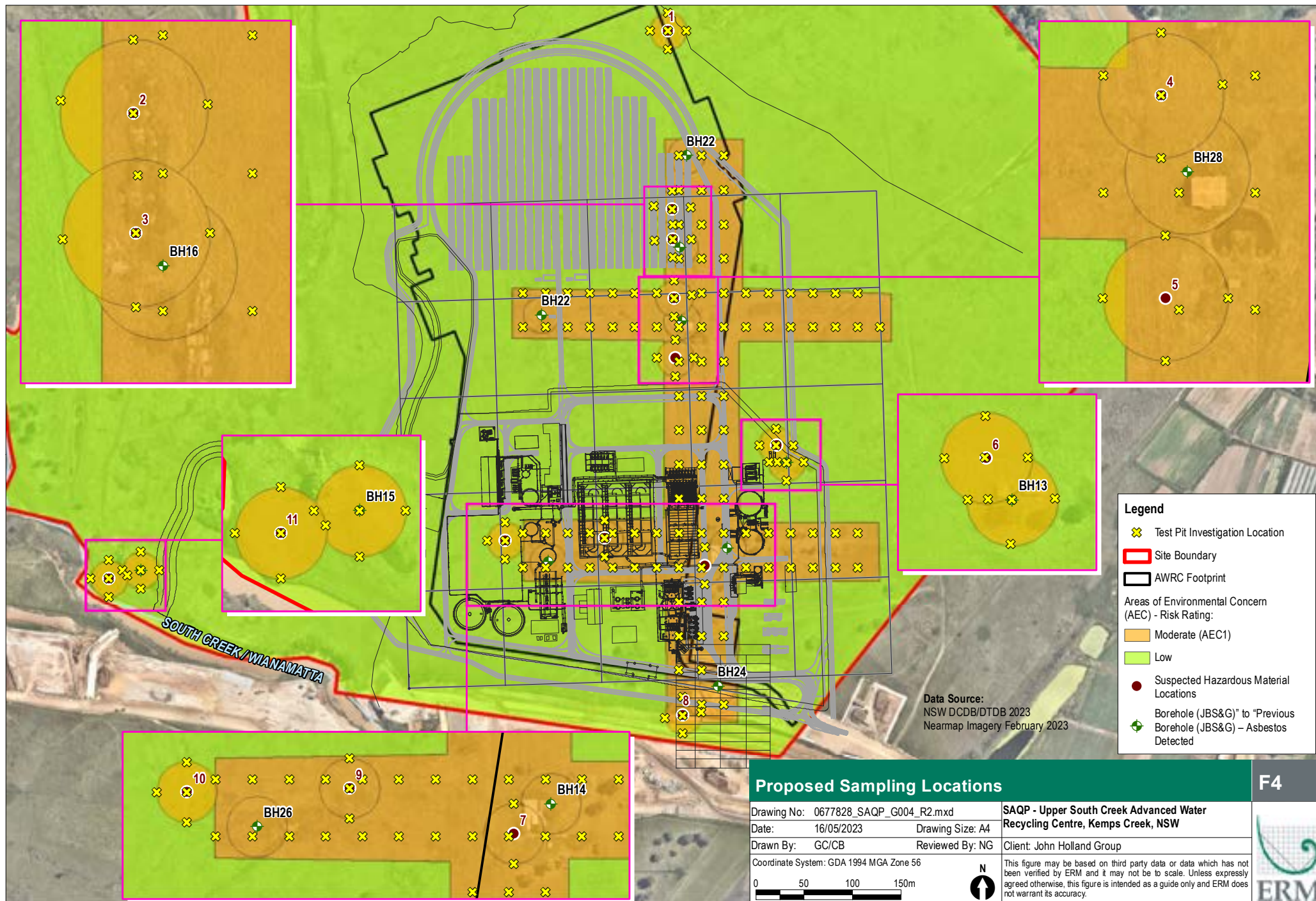


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JBS&G 64112 | 153,798

L07 (0503 2307 SWC USC AWRC Pipelines SAQP) Rev 0

14 August 2023

Cheryl Cahill
Environment Lead, Major Projects, Sydney Water
Via email: CHERYL.CAHILL@sydneywater.com.au

L07 Interim Audit Advice (0503-2307-07) – Sydney Water Corporation – Upper South Creek Advanced Water Recycling Centre – Review of the Pipelines Sampling and Analysis Quality Plan

Dear Cheryl,

1. Introduction and Background

Andrew Lau of JBS&G Australia Pty Ltd (JBS&G), has been engaged by Sydney Water Corporation (SWC, the client) to conduct a site audit(s) related to the Upper South Creek Advanced Water Recycling Centre (USC AWRC) and associated pipelines. The USC AWRC is located in Clifton Avenue Kemps Creek and occupies approx. 78 ha.

The pipelines occupy lands between the USC AWRC and Lansdowne Reserve in Lansdowne for approx. 24 km (“the brine pipeline”) and land between the USC AWRC and the Nepean River in Wallacia for approx. 16.7 km (“the treated water pipeline”).

The USC AWRC site is owned by SWC and is zoned RU2 Rural Landscape and ENZ Environment and Recreation. The SAQP has reported that the pipeline land is variously zoned as shown:

- AGB – Agribusiness
- C2 – Environmental Conservation
- ENT – Enterprise
- ENZ – Environment and Recreation
- R1, R2, R3 and R4, general, low density, medium density and high density, respectively
- RE1 – Public Recreation
- RU1 – Primary production
- RU2 – Rural landscape
- RU4 – Primary production small lots
- RU5 – Village
- RE1 – Public recreation
- SP2 - infrastructure

Sydney Water holds easements for the pipelines along their length and the land is owned by multiple owners. A figure relating to the site and surrounds is shown in **Attachment 2**.

SWC received Ministerial approval for the USC AWRC project on 28th November 2022 as a state significant infrastructure project (Application Number SSI-8609189) (“the consent”).

Table 1 shows previously reviewed documents for the audit and relevant interim audit advice correspondence.

Table 1: Previous Interim Audit Advice Correspondence

Document Reviewed	Previous Interim Audit Advice Correspondence
<i>Unexpected Finds Procedure for Contamination</i> , John Holland, issued 07/12/2022, document number USCP-POL-G-002.	<i>L02 Interim Audit Advice (0503-2307-02) – Sydney Water Corporation – Upper South Creek Advanced Water Recycling Centre – Unexpected Finds Protocol</i> , to Cheryl Cahill of Sydney Water, 9 December 2022.
<i>Upper South Creek Advanced Water Recycling Centre - Soils and Contaminated Land Impact Assessment</i> , Aurecon ARUP, 27 July 2021 (“the SCLI document”)	<i>L03 Interim Audit Advice (0503-2307-03) – Sydney Water Corporation – Upper South Creek Advanced Water Recycling Centre – Review of the Upper South Creek Advanced Water Recycling Centre - Soils and Contaminated Land Impact Assessment</i> to Cheryl Cahill of Sydney Water, 17 March 2023.
<i>Upper South Creek Wastewater Treatment Plant Options Assessment, Preliminary Site Investigation (Contamination)</i> Aurecon, 2019	
<i>Upper South Creek Advanced Water Recycling Centre and Pipelines Detailed Site Investigation</i> , Aurecon ARP, 12 March 2021 (“the DSI”)	
<i>Memorandum re Hazardous Materials Survey – Upper South Creek Advanced Water Recycling Centre</i> , Aurecon to Sydney Water, 18 May 2021	L03 provided review of the four documents as related to the AWRC parcel of land, only.
<i>Upper South Creek Advanced Water Recycling Centre and Pipelines Soils & Contamination Construction Environmental Management Plan (“the CEMP”)</i> John Holland, 01/03/2023, USCP-JHG-MPL-ENV-0008 Rev 4, some portions, only.	<i>L04 Interim Audit Advice (0503-2307-04) – Sydney Water Corporation – Upper South Creek Advanced Water Recycling Centre – Review of the Upper South Creek Advanced Water Recycling Centre – Soils and Contamination Construction Environmental Management Plan Sub-Plan</i> to Cheryl Cahill of Sydney Water, 12 May 2023.
<i>Upper South Creek Advanced Water Recycling Centre and Pipelines Soils & Contamination Construction Environmental Management Plan (CEMP) Sub-plan (S&C CEMP sub-plan)</i> , John Holland, issued 10/05/2023 and earlier drafts (11/03/23, 14/04/2023) (uncontrolled copy) Document No: USCP-JHG-MPL-ENV-0003.	
The SCLI Assessment and the DSI, as they relate to the pipelines site only.	<i>L05 Interim Audit Advice (0503-2307-05) – Sydney Water Corporation – Upper South Creek Advanced Water Recycling Centre – Review of the Upper South Creek Advanced Water Recycling Centre - Soils and Contaminated Land Impact Assessment – Pipelines</i> to Cheryl Cahill of Sydney Water, 16 May 2023.
<i>Upper South Creek Water Factory Pipeline Alignments Option Concept Design, Preliminary Site Investigation (Contamination)</i> Aurecon, 2020	
<i>Sampling and Analysis Quality Plan</i> , Upper South Creek Advanced Water Recycling Centre, ERM 6 June 2023.	<i>Interim Audit Advice (0503-2307-06) – Sydney Water Corporation – Upper South Creek Advanced Water Recycling Centre – Review of the USC AWRC Plant Sampling and Analysis Quality Plan</i> , to Cheryl Cahill of Sydney Water, 22 June 2023

2. Document Reviewed

The following document was reviewed in preparation of this Interim Audit Advice (IAA):

- *Sampling and Analysis Quality Plan*, Upper South Creek Advanced Water Recycling Centre, Pipeline Alignment, ERM, 8 August 2023, ERM and earlier drafts (“the SAQP”)

3. Objective of this Interim Advice

The objective of this interim advice is to provide an auditor review of the SAQP for the pipelines site. This is required under Conditions E74 (c) and E77.

- E74 “...The Site Auditor is to review all relevant documentation and provide a written opinion on the contamination risk and the appropriateness of the reports and any proposed management measures of the site, including.... (c) Sampling and Analysis Quality Plan in Condition E77...”.
- E77 “Prior to the commencement of construction, a Sampling and Analysis Quality Plan (SAQP) for medium and high risk areas of environmental concern (AECs), as confirmed by the Site Auditor and identified in the documents referred to in Condition E76, must be prepared to ensure that field investigations and analyses will be undertaken in a way that enables the collection and reporting of reliable data to meet project objectives, including the relevant site characterisation requirements of the detailed site investigations. The SAQP must:
 - (a) “Be prepared (or reviewed and approved) by....Certified Environmental Practitioner (site Contamination)
 - (b) “Be prepared in accordance with relevant guidelines....”

The document referred to in condition E76 is the SCLI Assessment, and Interim Audit Advice L05 fulfilled condition E76, with regards the AWRC pipelines site.

4. Auditor’s Assessment

The auditor notes that the SAQP complies with the requirement that it be prepared/reviewed by a Certified Contaminated Land Consultant. The report has been signed by Mr Peter Lavelle of ERM and his seal as a CEnvP SC (EIANZ) is on the title page of the SAQP, in fulfilment of condition E77(a).

The auditor has considered the SAQP against the requirements of the requirements for SAQPs described in Consultants Reporting on Contaminated land: Contaminated Land Guidelines, NSW EPA, May 2020 (EPA, 2020) as shown in **Table 2**.

Table 2: Compliance of the SAQP (Pipeline Alignment site) with the requirements of EPA (2020)

Report Section	Required Information	Addressed within the SAQP	Audit Opinion
Document control	Date, version number, author and reviewer (including certification details) and who commissioned the report	Inside Cover	Adequate
Objectives	The objectives of the plan and the broader objectives for the site/investigation	<p><u>Section 1.2</u> The objectives are to define the Data Quality Objectives and required methodology for undertaking the supplemental DSI, including sampling, analysis and reporting requirements, specific to the pipeline's alignment.</p> <p>The primary objectives of the supplemental DSI are to assess the potential distribution/extent of contamination within the high and medium risk areas.</p> <p>Within section 1.2, ERM also noted that a SAQP addenda might be developed to enable in situ classification of soils excavated from the pipelines alignments for:</p> <ul style="list-style-type: none"> • Potential reuse at the AWRC plant site; or • Potential placement within a long term management area within the AWRC plant site; or • Potential off site disposal. <p>In addition, the SAQP noted that samples might need to be collected to address unexpected finds.</p>	Adequate
Scope of work	Scope of work to be performed (and work outside the scope where relevant)	<p><u>Section 6</u>: outlines the scope of works. This includes site preliminaries such as service location, a preliminary site walkover on a grid after the site has been cleared to visually assess the surface for any evidence of contamination. Also included is a description of intrusive investigations.</p> <p>The auditor notes that samples collected within AEC-6 and AEC-16, (close to landfill and service stations, respectively), samples will be collected by hand auger only, to limit the loss of volatiles during sample collection and PID and landfill gas analyser screening.</p>	Adequate

Report Section	Required Information	Addressed within the SAQP	Audit Opinion
Site identification and site condition and surrounding environment	Street number, street name and suburb, Lot number and Deposited Plan number, Locality map, neighbouring site uses. Site description such as topography, geology.	<u>Table 2-1</u> provides the site identification and environmental setting details. It is noted that lot and DP for the pipelines alignment have not been provided, as they are easements.	Adequate
Conceptual Site Model (CSM)	Identification of potential and known sources of contamination, affected media, potential and actual pathways and human and ecological media. Data gap analysis. Identification of the potential contaminants of concern.	<u>Section 4:</u> describes the potential sources of contamination as relating to uncontrolled fill materials including asbestos, Total Recoverable Hydrocarbons (TRH), benzene, toluene, ethylbenzene, xylenes, heavy metals, polyaromatic hydrocarbons, polychlorinated biphenyls and organochlorine pesticides and organophosphate pesticides. In addition, particular AECs are identified as being contaminated with heavy metals, ammonia and nitrogen, methane and carbon dioxide (AEC-6) and TRH, BTEX, PAHs and lead (AEC-16). Pathways are listed that relate to soils, surface waters, sediments, transport to groundwater and transport via mechanical means. Receptors are identified as being current and future site users, potential users of groundwater, maintenance workers, groundwater beneath the site and adjacent ecological receptors. ERM note that groundwater is unlikely to be intercepted during construction and is not proposed to be used in the works for dust suppression. The SAQP notes later (Section 5.5.) that if groundwater is encountered, the requirement for further investigation will be considered on a case-by-case basis.	The auditor does not consider the groundwater beneath the site to be a receptor, but a pathway to human health or ecological receptors. While PFAS hasn't been specifically identified as a COPC at AEC6 it will become one in the event that leachate or groundwater is encountered. The auditor notes that the SAQP commits to further investigation on a case-by-case basis if groundwater is encountered. Adequate.
Assessment criteria	A list of criteria and rationale for the criteria, including references.	<u>Section 7</u> identifies that the reference for the assessment criteria is the <i>National Environment Protection (Assessment of Site Contamination) Measure 1999</i> , as amended 2013 (NEPC, 1999); and <i>Health screening levels for petroleum hydrocarbons in soil and groundwater, Part 2: Application document, CRC CARE Technical Report no. 10</i> (CRC CARE, 2011). The rationale provided indicates that ERM have nominated assessment criteria based on the zoning of the land. This varies along the pipeline alignment.	Adequate.

Report Section	Required Information	Addressed within the SAQP	Audit Opinion
Data Quality Objectives (DQOs)	Step 1: State the problem	<u>Section 5.1:</u> The SAQP identifies that there is a potential for contamination within soils to be present at the site and that a supplemental DSI is required to assess the potential contamination. The supplemental DSI will also provide preliminary estimates of fill volumes with a view to beneficial re-use of pipeline material to minimise off site disposal costs.	Adequate
	Step 2: Identify the decisions	<u>Section 5.2:</u> The SAQP identified six decisions. These included identifying unacceptable risks to human health and/or ecological receptors and to assess if material could be beneficially re-used within the AWRC plant site and/or reinstated within the pipeline alignment, placed in the containment cell at the AWRC site and/or disposed off-site as waste. Decisions also included identifying if remediation is required and if so, is there sufficient information to develop a remedial action plan or site management plan. In addition, estimates of fill volumes are required.	Adequate
	Step 3: Identify information inputs	<u>Section 5.3:</u> identifies inputs as being derived from both historical reports/investigations, field observations/measurements and laboratory data. The data will be screened against assessment criteria that have been identified and confirmation of the data acceptability against data quality indicators (DQIs).	Adequate
	Step 4: Define the study boundaries	<u>Section 5.4:</u> the pipeline alignment is the spatial boundary. The SAQP identified investigation depths at different AECs in section 6. The temporal boundary is limited to data collected during the works.	Adequate
	Step 5: Develop the decision rules	<u>Section 5.5:</u> The SAQP listed seven decisions and a set of decision rules for each.	Adequate. The auditor considers that the decision rules outlined are appropriate and that the investigation described in the SAQP will produce sufficient information to enable the decisions to be made. The auditor notes that while

Report Section	Required Information	Addressed within the SAQP	Audit Opinion
			six decisions were identified in Step 2, there is sufficient overlap between the two sets of decisions.
	Step 6: Specify limits on decision errors	<u>Section 5.6:</u> The SAQP referred to the pre-determined DQIs that have been developed in line with the process described in the NEPM. The DQIs are stated as being developed in relation to precision, accuracy, representativeness, comparability, completeness and sensitivity (collectively, PARCCS). <u>Table 5.2</u> lists 18 DQIs against each of the PARCCS parameters including field duplicates, sample handling procedures and Limits of reporting.	Adequate
	Step 7: Optimise the design for obtaining data	<u>Section 5.7:</u> the SAQP states that a system of targeted and grid-based sampling is being used. The SAQP also states that the DQOs has been developed based on relevant information provided by the client and notes that if any changes to the SAQP are required then these will be documented and discussed with relevant stakeholders.	Adequate. The auditor notes that the SAQP does not list relevant stakeholders but requires that his approval be sought prior to any changes to the SAQP being finalised.
Sampling and analysis strategy and sampling methodology	Rationale for the selection of sampling pattern	<u>Section 5.7</u> states that a mix of targeted and grid-based sampling pattern will be used in the investigation. <u>Table 6-2</u> provides the number of sampling locations for each AEC.	Given the site histories this is adequate.
	Rationale for the selection of sampling density	<u>Section 5.7</u> – see above in Step 7.	Adequate
	Sampling locations shown on a plan	<u>Appendix A</u>	Adequate
	Sampling depths	<u>Table 6.2</u> provides the sampling depths and notes that boreholes will be advanced to approx. 2 m below ground level or the occurrence of natural materials, whichever occurs first.	Adequate
	Samples for analysis and analytes	<u>Table 6.5</u> lists the laboratory analytical schedule and notes that all fill materials will be analysed for the contaminants listed in the CSM, and that natural material will be analysed for the same contaminants, except for asbestos.	Adequate.

Report Section	Required Information	Addressed within the SAQP	Audit Opinion
	Analytical methods	<u>Table 5.2</u> indicates that NATA accredited analytical methods will be used for all analytes	Adequate
	Sample containers and type of seal used	<u>Table 6.2</u> indicates that all samples will be placed in laboratory supplied containers/sample bags.	Adequate
	Sampling devices and equipment	<u>Table 6.2</u> indicates that boreholes will be advanced via a combination of vacuum excavation and hand auger, or by hand auger only (AEC 6 and AEC16).	Adequate
	Decontamination procedures	<u>Table 6.2</u> indicates that all sampling equipment will be decontaminated between sampling locations where disposable equipment is not used.	The methods described are adequate.
	Sample preservation and handling methods	<u>Table 6.3</u> describes sample handling and transport methods to be used and <u>Table 6.4</u> describes the sample nomenclature.	The methods described are adequate.
	Description of field screening protocols	<u>Table 6.2</u> indicates that all soil samples from each location will be screened with a photoionisation detector (PID), which will be calibrated in accordance with manufacturer's instructions.	Adequate
	Data Quality Indicators – field blanks, rinsates, trip blanks, laboratory prepared trip spikes and acceptable limits for field QA/QC.	<u>Table 6.3</u> describes the field QA/QC requirements of the investigation and <u>Table 6.6</u> describes the laboratory QA/QC requirements.	The requirements described are adequate and address the requirements of the NEPM.
	Reporting	<u>Section 8</u> states that the DSI report will be prepared in accordance with the requirements of EPA 2020.	Adequate

5. Auditor's Opinion

Based on a review of the information provided and subject to the limitations in **Attachment 1**, the following audit opinions are presented:

- The auditor considers that the SAQP is appropriate for its stated purposes, namely to document the sampling and analytical program required to provide supplemental investigations regarding the contamination status of the site in accordance with relevant guidance;
- In the event of changes to the SAQP the auditor requires that his approval be sought prior to works commencing. This includes the preparation of any addenda to the SAQP for materials imported to the AWRC plant site; and
- The SAQP correctly identifies that additional sampling and analysis of groundwater is required in the event that groundwater is encountered, but notes that it is unlikely to be encountered during construction works. The auditor concurs that groundwater investigations will need to be undertaken in the event that groundwater is encountered during the works, so it is recommended that this assumption be confirmed as a priority.

Please note that this interim advice does not constitute a Site Audit Statement or a Site Audit Report but is provided to assist in the assessment and management of contamination issues at the site in regard to requirements of the site audit. The information provided herein should not be considered pre-emptive of the final audit conclusions, but rather represent the findings of the audit based on a preliminary review of available site information. Furthermore, the interim advice should not be regarded as approval of any proposed investigations or remedial activities, as any such approval is beyond the scope of an independent auditor.

Should you require clarification, please contact the undersigned on 02 8245 0300 or by email alau@jbsg.com.au.

Yours sincerely:



Andrew Lau
NSW EPA Accredited Site Auditor
Accreditation Number 0503
JBS&G Australia Pty Ltd

Attachments (1) Limitations
 (2) Site Figures

Attachment 1 – Limitations

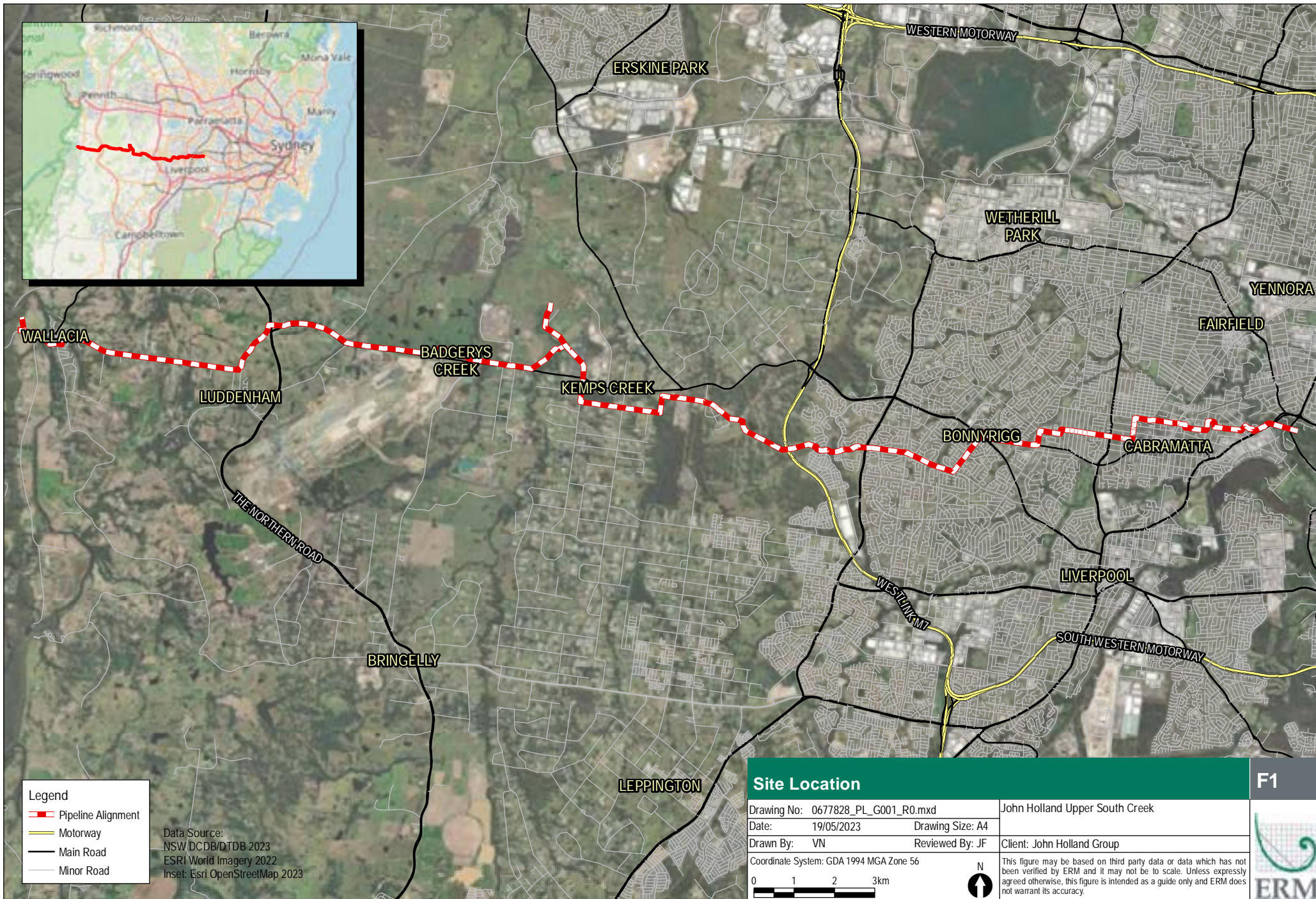
This audit was conducted with a reasonable level of scrutiny, care and diligence on behalf of the client for the purposes outlined in s.47 (1) of the *Contaminated Land Management Act 1997*. The data used to support the conclusions reached in this audit were obtained by other consultants and the limitations which apply to the consultant's report(s) apply equally to this audit report.

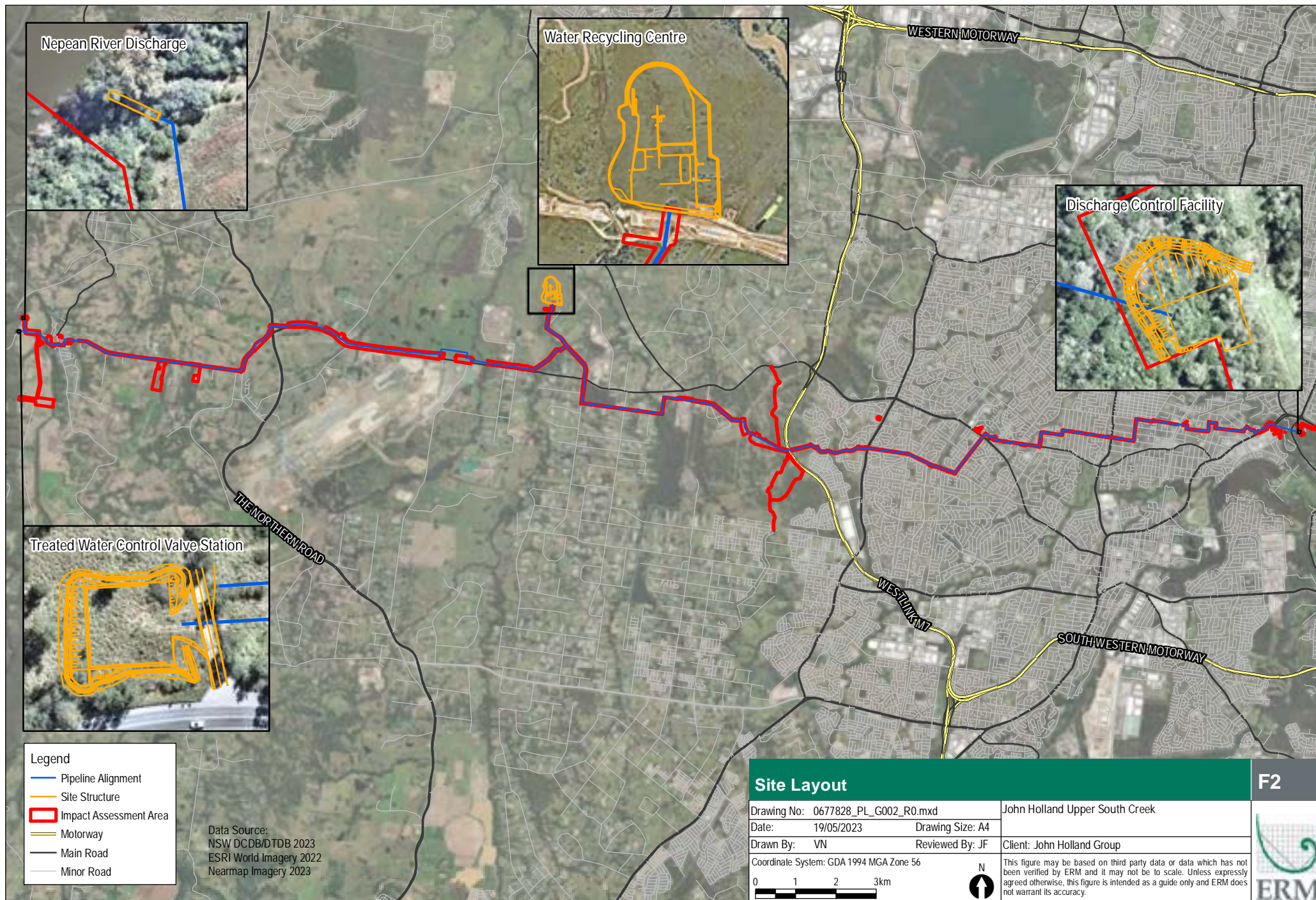
Every reasonable effort has been made to identify and obtain all relevant data, reports and other information that provide evidence about the condition of the site, and those that were held by the client and the client's consultants, or that were readily available. No liability can be accepted for unreported omissions, alterations or errors in the data collected and presented by other consultants. Accordingly, the data and information presented by others are taken and interpreted in good faith.

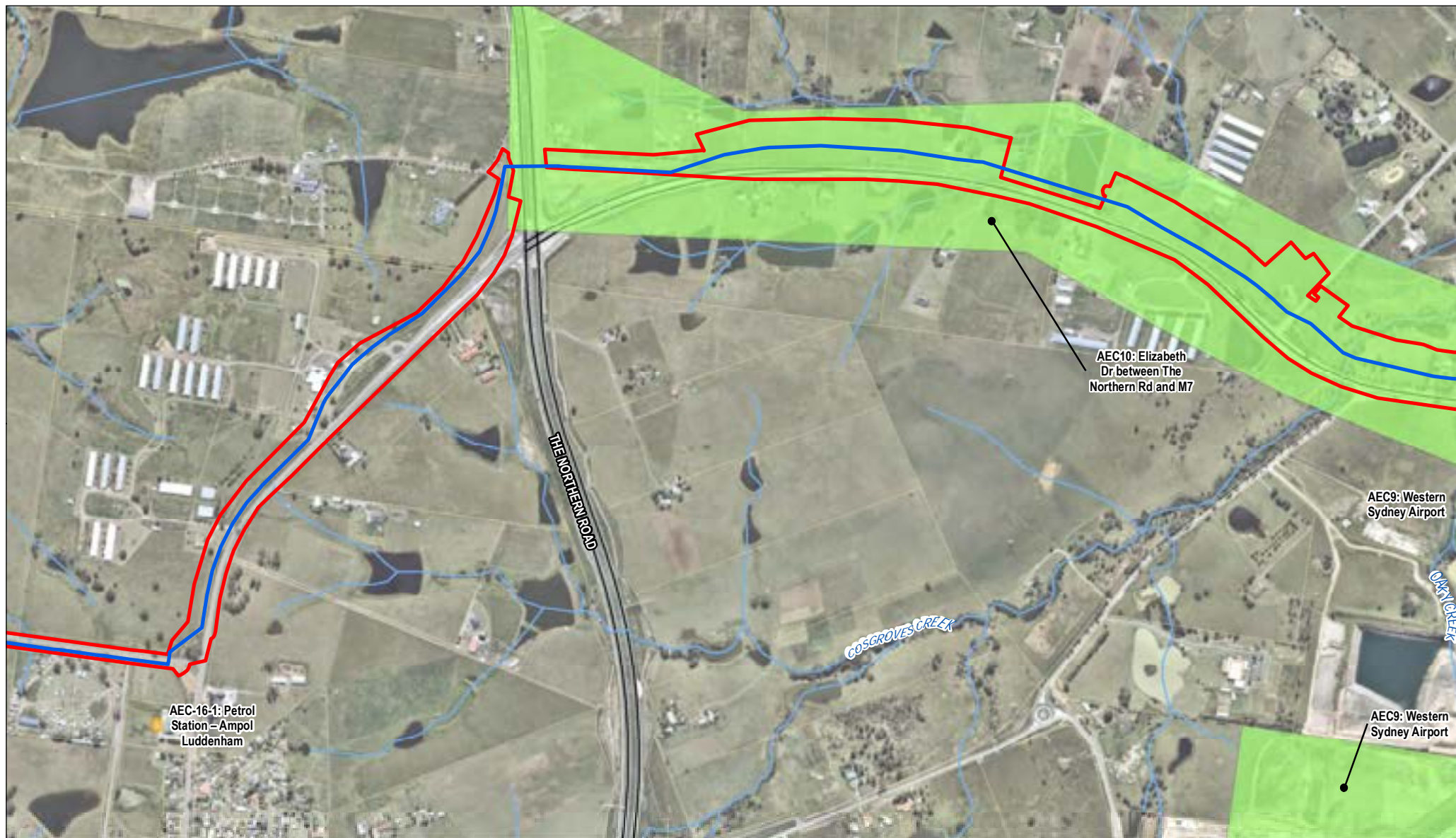
Sampling and chemical analysis of environmental media is based on appropriate guidance documents made and approved by the relevant regulatory authorities. Conclusions arising from the review and assessment of environmental data are based on the sampling and analysis considered appropriate based on the regulatory requirements. Limited sampling and laboratory analyses were undertaken as part of the investigations reviewed, as described herein. Ground conditions between sampling locations and media may vary, and this should be considered when extrapolating between sampling points. Chemical analytes are based on the information detailed in the site history. Further chemicals or categories of chemicals may exist at the site, which were not identified in the site history and which may not be expected at the site.

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

Attachment 2 – Site Figures







Legend

- Pipeline Alignment
- Impact Assessment Area
- Areas of Environmental Concern (AEC) - Risk Ranking**
- Moderate
- Low
- Motorway
- Main Road
- Minor Road
- watercourse
- Cadastre (Lot)



Data Source:
NSW DCDB/DTDB 2023
Nearmap Imagery 2023

Areas of Environmental Concern

Drawing No: 0677828_PL_G003_R2.mxd

Date: 05/06/2023

Drawn By: VN

Coordinate System: GDA 1994 MGA Zone 56

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Drawing Size: A4

Reviewed By: JF

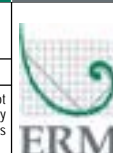
John Holland Upper South Creek

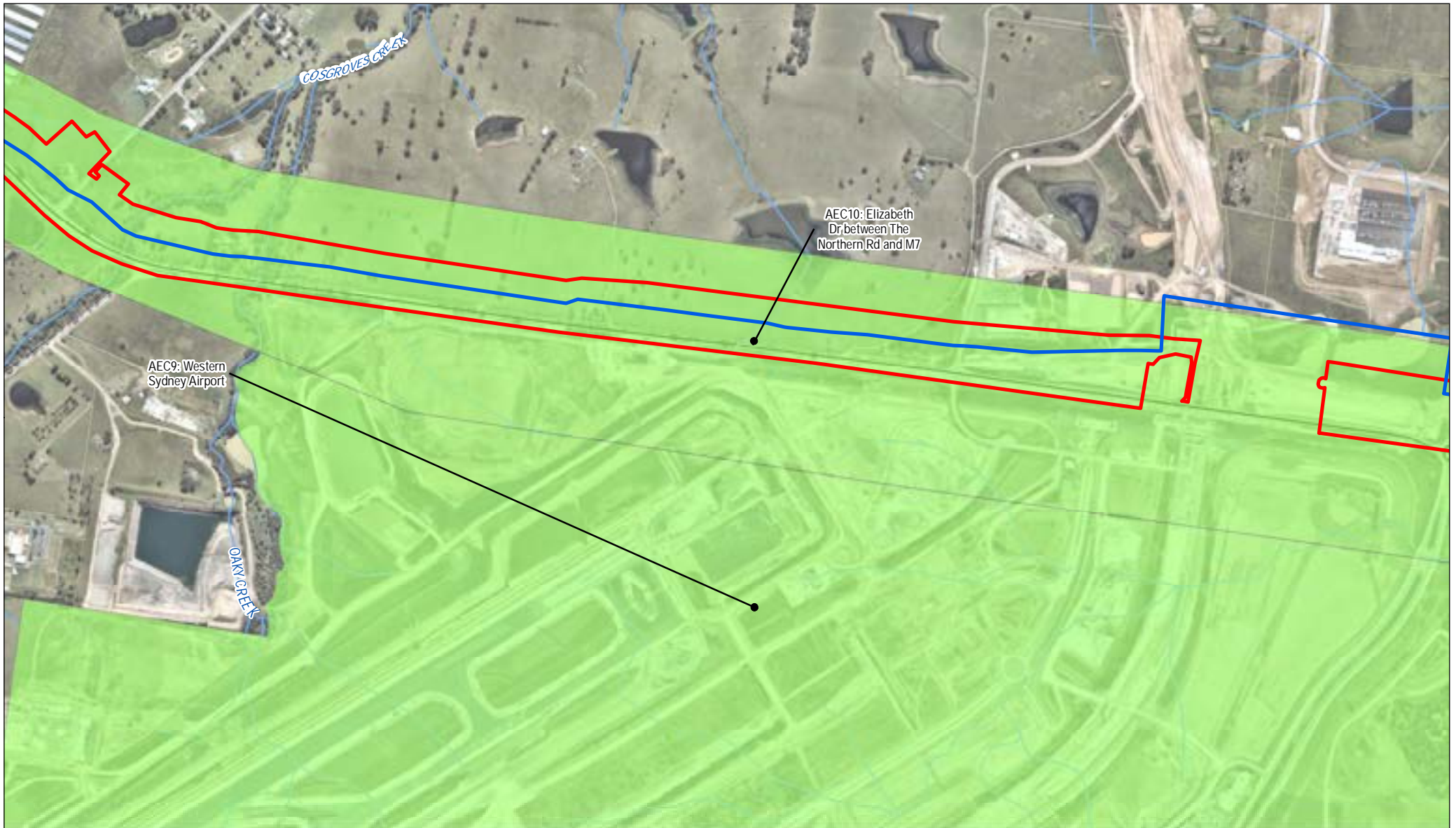
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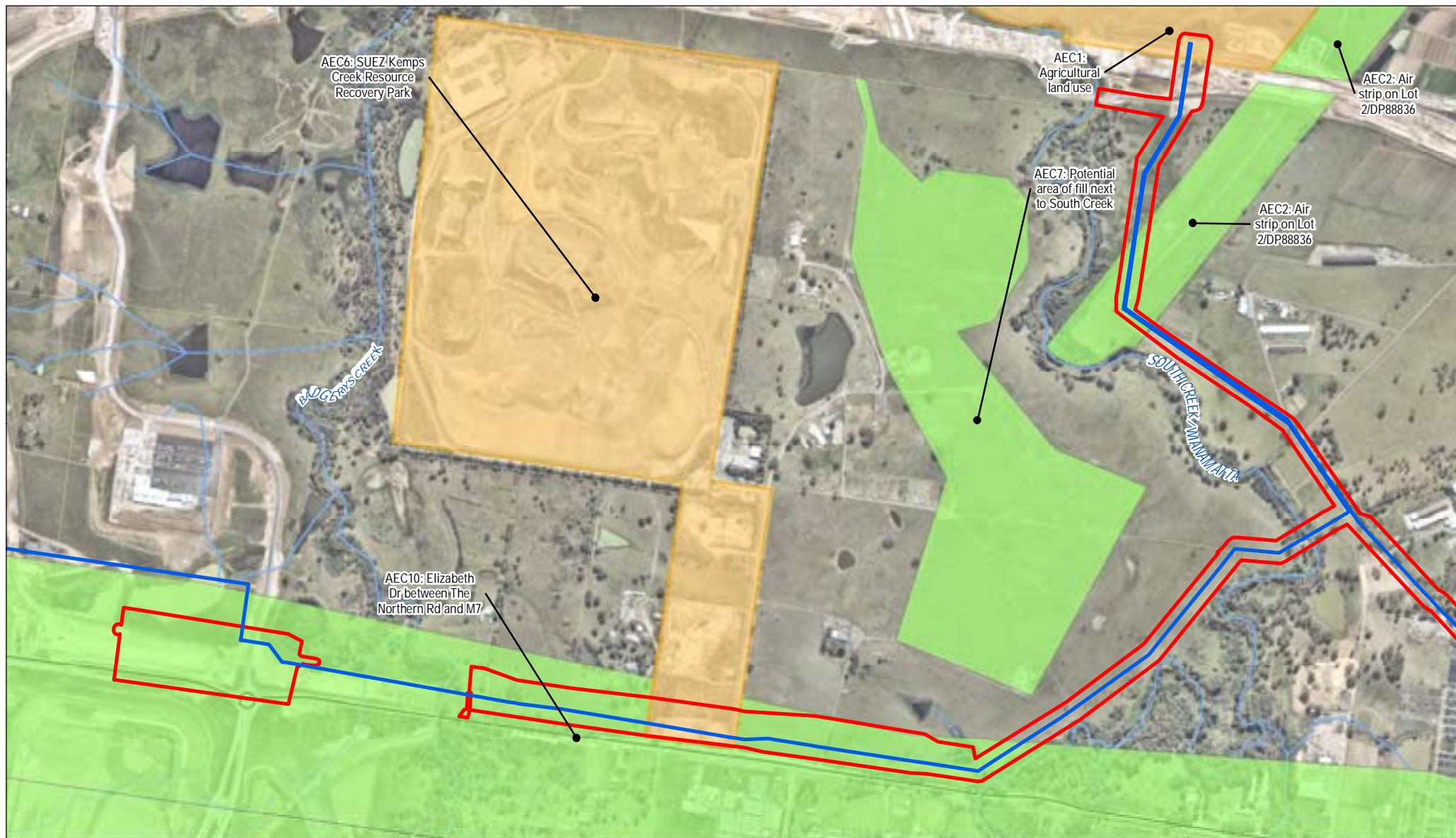
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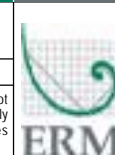
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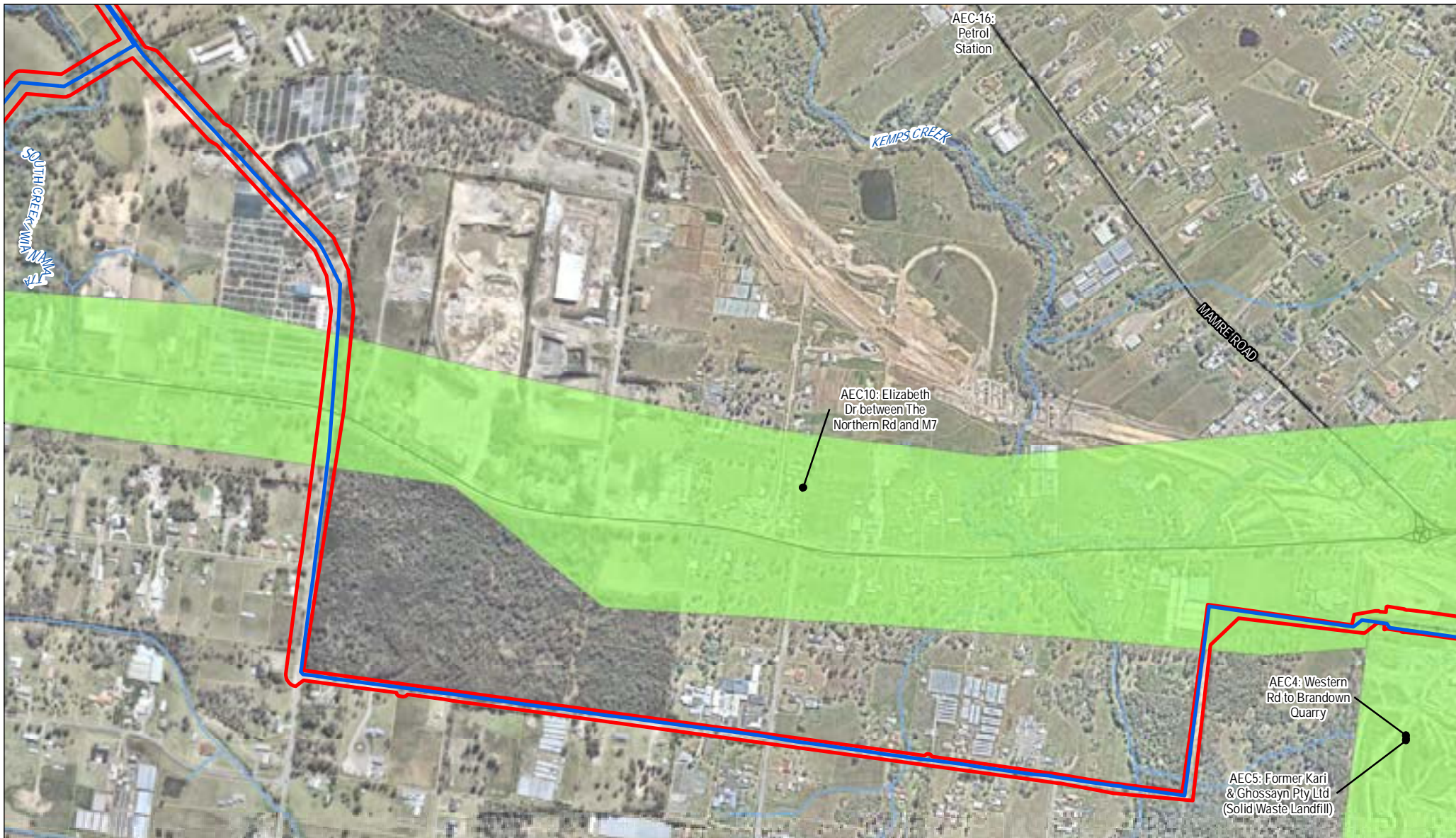
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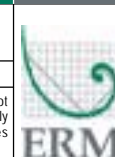
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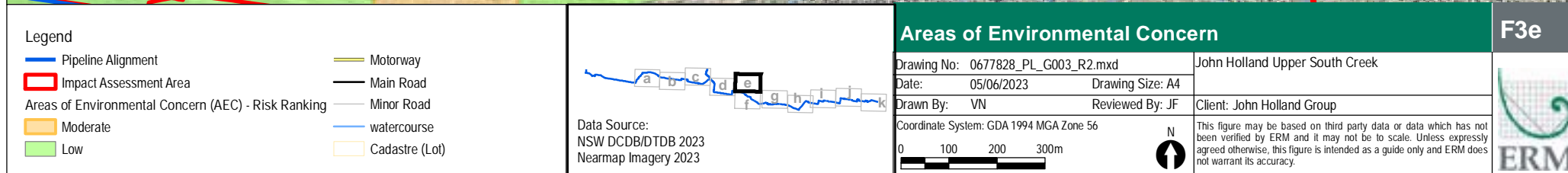
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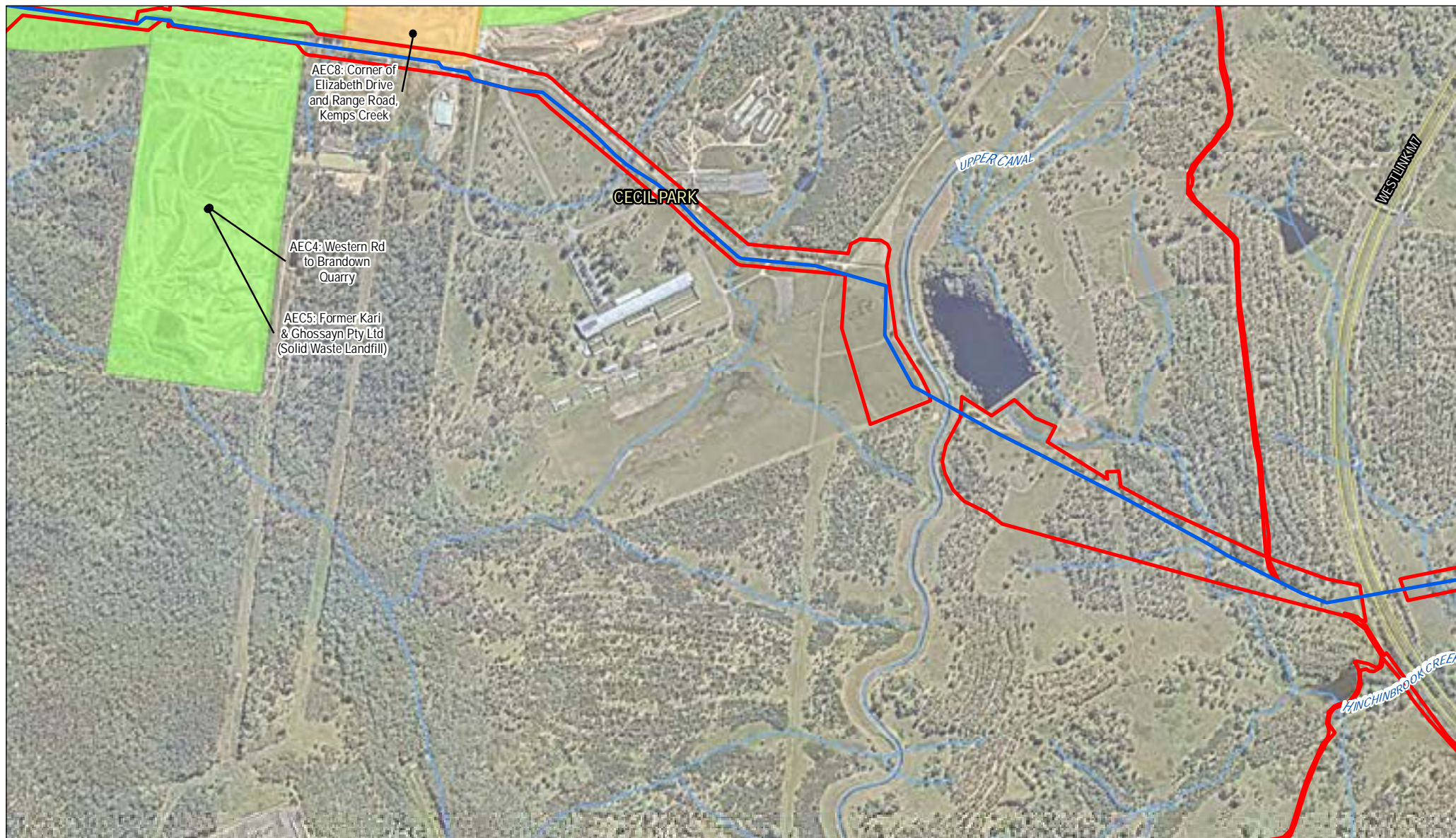
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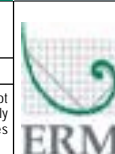
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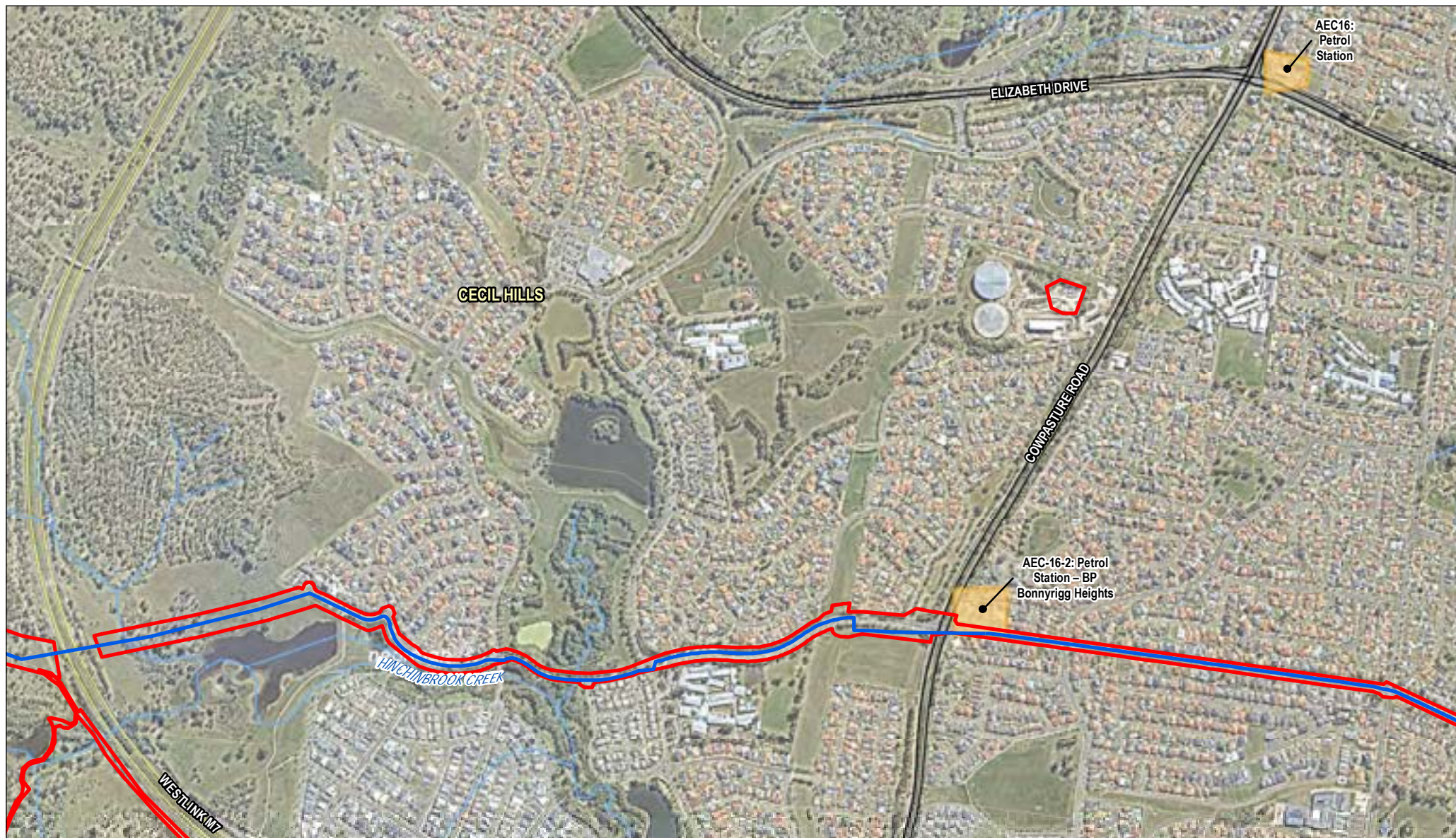
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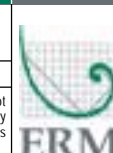
John Holland Upper South Creek

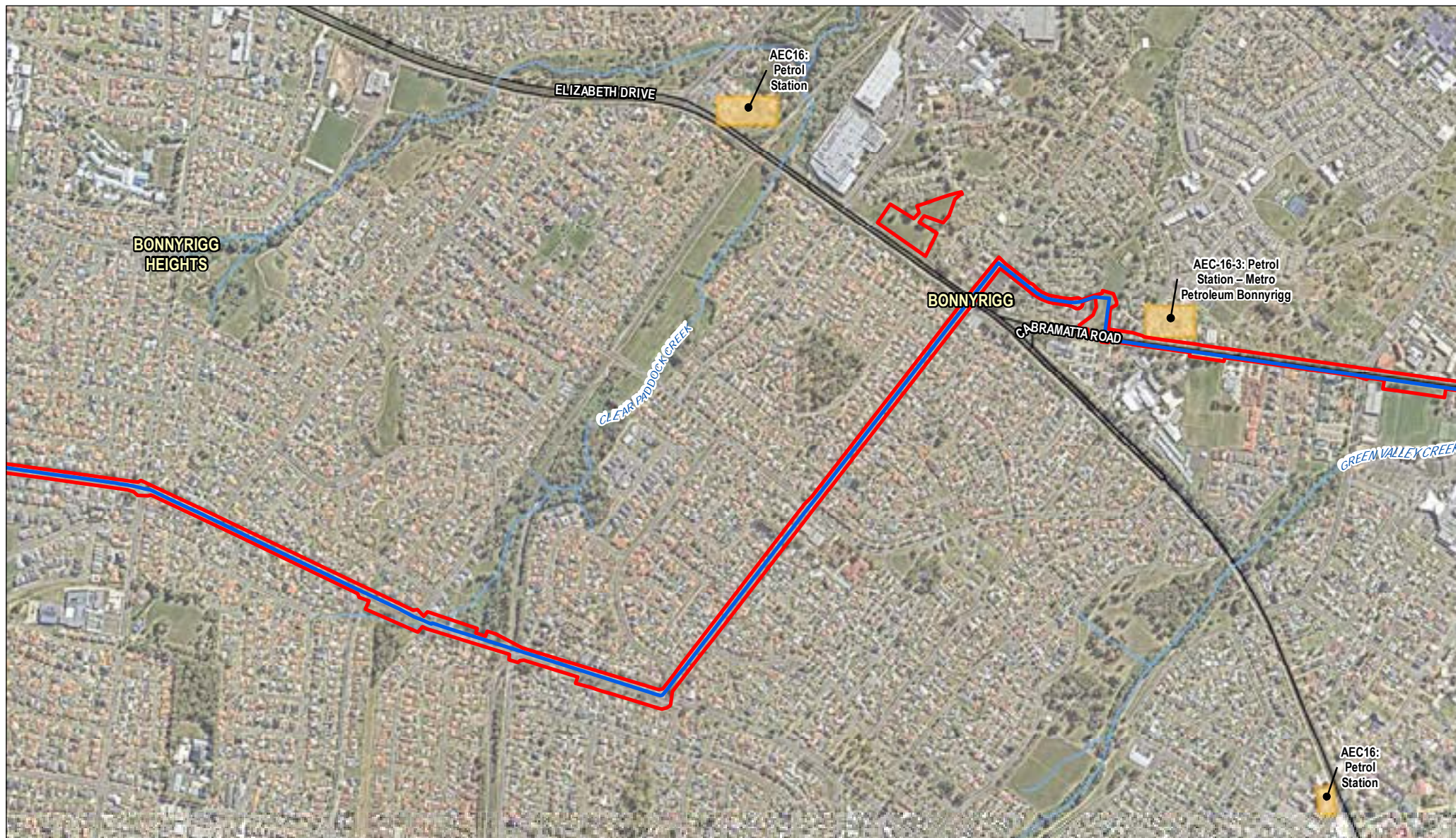
Client: John Holland Group

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F3g





Legend

- Pipeline Alignment
- Impact Assessment Area
- Areas of Environmental Concern (AEC) - Risk Ranking**
- Moderate
- Low
- Motorway
- Main Road
- Minor Road
- watercourse
- Cadastre (Lot)



Data Source:
NSW DCDB/DTDB 2023
Nearmap Imagery 2023

Areas of Environmental Concern

Drawing No: 0677828_PL_G003_R2.mxd

Date: 05/06/2023

Drawn By: VN

Coordinate System: GDA 1994 MGA Zone 56

0 100 200 300m

Drawing Size: A4

Reviewed By: JF

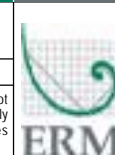
John Holland Upper South Creek

Client: John Holland Group

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F3h





Legend

- Pipeline Alignment
- Impact Assessment Area
- Areas of Environmental Concern (AEC) - Risk Ranking**
- Moderate
- Low
- Motorway
- Main Road
- Minor Road
- watercourse
- Cadastre (Lot)



Data Source:
NSW DCDB/DTDB 2023
Nearmap Imagery 2023

Areas of Environmental Concern

Drawing No: 0677828_PL_G003_R2.mxd

Date: 05/06/2023

Drawn By: VN

Coordinate System: GDA 1994 MGA Zone 56

0 100 200 300m

Drawing Size: A4

Reviewed By: JF

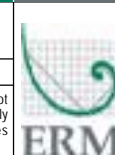
John Holland Upper South Creek

Client: John Holland Group

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F3i





Legend

- Pipeline Alignment
- Impact Assessment Area
- Areas of Environmental Concern (AEC) - Risk Ranking**
- Moderate
- Low
- Motorway
- Main Road
- Minor Road
- watercourse
- Cadastre (Lot)



Data Source:
NSW DCDB/DTDB 2023
Nearmap Imagery 2023

Areas of Environmental Concern

Drawing No: 0677828_PL_G003_R2.mxd

Date: 05/06/2023

Drawn By: VN

Coordinate System: GDA 1994 MGA Zone 56

0 100 200 300m



John Holland Upper South Creek

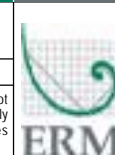
Drawing Size: A4

Reviewed By: JF

Client: John Holland Group

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F3j





Legend

- Pipeline Alignment
- Impact Assessment Area
- Areas of Environmental Concern (AEC) - Risk Ranking**
- Moderate
- Low
- Motorway
- Main Road
- Minor Road
- watercourse
- Cadastre (Lot)



Data Source:
NSW DCDB/DTDB 2023
Nearmap Imagery 2023

Areas of Environmental Concern

Drawing No: 0677828_PL_G003_R2.mxd

Date: 05/06/2023

Drawn By: VN

Coordinate System: GDA 1994 MGA Zone 56

0 100 200 300m



John Holland Upper South Creek

Drawing Size: A4

Reviewed By: JF

Client: John Holland Group

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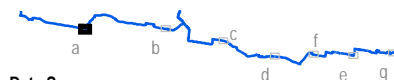
F3k





Legend

- Proposed Soil Sampling Locations
- Pipeline Alignment
- Impact Assessment Area
- Areas of Environmental Concern (AEC) - Risk Ranking**
 - Moderate
 - Low
- Motorway
- Main Road
- Minor Road
- watercourse
- Cadastre (Lot)



Data Source:
NSW DCDB/DTDB 2023
Nearmap Imagery 2023

Proposed Sampling Locations

Drawing No: 0677828_PL_G004_R1.mxd

Date: 05/06/2023

Drawn By: VN

Coordinate System: GDA 1994 MGA Zone 56

0 20 40 60m

Drawing Size: A4

Reviewed By: JF

John Holland Upper South Creek

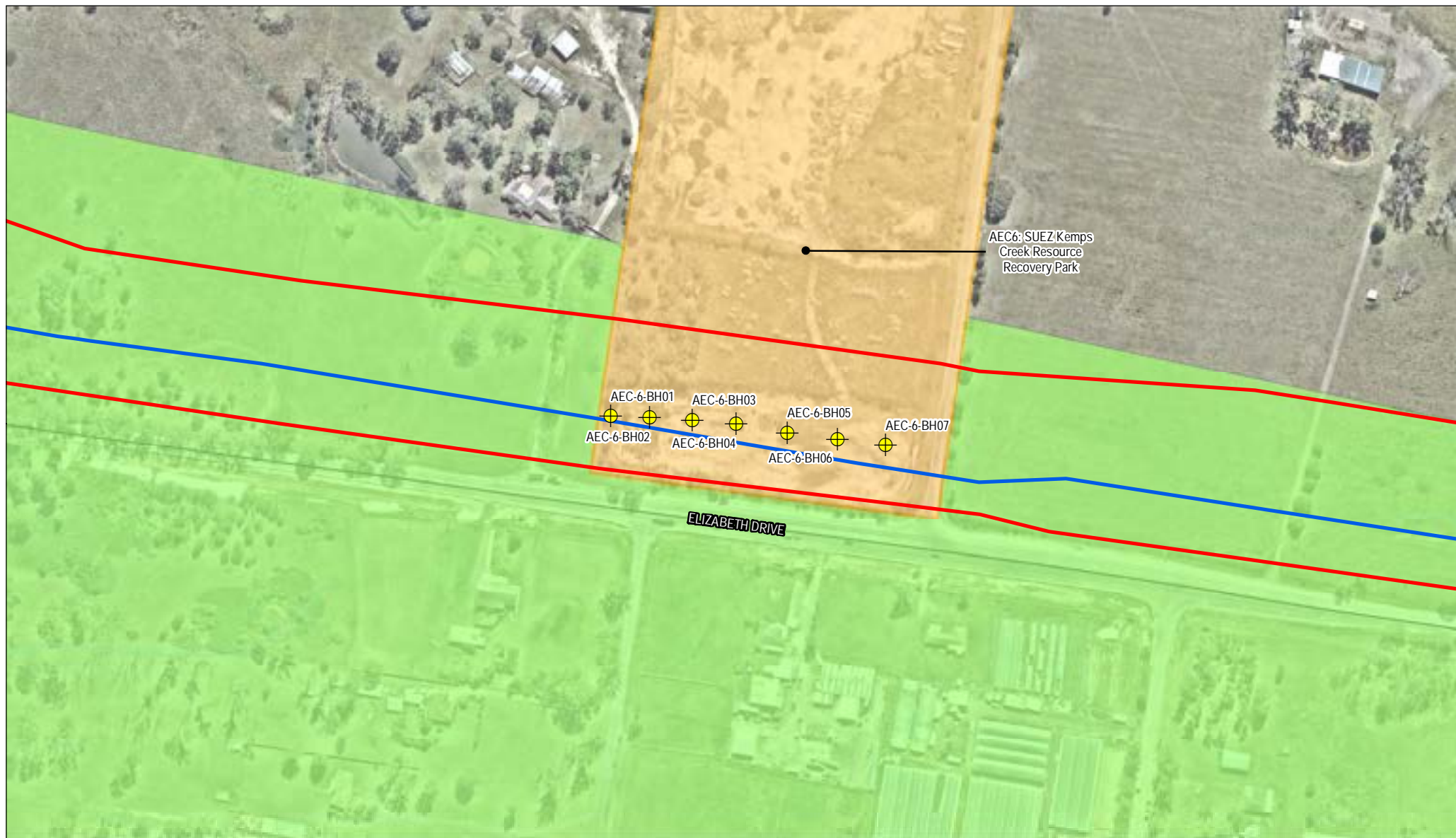
Client: John Holland Group

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F4a



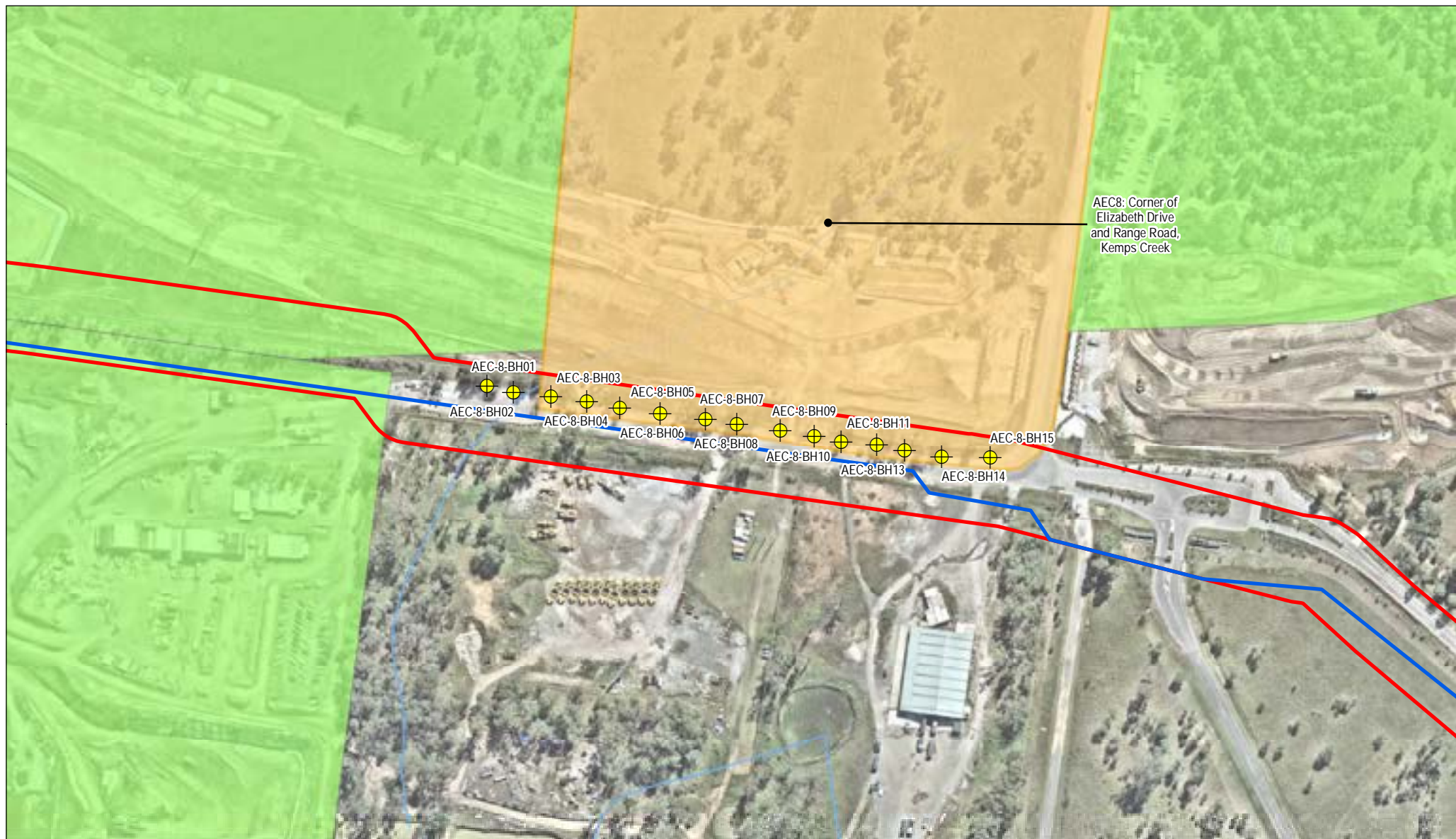


Legend

- Proposed Soil Sampling Locations
- Pipeline Alignment
- Impact Assessment Area
- Areas of Environmental Concern (AEC) - Risk Ranking
 - Moderate
 - Low
- Motorway
- Main Road
- Minor Road
- watercourse
- Cadastre (Lot)

Data Source:
NSW DCDB/DTDB 2023
Nearmap Imagery 2023

Proposed Sampling Locations		F4b
Drawing No: 0677828_PL_G004_R1.mxd	John Holland Upper South Creek	
Date: 05/06/2023	Drawing Size: A4	
Drawn By: VN	Reviewed By: JF	
Coordinate System: GDA 1994 MGA Zone 56		This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.

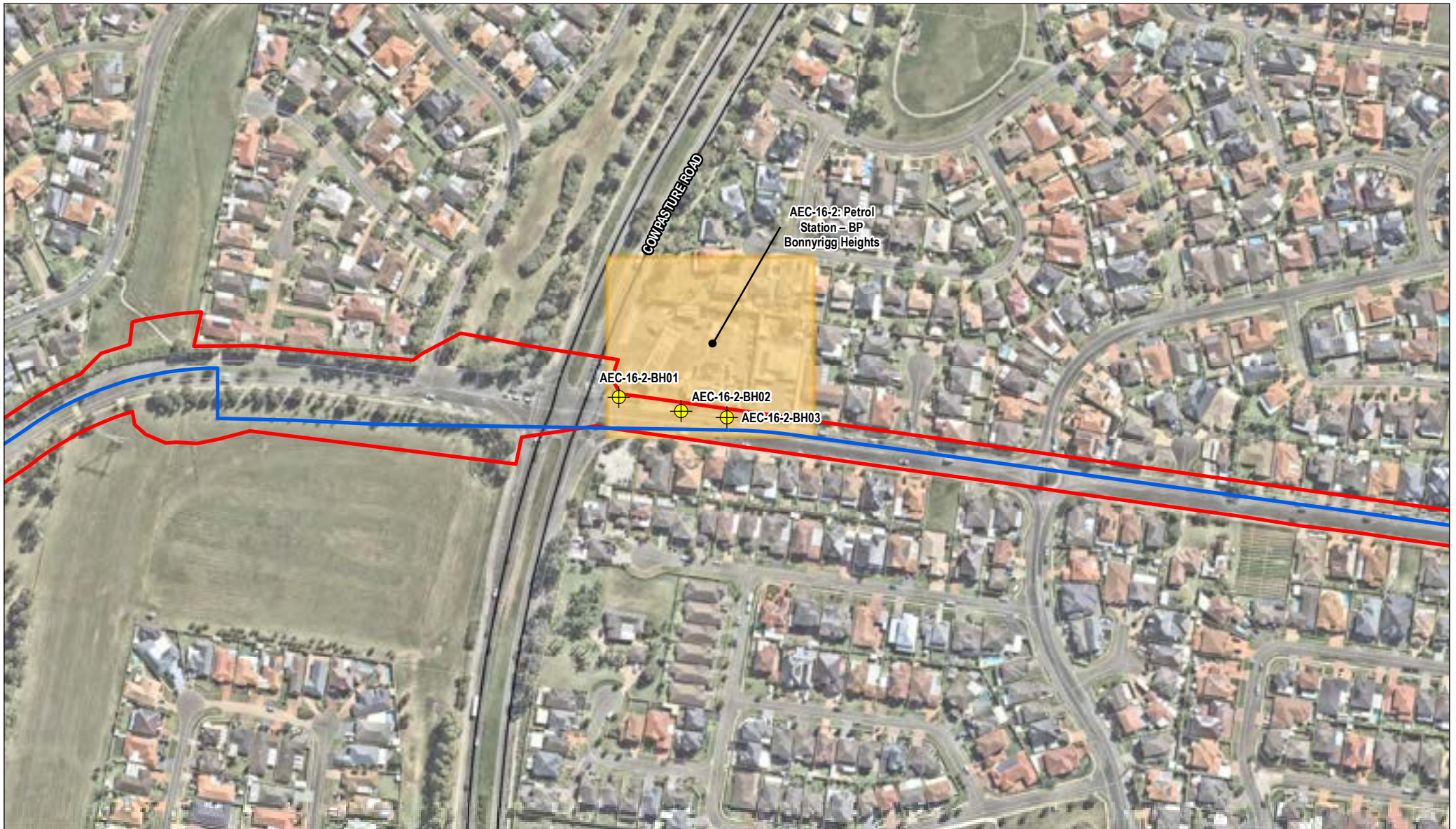


Legend











- Proposed Soil Sampling Locations
- Pipeline Alignment
- Impact Assessment Area
- Areas of Environmental Concern (AEC) - Risk Ranking
 - Moderate
 - Low
- Motorway
- Main Road
- Minor Road
- watercourse
- Cadastre (Lot)

Data Source:
NSW DCDB/DTDB 2023
Nearmap Imagery 2023

Proposed Sampling Locations		F4c
Drawing No: 0677828_PL_G004_R1.mxd	John Holland Upper South Creek	
Date: 05/06/2023	Drawing Size: A4	
Drawn By: VN	Reviewed By: JF	
Coordinate System: GDA 1994 MGA Zone 56		This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.



Legend

-  Proposed Soil Sampling Locations
-  Pipeline Alignment
-  Impact Assessment Area
-  Moderate
-  Low
-  Motorway
-  Main Road
-  Minor Road
-  watercourse
-  Cadastre (Lot)

Areas of Environmental Concern (AEC) - Risk Ranking



Data Source:
NSW DCDB/DTDB 2023
Nearmap Imagery 2023

Proposed Sampling Locations

Drawing No: 0677828_PL_G004_R1.mxd

Date: 05/06/2023

Drawn By: VN

Coordinate System: GDA 1994 MGA Zone 56

0 20 40 60m

Drawing Size: A4

Reviewed By: JF

John Holland Upper South Creek

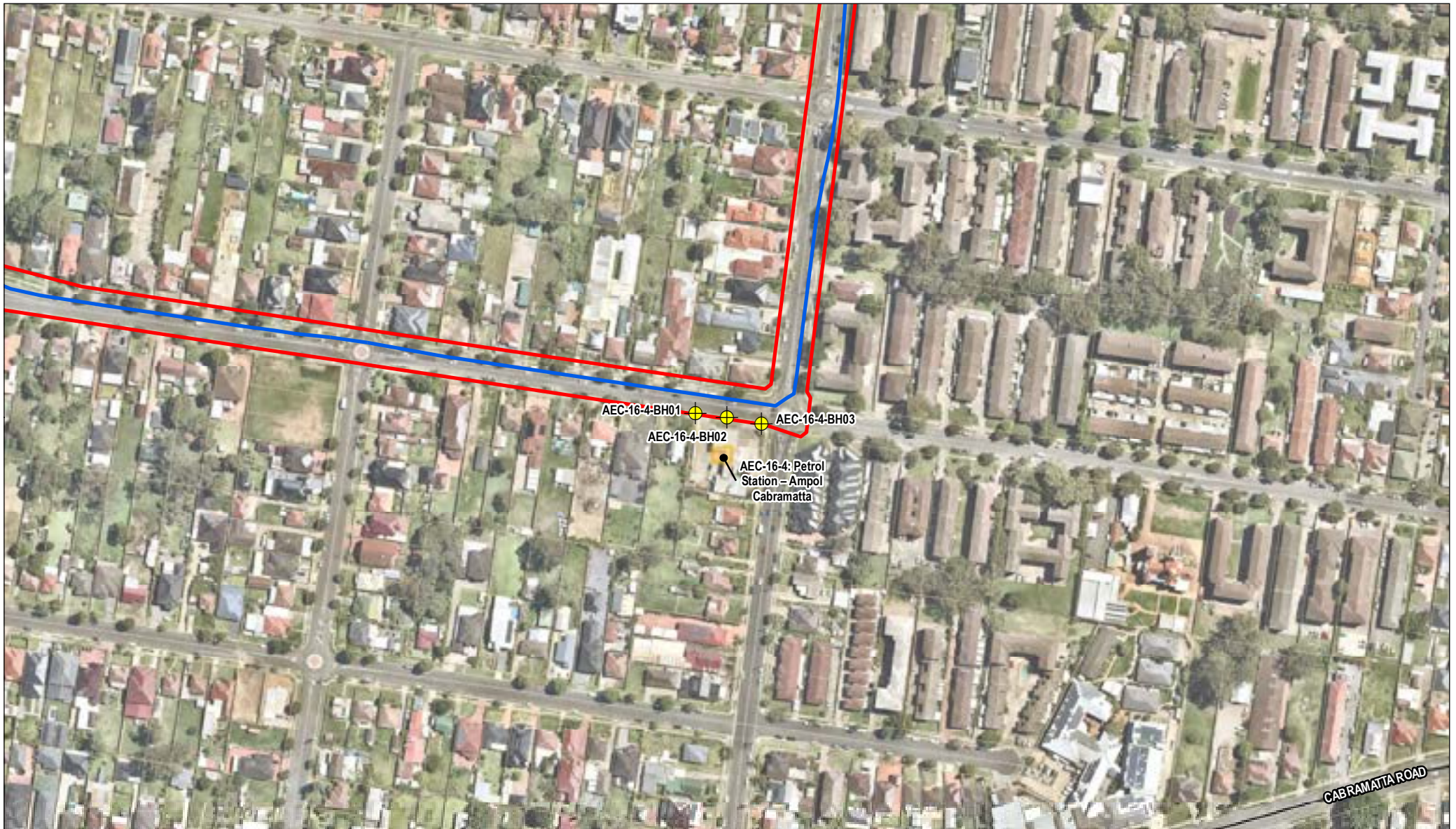
Client: John Holland Group

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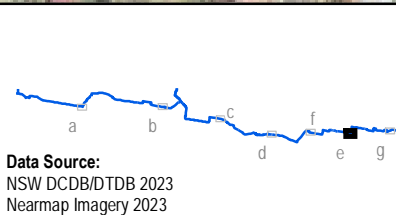
F4d





Legend

- Proposed Soil Sampling Locations
- Pipeline Alignment
- Impact Assessment Area
- Areas of Environmental Concern (AEC) - Risk Ranking**
- Moderate
- Low
- Motorway
- Main Road
- Minor Road
- watercourse
- Cadastre (Lot)



Proposed Sampling Locations

Drawing No: 0677828_PL_G004_R1.mxd

Date: 05/06/2023

Drawn By: VN

Coordinate System: GDA 1994 MGA Zone 56

0 20 40 60m

Drawing Size: A4

Reviewed By: JF

John Holland Upper South Creek

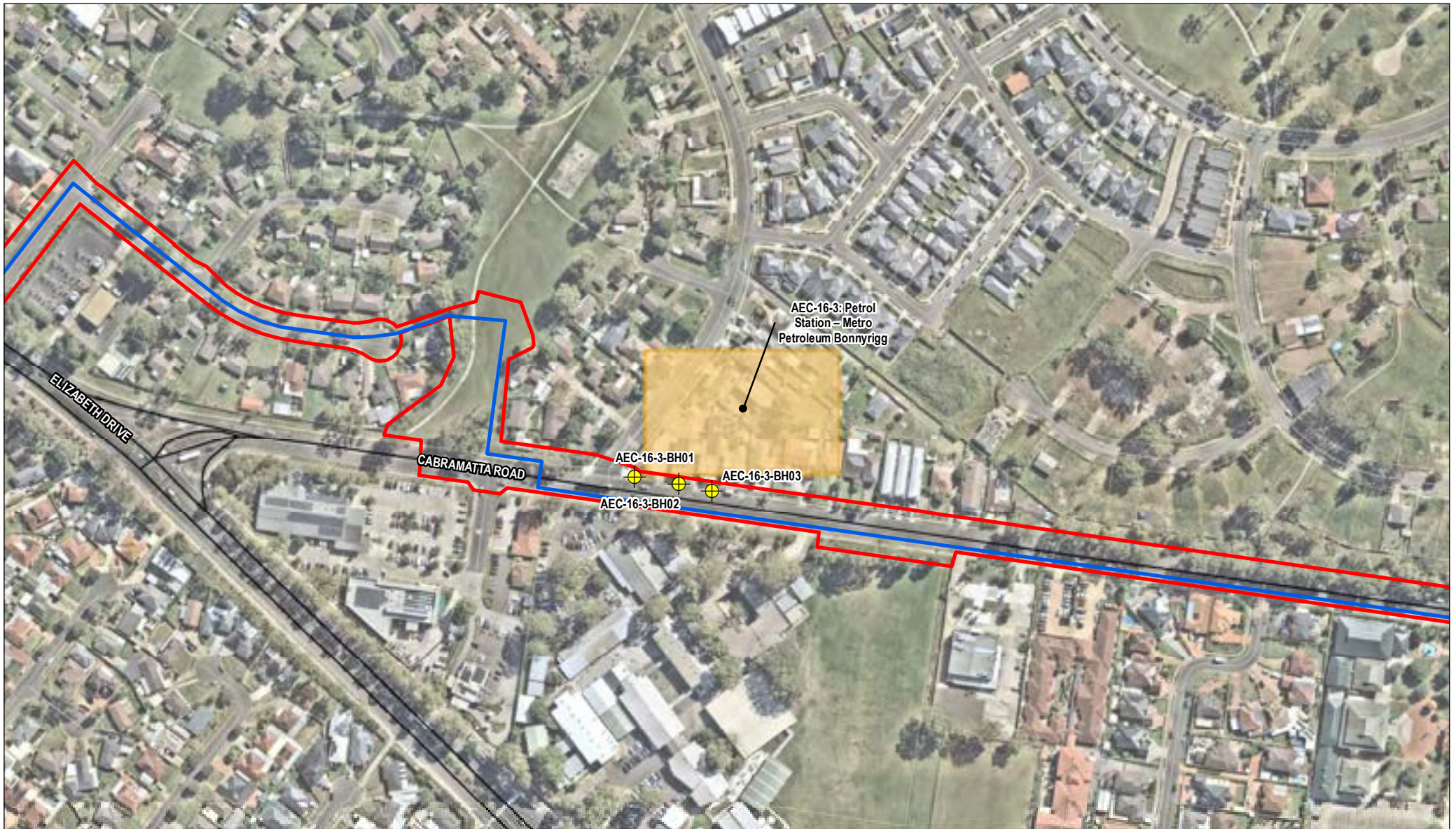
Client: John Holland Group

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F4e





Legend

- Proposed Soil Sampling Locations
- Pipeline Alignment
- Impact Assessment Area
- Areas of Environmental Concern (AEC) - Risk Ranking**
 - Moderate
 - Low
- Motorway
- Main Road
- Minor Road
- Watercourse
- Cadastre (Lot)

Data Source:
NSW DCDB/DTDB 2023
Nearmap Imagery 2023

Proposed Sampling Locations		F4f
Drawing No: 0677828_PL_G004_R1.mxd	John Holland Upper South Creek	
Date: 05/06/2023	Drawing Size: A4	Client: John Holland Group
Drawn By: VN	Reviewed By: JF	
Coordinate System: GDA 1994 MGA Zone 56		
<small>This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.</small>		



Legend

- Proposed Soil Sampling Locations
- Pipeline Alignment
- Impact Assessment Area
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- Main Road
- Minor Road
- watercourse
- Cadastre (Lot)

Data Source:
NSW DCDB/DTDB 2023
Nearmap Imagery 2023

Proposed Sampling Locations		F4g
Drawing No: 0677828_PL_G004_R1.mxd	John Holland Upper South Creek	
Date: 05/06/2023	Drawing Size: A4	Client: John Holland Group
Drawn By: VN	Reviewed By: JF	
Coordinate System: GDA 1994 MGA Zone 56		<p>This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.</p>

JBS&G 64112 | 154,296

L08 (0503 2307 SWC USC AWRC Plant RAP) Rev 0

30 August 2023

Cheryl Cahill
Environment Lead, Major Projects, Sydney Water
Via email: CHERYL.CAHILL@sydneywater.com.au

L08 Interim Audit Advice (0503-2307-08) – Sydney Water Corporation – Upper South Creek Advanced Water Recycling Centre – Review of the Remedial Action Plan – Plant site

Dear Cheryl,

1. Introduction and Background

Andrew Lau of JBS&G Australia Pty Ltd (JBS&G), has been engaged by Sydney Water Corporation (SWC, the client) to conduct a site audit(s) related to the Upper South Creek Advanced Water Recycling Centre (USC AWRC) and associated pipelines. The USC AWRC is located in Clifton Avenue Kemps Creek and occupies approx. 78 ha.

The pipelines occupy lands between the USC AWRC and Lansdowne Reserve in Lansdowne for approx. 24 km (“the brine pipeline”) and land between the USC AWRC and the Nepean River in Wallacia for approx. 16.7 km (“the treated water pipeline”).

The USC AWRC site (‘the site’) is owned by SWC and is zoned RU2 Rural Landscape and ENZ Environment and Recreation. Figures relating to the site and surrounds are shown in **Attachment 2**.

SWC received Ministerial approval for the USC AWRC project on 28th November 2022 as a state significant infrastructure project (Application Number SSI-8609189) (“the consent”).

Table 1 shows previously reviewed documents for the audit and relevant interim audit advice correspondence.

Table 1: Previous Interim Audit Advice Correspondence

Document Reviewed	Previous Interim Audit Advice Correspondence
<i>Unexpected Finds Procedure for Contamination</i> , John Holland, issued 07/12/2022, document number USCP-POL-G-002.	<i>L02 Interim Audit Advice (0503-2307-02) – Sydney Water Corporation – Upper South Creek Advanced Water Recycling Centre – Unexpected Finds Protocol</i> , to Cheryl Cahill of Sydney Water, 9 December 2022.
<i>Upper South Creek Advanced Water Recycling Centre - Soils and Contaminated Land Impact Assessment</i> , Aurecon ARUP, 27 July 2021 (“the SCLI document”)	<i>L03 Interim Audit Advice (0503-2307-03) – Sydney Water Corporation – Upper South Creek Advanced Water Recycling Centre – Review of the Upper South Creek Advanced Water Recycling Centre - Soils and</i>
<i>Upper South Creek Wastewater Treatment Plant Options Assessment, Preliminary Site Investigation (Contamination)</i> Aurecon, 2019	
<i>Upper South Creek Advanced Water Recycling Centre and Pipelines Detailed Site Investigation</i> , Aurecon ARP, 12 March 2021 (“the DSI”)	

Document Reviewed	Previous Interim Audit Advice Correspondence
<i>Memorandum re Hazardous Materials Survey – Upper South Creek Advanced Water Recycling Centre, Aurecon to Sydney Water, 18 May 2021</i>	<i>Contaminated Land Impact Assessment to Cheryl Cahill of Sydney Water, 17 March 2023.</i> L03 provided review of the four documents as related to the AWRC parcel of land, only.
<i>Upper South Creek Advanced Water Recycling Centre and Pipelines Soils & Contamination Construction Environmental Management Plan (“the CEMP”) John Holland, 01/03/2023, USCP-JHG-MPL-ENV-0008 Rev 4, some portions, only.</i>	<i>L04 Interim Audit Advice (0503-2307-04) – Sydney Water Corporation – Upper South Creek Advanced Water Recycling Centre – Review of the Upper South Creek Advanced Water Recycling Centre – Soils and Contamination Construction Environmental Management Plan Sub-Plan to Cheryl Cahill of Sydney Water, 12 May 2023.</i>
<i>Upper South Creek Advanced Water Recycling Centre and Pipelines Soils & Contamination Construction Environmental Management Plan (CEMP) Sub-plan (S&C CEMP sub-plan), John Holland, issued 10/05/2023 and earlier drafts (11/03/23, 14/04/2023) (uncontrolled copy) Document No: USCP-JHG-MPL-ENV-0003.</i>	
<i>The SCLI Assessment and the DSI, as they relate to the pipelines site only.</i>	<i>L05 Interim Audit Advice (0503-2307-05) – Sydney Water Corporation – Upper South Creek Advanced Water Recycling Centre – Review of the Upper South Creek Advanced Water Recycling Centre - Soils and Contaminated Land Impact Assessment – Pipelines to Cheryl Cahill of Sydney Water, 16 May 2023.</i>
<i>Upper South Creek Water Factory Pipeline Alignments Option Concept Design, Preliminary Site Investigation (Contamination) Aurecon, 2020</i>	
<i>Sampling and Analysis Quality Plan, Upper South Creek Advanced Water Recycling Centre, ERM 6 June 2023.</i>	<i>L06 Interim Audit Advice (0503-2307-06) – Sydney Water Corporation – Upper South Creek Advanced Water Recycling Centre – Review of the USC AWRC Plant Sampling and Analysis Quality Plan, to Cheryl Cahill of Sydney Water, 22 June 2023</i>
<i>Sampling and Analysis Quality Plan, Upper South Creek Advanced Water Recycling Centre, Pipeline Alignment, ERM, 8 August 2023</i>	<i>L07 Interim Audit Advice (0503-2307-07) – Sydney Water Corporation – Upper South Creek Advanced Water Recycling Centre – Review of the Pipelines Sampling and Analysis Quality Plan, to Cheryl Cahill of Sydney Water, 14 August 2023</i>

2. Document Reviewed

The following document was reviewed in preparation of this Interim Audit Advice (IAA):

- *Remedial Action Plan, Upper South Creek Advanced Water Recycling Centre, ERM, 29 August 2023, ERM and earlier drafts (‘the RAP’, ERM, 2023)*

3. Objective of this Interim Advice

The objective of this interim advice is to provide an auditor review of the RAP for the plant site. This is required under Conditions E74 (e), E83 and E84 of the consent.

- E74 “...The Site Auditor is to review all relevant documentation and provide a written opinion on the contamination risk and the appropriateness of the reports and any proposed management measures of the site, including.... (e) Remedial Action Plans in Condition E83...”.
- E83 “Where remediation is required to make land suitable for the final intended land use, a Remedial Action Plan must be prepared and/or reviewed and approved by consultants certified under ... the Environment Institute of Australia and New Zealand’s Certified Environmental Practitioner (Site Contamination) scheme....”

“The Remedial Action Plan must be prepared in accordance with relevant guidelines made or approved by the EPA under section 105 of the CLM Act and must include measures to remediate the contamination at the site to ensure the site will be made suitable for the final intended land use.”

- E84 “If remediation is required to make land suitable for the final intended land use, then prior to commencing with the remediation, the Proponent must submit the Remedial Action Plan(s) and an interim audit advice from a NSW EPA accredited Site Auditor to the Planning Secretary for information, which considers that the Remedial Action Plan is appropriate and that the site can be made suitable for the proposed land use. The Remedial Action Plan must be implemented and any changes to the Remedial Action Plan must be approved in writing by the NSW EPA accredited Site Auditor.”

4. Auditor’s Assessment

The auditor notes that the RAP (ERM, 2023) complies with the requirement that it be prepared/reviewed by a Certified Contaminated Land Consultant. The report has been signed by Mr Peter Lavelle of ERM and his seal as a CEnvP SC (EIANZ) is on the title page of the RP, in fulfilment of the consent condition E83.

The auditor has considered the RAP (ERM, 2023) against the requirements of the requirements for RAPs in accordance with the relevant Guidelines as shown in **Table 2**.

Table 2: Compliance of the RAP (Plant site) (ERM, 2023) with the requirements of EPA (2020)

Report Section	Required Information	Addressed within the SAQP	Audit Opinion
Document control	Date, version number, author and reviewer (including certification details) and who commissioned the report	Inside Cover	Adequate
Objectives	The objectives of the remediation	<u>Section 1.2</u> : “the overall objective is to document remedial processes and procedures for the site to be made suitable for the proposed USC AWRC development.” <u>Section 4</u> lists specific proposed asbestos remediation objectives.	Adequate
Scope of work	Summary of scope of work	<u>Section 1.3</u> describes the works completed to prepare the RAP (ERM, 2023). These included a review of previous reports and defined remedial goals, based on the conceptual site model (CSM) and proposed future land use. From this the preferred remedial strategy was developed, together with the specific requirements of the recommended remedial approach.	Adequate
Site identification, site history, site condition and surrounding environment	Street number, street name and suburb, Lot/DP, zoning, locality map, neighbouring site uses. Summaries of site history, site condition and surrounding environment. Topography, Geology, hydrogeology and hydrology.	<u>Section 3</u> , provides the site identification details, as well as a summary of the site history. <u>Table 3-2</u> provides the site environmental settings and background details, including topography, geology, hydrology and hydrogeological details. These are summarised from previous reports that the auditor has reviewed as described in Table 1 , above.	Adequate
Remediation criteria	A list of criteria and rationale for the criteria, including references.	<u>Section 9</u> : Reference is made to the remediation acceptance criteria for asbestos as being adopted from the NEPM ¹ and for any unexpected fines ERM have adopted criteria from the NEPM and “CRC Care (2011).” The RAP (ERM, 2023) states that material for off site disposal will be classified in accordance with EPA (2014). ² The RAP (ERM, 2023) states that imported material will be assessed in accordance with EPA (2014) for VENM or approved exemptions for	Adequate. While ERM did not list the reference for “CRC Care 2011”, the auditor understands this to be <i>Health Screening Levels for Petroleum Hydrocarbons</i> , “Technical Report No.10”, CRC Care, September 2011.

¹ National Environment Protection (Assessment of Site Contamination Measure), 1999. National Environment Council, revised 2013.

² Waste Classification Guidelines: Part 1: Classifying Waste, NSW EPA, 2014.

Report Section	Required Information	Addressed within the SAQP	Audit Opinion
		<p>recycled materials,³ and for any recycled materials that are not ENM, the RAP (ERM, 2023) states that the material will need to meet the criteria shown in Table 4 of the ENM Order, with a maximum average concentration for characterisation limits.</p> <p>The imported VNEM material will be considered appropriate if metals are representative of background concentrations and organic contaminants are below the laboratory limit of reporting.</p> <p>All imported material is to be reviewed and approved by the auditor prior to importing such material and the environmental consultant will prepare documentation that indicates that the environmental consultant is satisfied that the imported material is suitable for use at the site, prior to submitting the evidence to the site auditor.</p> <p>The RAP (ERM, 2023) states that the capping layer will be validated, with a minimum thickness of 0.5 m and an accurate survey will be used to confirm the thickness. The capping layer extent will also be surveyed for purposes of the LTEMP⁴ and to demonstrate that the capping layer is appropriately situated above all underlying material requiring capping. The RAP (ERM, 2023) states that photos of the cap will be included in the Validation Report.</p>	
Results	Summary of previous results or reference to previous report(s).	<p><u>Section 3</u> of the RAP (ERM, 2023) references a number of previous investigations and <u>Table 3-3</u> summarises the information in each report. <u>Section 3.4</u> provides a summary of identified contamination at the AWRC plant site and <u>Table 3-4</u> divides the site into 10 different areas as requiring remediation plus estimated volumes of material.</p>	<p>Adequate. The auditor notes that laboratory results of soil samples collected during previous investigations found CoPC to be lower than assessment criteria except for asbestos; some detections for metals above EILs were reported to be co-located with asbestos in soil.</p>

³ For instance, the Excavated Natural Material Order 2014 (for ENM).

⁴ Long Term Environmental Management Plan

Report Section	Required Information	Addressed within the SAQP	Audit Opinion
Summary of site Characterisation	Assessment of all types of environmental contamination and assessment of extent of all identified contamination, including off site areas	The RAP (ERM, 2023) does not include a specific section that provides a site characterisation of contamination at the site, but <u>Section 3</u> provides sufficient detail to characterise the site with regards contamination and extent of contamination.	Adequate
Conceptual Site Model (CSM)	<p>Identification of the CoPC.</p> <p>Identification of potential and known sources of contamination, affected media, potential and actual pathways and human and ecological receptors.</p> <p>Data gap analysis.</p>	<p><u>Table 3.6</u> presented a CSM for the site. The CoPC were identified as asbestos, as well as other contaminants associated with uncontrolled filling and hazardous materials associated with current and former structures and conduits. Pathways were identified for both human and ecological receptors and included inhalation of asbestos.</p> <p>Receptors were identified as current and future site users and workers carrying out development, installation and maintenance works within the site, as well as potential users of on-site groundwater. In terms of ecological receptors, the two receiving creeks were identified as sensitive environments. The CSM noted that the risk of complete linkages for all CoPC were identified as low, except for asbestos, which was identified as high.</p>	Adequate.
Remedial Options Assessment and Remediation Strategy	Assessment of possible remedial options and how risk can be reduced	<u>Section 5</u> : a range of remedial options were presented involving different forms of onsite containment, offsite beneficial reuse or disposal to a licenced landfill facility.	Adequate
	Rationale for the selection of recommended remedial option, in accordance with the preferred hierarchy outlined in the NEPM	<u>Section 5</u> : The RAP (ERM, 2023) indicated “above ground and below ground partial encapsulation was the preferred option”.	Adequate
	Description of the remediation works to be undertaken	<p><u>Table 6-1</u>: outlines the remedial strategy that will be used. This includes excavation of asbestos impacted fill materials, preparing a location to hold the impacted materials and placement within the aboveground encapsulation. A cover comprising a minimum of 0.5 m thickness of clay and a marker layer will be placed over the fill.</p> <p><u>Section 7.5</u> describes the preparation and excavation of the designated placement location. The depth of excavation is anticipated to be to 0.5 to 1 m below ground level (BGL).</p> <p>In the event of landscaping over the cap, the root zone of all trees/shrubs must be free from the asbestos impacted material.</p>	Adequate. The auditor notes that the site walkover will be undertaken on a 100 m grid and the results of the walkover will be reported in an addendum to the DSI.

Report Section	Required Information	Addressed within the SAQP	Audit Opinion
		<u>Section 7.1:</u> notes that a site walkover will be undertaken to assess for the potential presence of ACM on the ground surface, or other evidence of potential contamination. Any potential contamination discovered will be managed as per the unexpected finds protocol.	
	Confirmation that waste imported onto the site is lawful.	<u>Table 8.1</u> requires that imported materials are VENM, ENM or a recycled material meeting the requirements of the applicable resource recovery order. This is discussed above, in Remediation Criteria.	Adequate.
	Contingency plan if the selected remedial strategy fails	<u>Section 11:</u> provides the details for contingency planning. These include increased volumes of contaminated materials suitable for emplacement, chemical spills, excessive rain/drainage/dust, excessive wet materials and equipment failures. Contingencies noted that the site had a number of areas that can be used for the placement of additional contaminated materials.	Adequate. The auditor notes that if additional impacted material is found at the site the RAP (ERM, 2023) proposes that the material will be emplaced within the designated placement location. The auditor requires that such material must be suitable for placement and auditor approval must be sought prior to emplacement.
	Interim Site Management plans before remediation	The RAP (ERM, 2023) does not provide any interim site management plans before remediation.	Adequate. The auditor notes that the site is currently being managed under a Construction Environmental Management Plan (CEMP) which was subject to auditor review (Interim Audit Advice – L04) with respect to site contamination.
	Site Management plan requirements (operational phase): - site stormwater management plan	<u>Section 10:</u> provides an asbestos management plan and occupational health safety and environment plans which includes site access, dust	Adequate. The auditor also notes that the site CEMP is in use.

Report Section	Required Information	Addressed within the SAQP	Audit Opinion
	<ul style="list-style-type: none"> - soil management plan, including material tracking - noise control plan - dust control plan - odour control plan - work health and safety plan - remediation schedule hours of operation - contingency plans to respond to site incidents, to remove potential effects on surrounding environment and community 	control measures, soil erosion and surface water management, odour control and site signage plans.	
	Description of regulatory compliance requirements such as licences and approvals or financial assurance	<u>Section 7.3</u> lists the planning permitting, approvals and procurement requirements for the RAP (ERM, 2023).	Adequate. The auditor has noted that the site is being developed under the consent described above in Section 1 .
	Names and phone numbers of appropriate personnel to contact during remediation	<u>Section 10.2.7</u> – notes the remediation contractor will provide signage.	Adequate
	Community relations plans (where applicable)	Not provided	Adequate. This is addressed by Sydney Water under the consent.
	Staged progress reporting (where appropriate)	Not applicable	N/A
	Outline of environmental management plan for ongoing management of contamination at the site (if needed)	<u>Section 12</u> a long term environmental management plan will be required for the site to prevent any exposure to the asbestos material contained on site.	Adequate
Validation Plan	Data Quality Objectives (DQOs)	<u>Appendix B</u> the RAP (ERM, 2023) outlines the DQOs for the validation for the site, in accordance with the seven step process outlined in the NEPM.	The DQOs are adequate
	Validation summary	<u>Section 8:</u> The RAP (ERM, 2023) has divided the validation requirements into the following: <ol style="list-style-type: none"> 1. asbestos containing materials (ACM) impacted fill materials, 2. the fill placement area; 	Adequate.

Report Section	Required Information	Addressed within the SAQP	Audit Opinion
		3. the geofabric marker layer, 4. Fill capping/cover materials, 5. imported materials, waste, 6. areas beneath temporary stockpiles of ACM; and 7. areas outside of the placement location & haul roads.	
	Item 1: ACM impacted fill materials.	If natural material, then validation will be visual assessment of no ACM present. Residual fill materials will be assumed to be impacted by asbestos, unless validated in accordance with the NEPM.	Adequate
	Items 2, 3 and 4 – fill placement area, the geofabric marker layer and fill capping and cover materials.	Validation by survey and photos.	Adequate. Any clay material used at the site for capping purposes should be demonstrated to be VENM.
	Item 5 – Imported materials and waste.	The validation is discussed under remediation criteria above, aside from sampling density, which is described as follows: VENM: in the absence of appropriate supporting documentation, one sample per 250 m ³ with a minimum of 2 samples and a list of analytes has been included. Recycled material: one sample be 25 m ³ of material, with a minimum of two samples collected for analysis. Waste will be in accordance with the NSW EPA Waste Classification Guidelines: Part 1: Classifying Waste, (2014).	Adequate
	Item 6 – Areas beneath temporary stockpiles including ACM.	Visual assessment of excavation surface on a systematic basis for asbestos by the environmental consultant and licenced asbestos assessor.	Adequate. The auditor requires that field observations be provided in the Validation Report.
	Item 7 - areas outside of the placement location & haul roads.	Removal of stockpiled materials might expose fill materials. These residual fill materials will be assumed to be impacted by asbestos, until validated.	Adequate
	DQIs	<u>Appendix B</u> : DQIs for the validation program have been prepared. These are based on both unexpected finds requiring validation, as well as asbestos contamination.	Adequate

Report Section	Required Information	Addressed within the SAQP	Audit Opinion
Waste Management	Waste is to be classified in accordance with EPA Waste Classification Guidelines	Sections 7.5 & 7.8, and Table 8-1 indicate that waste will be classified in accordance with EPA Waste Classification Guidelines 2014.	Adequate
	Description of material handling and tracking plan	Section 7.9.2 indicates that a material tracking register will be maintained on site which will provide information regarding the source, characteristics, destination and quantities of material placed within the placement location, disposed offsite or imported to the site capping/backfilling purposes.	Adequate
	Statement regarding materials being disposed via an appropriately licenced facility or re-used under an order or exemption	Table 6-1: notes that if excess asbestos impacted material is encountered, then offsite disposal to a suitably licenced receiving facility may be undertaken, after appropriate waste classification documents have been prepared.	Adequate. The auditor notes that material for offsite disposal must be taken to a suitably licenced facility.
	Waste disposal dockets or other waste documentation for any disposed waste	Section 7.8 notes that disposal dockets will be provided.	Adequate
Conclusions and Recommendations	Conclusions addressing the stated objectives	Section 13: The RAP (ERM, 2023) conclusions are appropriate.	Adequate
	Summary of activities and physical changes to the site	Section 13: notes that the RAP (ERM, 2023) provides a working plan that details the excavation, soil stockpiling, validation and management strategies for the remediation of the site.	Adequate
	A clear statement as to why the consultant considers the site can be made suitable for the proposed use if the RAP (ERM, 2023) is implemented	Section 13 states "...ERM considers the impacted portion of the Site identified within previous site investigations could be rendered suitable for the proposed Upper South Creek Advanced Water Recycling Centre development following completion of remedial/validation works outlined within this RAP".	Adequate
	A summary of limitations and constraints on the use of the site post remediation and proposed environmental management plan.	Not addressed within the Conclusions.	The auditor is satisfied that the LTEMP has been discussed in sufficient detail elsewhere in the RAP(ERM, 2023).
	Recommendations for further work.	Not applicable	Not applicable

5. Auditor's Opinion

Based on a review of the information provided and subject to the limitations in **Attachment 1**, the following audit opinions are presented:

- The auditor considers that the RAP is appropriate for its stated purposes, namely to document remedial processes and procedures for the site to be made suitable for the proposed USC AWRC development;
- The proposed remedial strategy of excavation of material exceeding criteria and placing it within a emplacement location to be maintained under a LTEMP is considered to be technically feasible, environmentally justifiable, consistent with relevant laws, policies and guidelines and sustainable. For these reasons, the auditor considers the RAP to be appropriate;
- The considers that the proposed remediation works are technically feasible, environmentally justifiable and consistent with relevant laws, policies and guidelines; and
- The auditor is satisfied that the site can be made suitable for the proposed uses, subject to the successful implementation of the RAP (ERM, 2023).

Please note that this interim advice does not constitute a Site Audit Statement or a Site Audit Report but is provided to assist in the assessment and management of contamination issues at the site in regard to requirements of the site audit. The information provided herein should not be considered pre-emptive of the final audit conclusions, but rather represent the findings of the audit based on a preliminary review of available site information. Furthermore, the interim advice should not be regarded as approval of any proposed investigations or remedial activities, as any such approval is beyond the scope of an independent auditor.

Should you require clarification, please contact the undersigned on 02 8245 0300 or by email alau@jbsg.com.au.

Yours sincerely:



Andrew Lau
NSW EPA Accredited Site Auditor
Accreditation Number 0503
JBS&G Australia Pty Ltd

Attachments (1) Limitations
 (2) Site Figures

Attachment 1 – Limitations

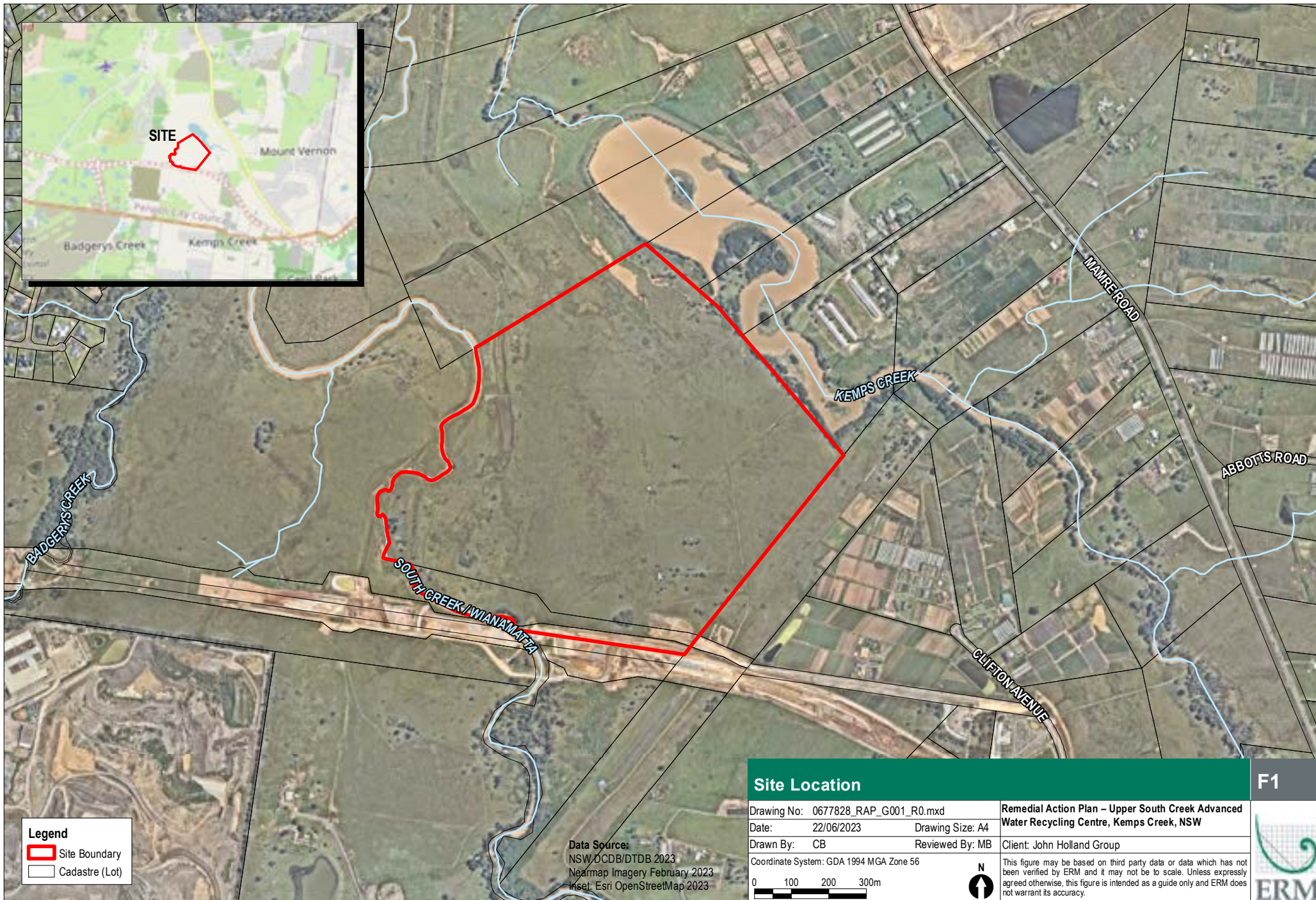
This audit was conducted with a reasonable level of scrutiny, care and diligence on behalf of the client for the purposes outlined in s.47 (1) of the *Contaminated Land Management Act 1997*. The data used to support the conclusions reached in this audit were obtained by other consultants and the limitations which apply to the consultant's report(s) apply equally to this audit report.

Every reasonable effort has been made to identify and obtain all relevant data, reports and other information that provide evidence about the condition of the site, and those that were held by the client and the client's consultants, or that were readily available. No liability can be accepted for unreported omissions, alterations or errors in the data collected and presented by other consultants. Accordingly, the data and information presented by others are taken and interpreted in good faith.

Sampling and chemical analysis of environmental media is based on appropriate guidance documents made and approved by the relevant regulatory authorities. Conclusions arising from the review and assessment of environmental data are based on the sampling and analysis considered appropriate based on the regulatory requirements. Limited sampling and laboratory analyses were undertaken as part of the investigations reviewed, as described herein. Ground conditions between sampling locations and media may vary, and this should be considered when extrapolating between sampling points. Chemical analytes are based on the information detailed in the site history. Further chemicals or categories of chemicals may exist at the site, which were not identified in the site history and which may not be expected at the site.

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

Attachment 2 – Site Figures




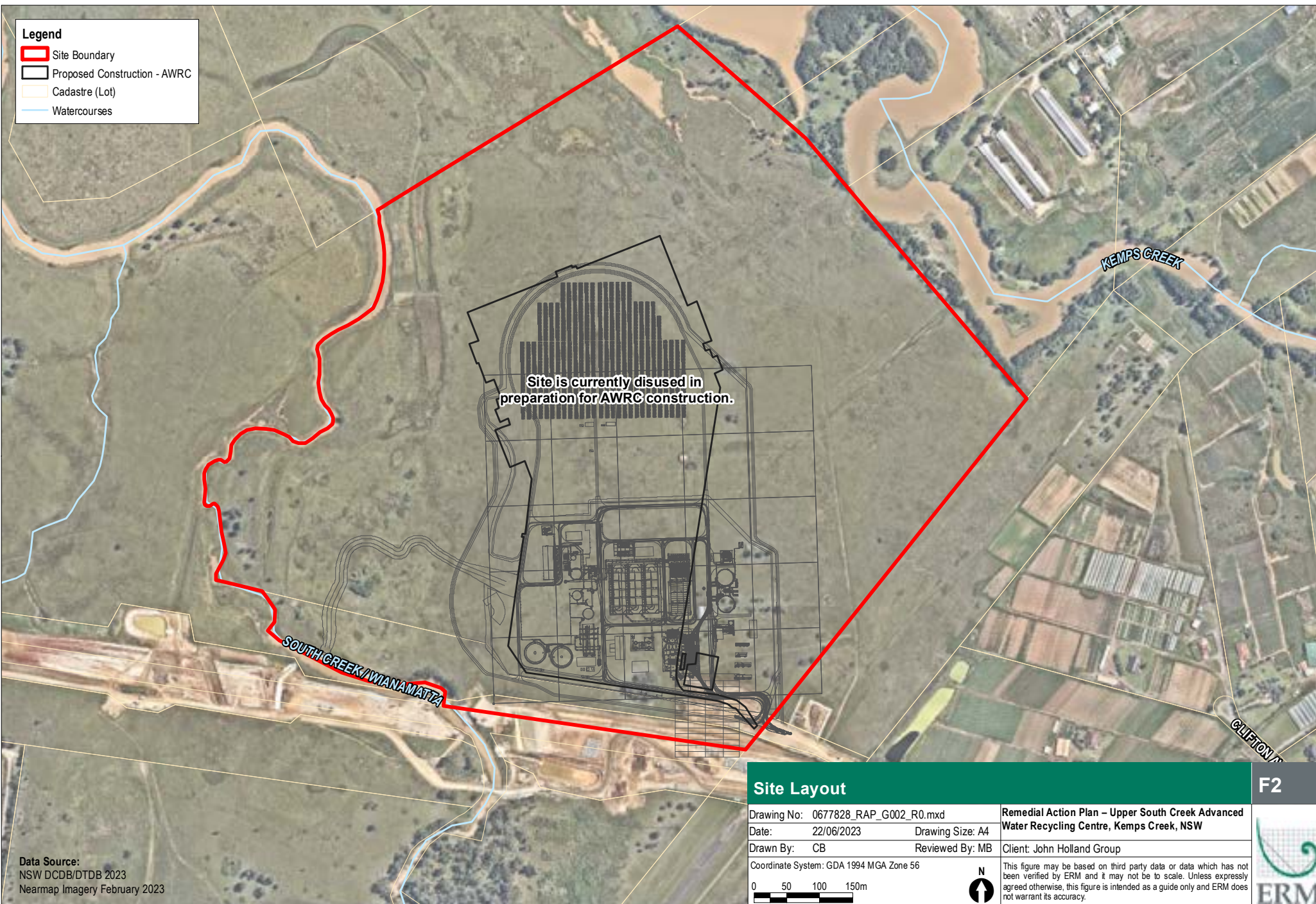
Legend

- Site Boundary
- Cadastre (Lot)

Data Source:
NSW DCDB/DTDB 2023
Nearmap Imagery February 2023
Inset: Esri OpenStreetMap 2023

Site Location		F1
Drawing No: 0677828_RAP_G001_R0.mxd	Remedial Action Plan – Upper South Creek Advanced Water Recycling Centre, Kems Creek, NSW	
Date: 22/06/2023	Drawing Size: A4	Client: John Holland Group
Drawn By: CB	Reviewed By: MB	
Coordinate System: GDA 1994 MGA Zone 56		 This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.





Data Source:
NSW DCDB/DTDB 2023
Nearmap Imagery February 2023

Site Layout

Drawing No: 0677828_RAP_G002_R0.mxd
Date: 22/06/2023
Drawn By: CB
Reviewed By: MB
Coordinate System: GDA 1994 MGA Zone 56

Remedial Action Plan – Upper South Creek Advanced
Water Recycling Centre, Kemps Creek, NSW

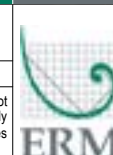
Client: John Holland Group

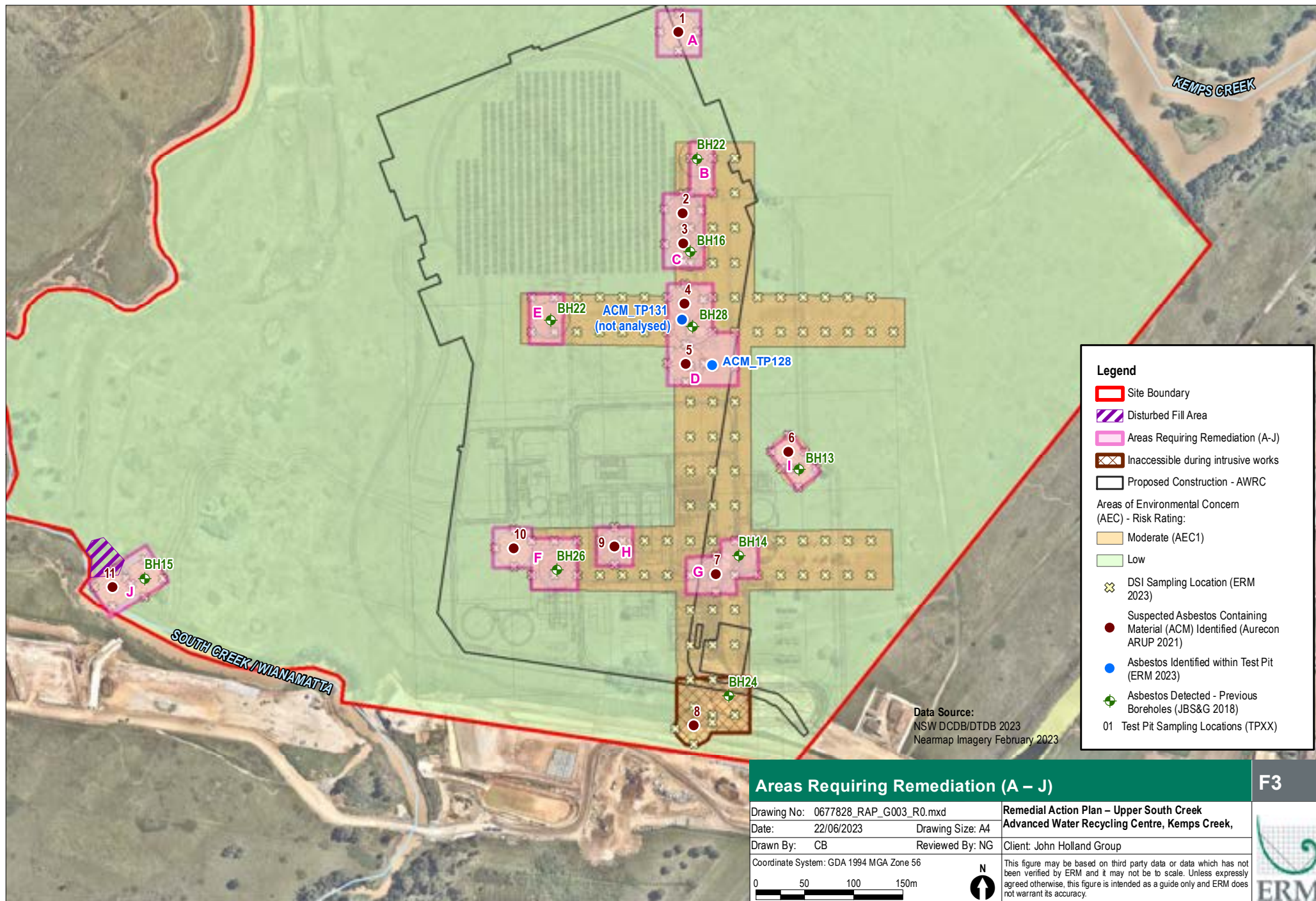
This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.

0 50 100 150m



F2





Areas Requiring Remediation (A – J)

Drawing No: 0677828_RAP_G003_R0.mxd
Date: 22/06/2023
Drawn By: CB

Drawing Size: A4

Reviewed By: NG

Coordinate System: GDA 1994 MGA Zone 56

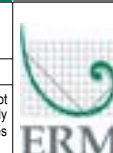


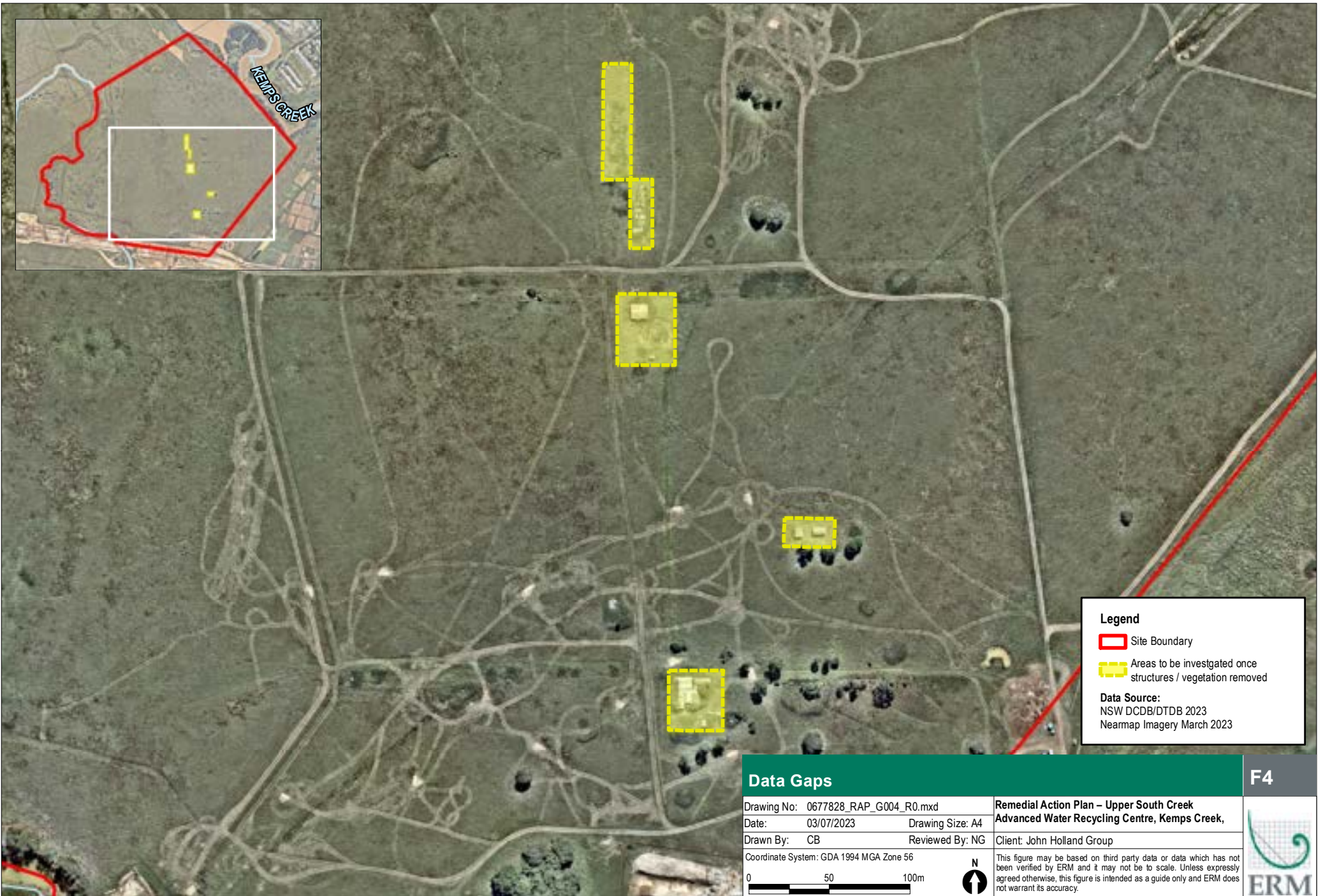
Remedial Action Plan – Upper South Creek
Advanced Water Recycling Centre, Kemp's Creek,

Client: John Holland Group






This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.

F3





Legend

-  Proposed Onsite Containment Location
-  Site Boundary
-  Proposed Construction - AWRC
-  Cadastre (Lot)
-  Watercourses

Site is currently disused in preparation for AWRC construction.

Proposed Onsite Containment Location

F5

Drawing No: 0677828_RAP_G005_R0.mxd

Remedial Action Plan – Upper South Creek Advanced Water Recycling Centre, Kemps Creek, NSW

Date: 07/07/2023

Drawing Size: A4

Drawn By: CB

Reviewed By: MB

Client: John Holland Group

Coordinate System: GDA 1994 MGA Zone 56

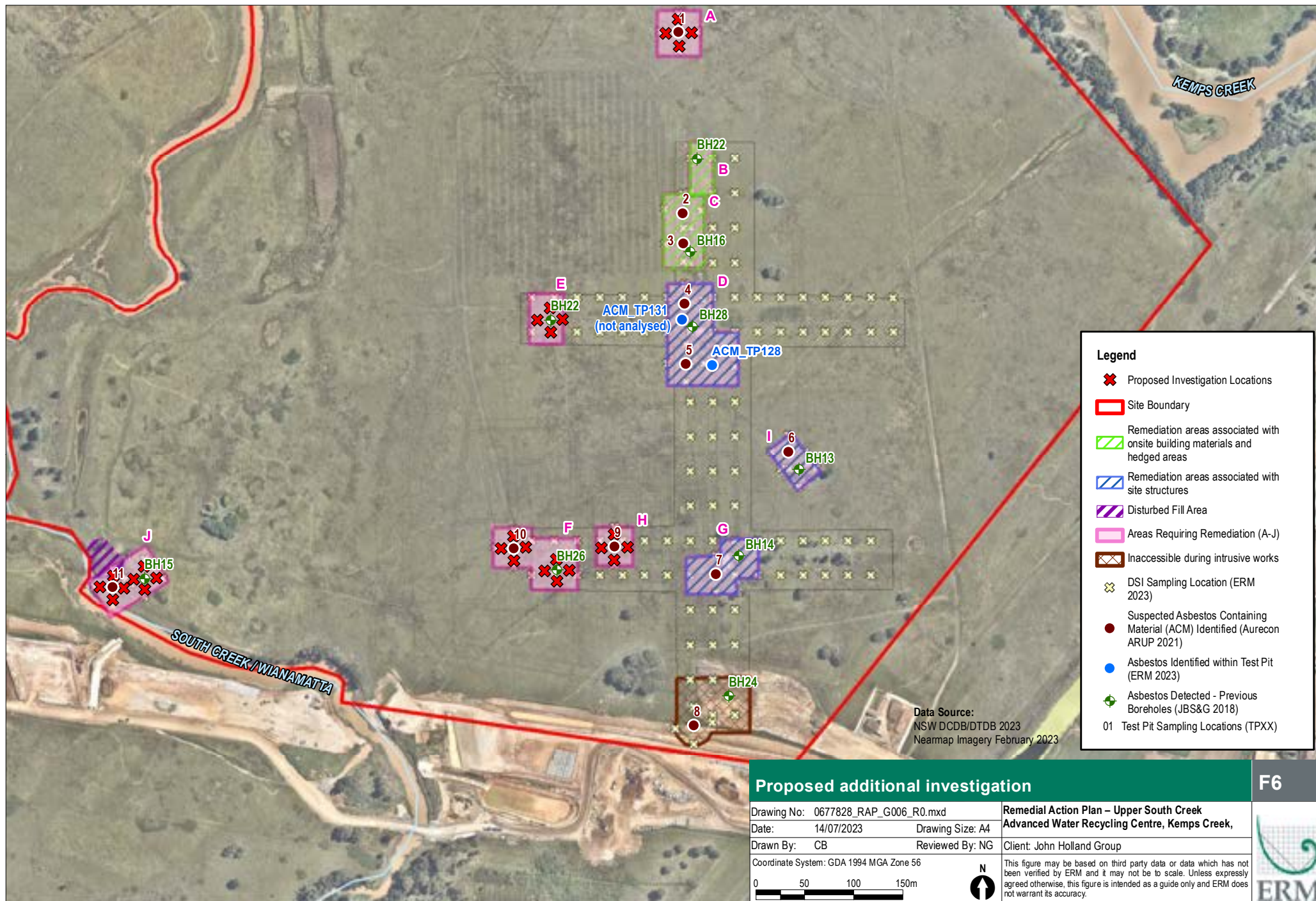
0 50 100 150m



This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.



Data Source:
NSW DCDB/DTDB 2023
Nearmap Imagery February 2023



Data Source:
NSW DCDB/DTDB 2023
Nearmap Imagery February 2023

Proposed additional investigation

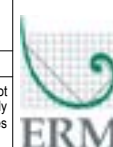
Drawing No: 0677828_RAP_G006_R0.mxd
Date: 14/07/2023
Drawn By: CB
Reviewed By: NG
Coordinate System: GDA 1994 MGA Zone 56

**Remedial Action Plan – Upper South Creek
Advanced Water Recycling Centre, Kemp's Creek,**

Client: John Holland Group

This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.

F6



JBS&G 64112 | 154,483

L09 (0503 2307 SWC USC AWRC Plant DSI) Rev 0

6 September 2023

Cheryl Cahill
Environment Lead, Major Projects, Sydney Water
Via email: CHERYL.CAHILL@sydneywater.com.au

L09 Interim Audit Advice (0503-2307-09) – Sydney Water Corporation – Upper South Creek Advanced Water Recycling Centre – Review of the Detailed Site Investigation – Plant site

Dear Cheryl,

1. Introduction and Background

Andrew Lau of JBS&G Australia Pty Ltd (JBS&G), has been engaged by Sydney Water Corporation (SWC, the client) to conduct a site audit(s) related to the Upper South Creek Advanced Water Recycling Centre (USC AWRC) and associated pipelines. The USC AWRC is located in Clifton Avenue Kemps Creek and occupies approx. 78 ha and is referred to as ‘the plant site’ within this interim audit advice.

The pipelines occupy lands between the USC AWRC and Lansdowne Reserve in Lansdowne for approx. 24 km (“the brine pipeline”) and land between the USC AWRC and the Nepean River in Wallacia for approx. 16.7 km (“the treated water pipeline”).

The USC AWRC site (‘the site’) is owned by SWC and is zoned RU2 Rural Landscape and ENZ Environment and Recreation. Figures relating to the site and surrounds are shown in **Attachment 2**.

SWC received Ministerial approval for the USC AWRC project on 28th November 2022 as a state significant infrastructure project (Application Number SSI-8609189) (“the consent”).

Table 1 shows previously reviewed documents for the audit and relevant interim audit advice correspondence.

Table 1: Previous Interim Audit Advice Correspondence

Document Reviewed	Previous Interim Audit Advice Correspondence
<i>Unexpected Finds Procedure for Contamination</i> , John Holland, issued 07/12/2022, document number USCP-POL-G-002.	<i>L02 Interim Audit Advice (0503-2307-02) – Sydney Water Corporation – Upper South Creek Advanced Water Recycling Centre – Unexpected Finds Protocol</i> , to Cheryl Cahill of Sydney Water, 9 December 2022.
<i>Upper South Creek Advanced Water Recycling Centre - Soils and Contaminated Land Impact Assessment</i> , Aurecon ARUP, 27 July 2021 (“the SCLI document”)	<i>L03 Interim Audit Advice (0503-2307-03) – Sydney Water Corporation – Upper South Creek Advanced Water Recycling Centre – Review of the Upper South Creek Advanced Water Recycling Centre - Soils and Contaminated Land Impact Assessment</i> to Cheryl Cahill of Sydney Water, 17 March 2023.
<i>Upper South Creek Wastewater Treatment Plant Options Assessment, Preliminary Site Investigation (Contamination)</i> Aurecon, 2019	
<i>Upper South Creek Advanced Water Recycling Centre and Pipelines Detailed Site Investigation</i> , Aurecon ARP, 12 March 2021 (“the DSI”)	L03 provided review of the four documents as related to the AWRC parcel of land, only.

Document Reviewed	Previous Interim Audit Advice Correspondence
<i>Memorandum re Hazardous Materials Survey – Upper South Creek Advanced Water Recycling Centre, Aurecon to Sydney Water, 18 May 2021</i>	
<i>Upper South Creek Advanced Water Recycling Centre and Pipelines Soils & Contamination Construction Environmental Management Plan (“the CEMP”) John Holland, 01/03/2023, USCP-JHG-MPL-ENV-0008 Rev 4, some portions, only.</i>	<i>L04 Interim Audit Advice (0503-2307-04) – Sydney Water Corporation – Upper South Creek Advanced Water Recycling Centre – Review of the Upper South Creek Advanced Water Recycling Centre – Soils and Contamination Construction Environmental Management Plan Sub-Plan to Cheryl Cahill of Sydney Water, 12 May 2023.</i>
<i>Upper South Creek Advanced Water Recycling Centre and Pipelines Soils & Contamination Construction Environmental Management Plan (CEMP) Sub-plan (S&C CEMP sub-plan), John Holland, issued 10/05/2023 and earlier drafts (11/03/23, 14/04/2023) (uncontrolled copy) Document No: USCP-JHG-MPL-ENV-0003.</i>	
<i>The SCLI Assessment and the DSI, as they relate to the pipelines site only.</i>	<i>L05 Interim Audit Advice (0503-2307-05) – Sydney Water Corporation – Upper South Creek Advanced Water Recycling Centre – Review of the Upper South Creek Advanced Water Recycling Centre - Soils and Contaminated Land Impact Assessment – Pipelines to Cheryl Cahill of Sydney Water, 16 May 2023.</i>
<i>Upper South Creek Water Factory Pipeline Alignments Option Concept Design, Preliminary Site Investigation (Contamination) Aurecon, 2020</i>	
<i>Sampling and Analysis Quality Plan, Upper South Creek Advanced Water Recycling Centre, ERM 6 June 2023.</i>	<i>L06 Interim Audit Advice (0503-2307-06) – Sydney Water Corporation – Upper South Creek Advanced Water Recycling Centre – Review of the USC AWRC Plant Sampling and Analysis Quality Plan, to Cheryl Cahill of Sydney Water, 22 June 2023</i>
<i>Sampling and Analysis Quality Plan, Upper South Creek Advanced Water Recycling Centre, Pipeline Alignment, ERM, 8 August 2023</i>	<i>L07 Interim Audit Advice (0503-2307-07) – Sydney Water Corporation – Upper South Creek Advanced Water Recycling Centre – Review of the Pipelines Sampling and Analysis Quality Plan, to Cheryl Cahill of Sydney Water, 14 August 2023</i>
<i>Remedial Action Plan, Upper South Creek Advanced Water Recycling Centre, ERM, 29 August 2023</i>	<i>L08 Interim Audit Advice (0503-2307-08) – Sydney Water Corporation – Upper South Creek Advanced Water Recycling Centre – Review of the Remedial Action Plan – Plant Site, to Cheryl Cahill of Sydney Water, 30 August 2023</i>

2. Document Reviewed

The following document was reviewed in preparation of this Interim Audit Advice (IAA):

- *Detailed Site Investigation, Upper South Creek Advanced Water Recycling Centre, ERM, 16 August 2023, ERM and earlier drafts (‘the DSI’, ERM, 2023).*

With reference to previous interim audit advice letters that the auditor has provided; the DSI (ERM, 2023) refers to the works reported therein as “Supplemental DSI” and the auditor notes that previous investigations have been reported and the auditor has considered these in a previous interim audit advice, L03. The auditor has reviewed the Sampling Analysis and Quality Plan (SAQP) for the plant site investigation works in L06 (see **Table 1**, above).

3. Objective of this Interim Advice

The overall objective of this interim advice is to provide an auditor review of the DSI for the plant site, having regard to relevant NSW EPA guidelines. Auditor review is required under Conditions E74 (d) and E81 of the consent. Conditions E78 – E80 describes the requirements of the DSI.

- E74 “...The Site Auditor is to review all relevant documentation and provide a written opinion on the contamination risk and the appropriateness of the reports and any proposed management measures of the site, including.... (d) Detailed Site Investigation Report(s) in Condition E79...”.
- E78 “For medium to high-risk areas of environmental concern (AECs) as confirmed by the...Site Auditor, DSI(s) must be conducted to determine the full nature and extent of the contamination at project areas identified in the SAQP(s). The DSI must:
 - a. Be prepared and/or reviewed and approved “...by consultants certified under ... the Environment Institute of Australia and New Zealand’s Certified Environmental Practitioner (Site Contamination) scheme....”
 - b. “Be prepared in accordance with relevant guidelines...of the CLM Act; and
 - c. “State if the land within the project footprint is suitable for the proposed use or if the land requires remediation to be made suitable for the proposed use.”
- E79: “A DSI must be submitted to the Planning Secretary....” And “must be prepared in accordance with:
 - a. “the land use criteria applicable to the final land use at the opening of Stage 1 of the critical state significant infrastructure (CSSI)...; and”
 - b. “Relevant guidelines... of the CLM Act, including *Consultants Reporting on Contaminated Land: Contaminated Land Guidelines* (NSW EPA, 2020)”.
- E81: “DSIs must be reviewed by the...Site Auditor accordance with Condition E74 and all recommendations made by the ...Site Auditor implemented before Work commencing that could result in any disturbance of any land confirmed as a moderate to high risk area of potential contamination by the Site Auditor.”

In addition, the requirements of E80 have been considered by the auditor; while condition E80 does not require auditor review, for completeness the requirements of E80 have been considered by the auditor from a contaminated land management perspective.

4. Auditor’s Assessment

The auditor notes that the DSI (ERM, 2023) complies with the requirement that it be prepared/reviewed by a Certified Contaminated Land Consultant. The report has been signed by Mr Peter Lavelle of ERM and his seal as a CEnvP SC (EIANZ) is on the title page of the DSI, is required by consent condition E78.

The auditor has considered the DSI (ERM, 2023) against the requirements for DSIs in accordance with the relevant Guidelines made or approved by the NSW EPA, and the results of this review is shown in **Tables 2 and 3¹**.

The auditor notes that Section 12 of the DSI (ERM, 2023) includes a statement regarding compliance with the Conditions of Approval. The consent does not require the auditor to consider the DSI against the requirements of condition E80, but for completeness, the auditor has outlined the DSI’s compliance with E80 in **Table 4**, below.

¹ *Consultants Reporting on Contaminated Land: Contaminated Land Guidelines*, NSW EPA, May 2020

Table 2: Compliance of the DSI (Plant site) (ERM, 2023) with relevant EPA requirements.

Report Section	Required Information	Addressed within the DSI	Audit Opinion
Document control	Date, version number, author and reviewer (including certification details) and who commissioned the report	Inside Cover	Adequate
Executive Summary	Background, Objectives, Scope of works, summary of key findings and summary of conclusions and recommendations.	The Executive Summary addresses all these requirements.	Adequate
Objectives	The objectives of the investigation	<u>Section 1.2:</u> reports that the overall objectives of “Supplemental DSI” were to assess the potential distribution/extent of contamination in soil and the potential contamination management/remediation, with a view to enable the site to be redeveloped for a commercial/industrial use.	Adequate
Scope of work	Summary of work performed, with reference to the Sampling, Analysis and Quality Plan (SAQP)	<u>Section 1.3:</u> notes that the investigation includes the completion of 148 test pit locations and the collection of 298 soil samples from fill material and natural soils, including 30 additional Quality Assurance/Quality Control (QA/QC) samples. <u>Section 4</u> considered the Data Quality Objectives for the site and provided a list of decision rules related to identification and characterisation of contamination, adequacy of the data and estimates of fill volumes.	The auditor notes that the SAQP required the excavation of 160 test pits with samples from fill and natural materials collected and analysed from each. The shortfall in the number of test pits excavated is due to the presence of a stockpile over some proposed test pit locations. This is discussed further, below as a data gap to be addressed in the DSI addendum. The DQOs are appropriate in the context of those described in the SAQP which was previously assessed by the auditor (L06, Table 1). Adequate.
Site identification, site history, site	Street number, street name and suburb, Lot/DP, zoning, locality map, neighbouring site uses.	<u>Section 2</u> provides an adequate site identification, as well as a summary of site history, site condition and surrounding	Adequate

Report Section	Required Information	Addressed within the DSI	Audit Opinion
condition and surrounding environment	Summaries of site history, site condition and surrounding environment. Topography, Geology, hydrogeology and hydrology.	environment. More detailed descriptions have been provided in reports that are referenced within the DSI (ERM, 2023) and have previously been reviewed by the auditor as shown in Table 1 , above.	
Results	Summary of previous results or reference to previous report(s).	<u>Section 3</u> : provides a summary of previous investigations.	Adequate
	Tabulated analytical results showing details such as sample identification and sampling depth	<u>Appendix B</u> provides analytical results against sampling location and sampling depth, and includes the assessment criteria.	Adequate
	Assessment criteria	<u>Section 6</u> provides the assessment criteria for the DSI and notes that the results are compared against NEPM ² HIL-D criteria.	Adequate
	Summary/discussion of the results	<u>Section 7</u> includes field observations and a summary of analytical results. Observations of asbestos containing material (ACM) were made in some test pits.	Adequate
	Describes test pit or bore log details	<u>Appendix C</u> provides bore logs.	Adequate
	Site plan showing sample locations and site plan showing extent of contamination	<u>Appendix A</u> included a number of site figures showing sampling locations and a heat map of filled areas, associated with potential contamination.	Adequate
	QA/QC evaluation (see Table 4 , below).	Not applicable	Not applicable
Conceptual Site Model (CSM)	Identification of the CoPC. Identification of potential and known sources of contamination, affected media, potential and actual pathways and human and ecological receptors. Data gap analysis.	<u>Table 9-1</u> presented a refined CSM for the site. The CoPC were identified as asbestos, as well as other contaminants associated with uncontrolled filling and hazardous materials associated with current and former structures and conduits. Pathways were identified for both human and ecological receptors and included inhalation of asbestos. Receptors were identified as current and future site users and workers carrying out development, installation and maintenance works within the site, as well as potential users	Adequate

² National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended 2013, National Environment Protection Council (NEPC 2013)

Report Section	Required Information	Addressed within the DSI	Audit Opinion
		<p>of on-site groundwater. In terms of ecological receptors, the two receiving creeks were identified as sensitive environments. The CSM noted that the risk of complete linkages for all CoPC were identified as low, except for asbestos, which was identified as high and for ecological receptors, for which the uptake of contaminants within the soil was identified as moderate.</p> <p>No data gap was presented in the CSM, but in the discussion (<u>Section 10</u>) ERM, 2023 noted that residual data gaps would be addressed in the DSI addendum.</p>	
Site Characterisation	<p>Assessment of extent of contamination, all media and include off site areas, as well as possible migration.</p> <p>Consider aesthetic issues and chemical degradation products.</p>	<p>The DSI (ERM, 2023) did not present a separate section entitled site characterisation, however <u>Section 10</u> presented a discussion against the decision objectives established for the investigation. It was noted that a site walkover would be completed and reported in the DSI addendum as well as reporting of investigations into areas inaccessible at the time of the investigation.</p> <p>ERM concluded that given the nature of the contamination at the site, the risks of groundwater contamination are low.</p>	<p>ERM addressed aesthetic considerations in the DSI via the bore logs indicating that no highly malodorous soils, nor staining or discoloured soils were encountered during the intrusive works.</p> <p>The auditor notes that consideration of contamination migration was undertaken, having regard to the identified contaminants and hydrogeological setting, noting that the risk of contamination migration is considered to be low.</p> <p>Adequate.</p>
Conclusions and Recommendations	Conclusions addressing the stated objectives	<u>Section 11</u> notes that the overall objective was to assess the potential distribution/extent of contamination in soil and the management/remediation requirements to allow redevelopment at the site.	Adequate
	Summary of all findings	<u>Section 11</u> summarises the results noting that “topsoil fill” was observed to 0.3 m below ground level overlying clay. It was noted that while some metal results exceeded the EIL criteria, 95% UCLs were calculated and these were less than	Adequate

Report Section	Required Information	Addressed within the DSI	Audit Opinion
		criteria. Organic analytes were not detected. Some ACM fragments were observed and laboratory analysis confirmed the presence of asbestos.	
	Extent of uncertainties in the site	Several data gaps will be addressed in the DSI addendum.	Adequate
	A statement that the consultant considers the site to be suitable for the proposed use.	<u>Section 11</u> found that “Based on the results of previous investigations, the investigation...ERM considers that the site can be made suitable for the proposed land use and comply with the Conditions of Approval...” subject to several recommendations.	Adequate
	Recommendations for further work, if appropriate.	<u>Section 11</u> recommended that: <ul style="list-style-type: none"> The findings of a site walkover following vegetation removal to visually assess the ground surfaces for signs of potential contamination is to be submitted to the auditor. a Remedial Action Plan (RAP) be prepared and implemented. 	<p>The auditor notes that the results of the site walkover will be included in a DSI addendum, which will also include the results of investigations of areas of the plant site which were inaccessible due to the presence of a stockpile during the investigation works described in the DSI (ERM, 2023).</p> <p>The auditor has reviewed the RAP for the plant site in L08 (shown in Table 1, above).</p> <p>Adequate.</p>

Table 3, below, reviews the quality assessment/quality control (QA/QC) of the DSI. ERM, (2023) assessed the QA/QC against the data quality indicators described in the DQOs of the SAQP and this was presented in Appendix G of the DSI (ERM, 2023).

Table 3 Auditor review of the quality assurance/ quality control assessment presented in the DSI (ERM, 2023)

Parameter	DQIs	Requirement	Auditor Assessment
Field and Lab QA/QC			
Precision	Intra-laboratory duplicates (blind) Inter-laboratory duplicates (spilt)	Collected at a rate of 1 per 20 samples. Analysed for primary contaminants of concern. RPDs less than 50%.	ERM reported 15 inter and intra-laboratory duplicates for 298 soil samples. Some breaches of RPDs were reported, but the auditor has considered the exceedances and no systematic error was observed. Adequate
	Laboratory duplicates	One per batch. RPDs less than 50%.	Laboratory duplicates were undertaken by the primary and secondary laboratories. The DSI reported no results outside acceptable ranges for the duplicate and triplicate samples. Auditor review found four breaches reported by ALS for chromium, but in the context of the dataset and given that chromium results were significantly less than criteria, this breach is considered minor. Adequate.
Accuracy	Field rinsate blanks	Collected at a rate of 1 per piece of decontaminated sampling equipment. Analysed for primary contaminants of concern. Laboratory results below the laboratory limit of reporting (LOR).	ERM (2023) reported samples were collected directly from the test pits using fresh nitrile gloves, so no rinsate blank was required. Adequate
	Trip blanks	Collected at a rate of 1 per day of sampling where primary contaminants of concern include volatiles. Analysed for volatiles of concern. Laboratory results below laboratory LOR.	ERM (2023) reported trip blanks were used and results were less than the limit of reporting. Adequate.
	Trip spike	Collected at a rate of 1 per batch where primary contaminants of concern include volatiles. Laboratory results / recovery within 30 % of the spiked concentration.	ERM (2023) reported the use of trip spikes and the results were within ranges set by the laboratory. Auditor review of the lab reports shows this to be satisfactory.

Parameter	DQIs	Requirement	Auditor Assessment
	Laboratory surrogate spikes	Surrogate spikes to be performed as required by NATA accreditation, generally per sample analysed. Recoveries to be within 70-130 % or 30-130 % (phenols only).	Adequate. ERM reported that recoveries for some phenolic analytes were outside the acceptable range. Auditor review of the lab reports shows this to be accurate, with no systematic errors found. Adequate.
	Laboratory method blanks	Laboratory method blanks to be performed as required by NATA accreditation, generally 1 blank per batch. Results to be below laboratory LOR.	ERM 2023 reported that the results of laboratory method blanks were found to be acceptable. Auditor review of the lab reports shows this to be accurate. Adequate.
	Laboratory control samples (LCS)	LCS to be performed as required by NATA accreditation, generally one per 20 samples per batch. Recoveries to be within 70-130 % or 30-130 % (phenols only).	ERM 2023 reported that the results of laboratory control samples were found to be acceptable. Auditor review of the lab reports shows this to be accurate. Adequate.
	Laboratory matrix spikes (MS)	MS to be performed as required as NATA accreditation, generally one per 20 samples per batch. Recoveries to be within 70-130 % or 30-130 % (phenols only).	ERM 2023 reported that the results of laboratory matrix spikes were found to be acceptable and within range. Auditor review of the lab reports shows this to be accurate. Adequate.
Representativeness	Soil sampling locations	Samples to be collected on a representative basis consistent with the CSM.	The soil sampling locations and depths were as described in the SAQP, aside from those locations that were inaccessible, which will be addressed in the DSI addendum. Adequate.
	Soil sampling depths and intervals	Soil sampling depths should be consistent with the anticipated distribution of contamination as detailed in the consultant's CSM.	

Parameter	DQIs	Requirement	Auditor Assessment
	Soil sampling methodology	Soil samples to be collected using a methodology which is appropriate for the primary contaminants of concern.	Samples were collected directly from the test pits. Some ACM fragments were analysed and found to contain asbestos. Adequate.
	Soil sampling equipment decontamination	Soil sampling equipment to be decontamination between sampling locations or between sampling depths; and monitoring well locations where significant contamination is encountered.	Not required.
	Soil sample contamination screening	Soil samples to be screened for contamination via visual / olfactory observations and photo-ionisation detector (PID) measurement.	Samples were screened using a PID and results were reported on bore logs. The calibration certificate was included, and a bump test was performed each day. Adequate.
	Sample storage and transport	Samples to be placed in an insulated container and chilled. Samples to be transported to laboratory under chain of custody conditions.	Laboratory sample receipt advice provided by the nominated laboratories confirmed that all samples were received in suitable condition, with completed chain of custody documentation provided in the reports. Adequate.
	Laboratory sample receipt advice	No damaged containers. No samples submitted in containers which have not been chilled. No samples to be submitted without sufficient times to comply with recommended holding times.	Adequate (see above).
	Holding times	Samples to be extracted and analysed within recommended holding times.	Holding times were reported as being met in the DSI and auditor review of the consultant's COC documentation and laboratory reports indicates that all samples were analysed within their holding times for all analyses undertaken. Adequate
	Analytical Method	Samples to be analysed using NATA accredited methodology.	Laboratory certificates were included and NATA accredited. The primary and secondary laboratories were ALS and Envirolab, respectively.

Parameter	DQIs	Requirement	Auditor Assessment
Completeness	Sampling, analysis and quality plan completeness	100 % of sampling, analysis and quality plan to be implemented.	Not all sampling locations could be accessed, and some locations will be sampled and reported in a DSI addendum.
	Field documentation	All relevant field documentation to be collated including sampling logs and calibration records.	Adequate.
	Laboratory documentation	All relevant laboratory documentation to be collated, including chain of custody records, sample receipt advice and analytical reports.	Adequate
	Critical sample validity	All critical sample data to be valid.	Adequate. The SAQP required soil sampling only.
	Sampling, analysis and quality approach	Adequately comparable sampling, analysis and quality approach to be used throughout the project.	Adequate.

Table 4 below, shows the general compliance of the DSI (ERM, 2023) for the plant site with the requirements of condition E80 from the consent.

Table 4 General Compliance of the DSI (Plant site) with the Requirements of Condition E80 from the Consent

Consent Condition Requirement	Addressed	Audit Opinion
Primary sources of contamination	The DSI (ERM 2023) includes a conceptual site model (CSM) that reports that the primary sources of contamination are related to hazardous materials associated with buildings, structures and conduits on the site as well as uncontrolled fill materials. The DSI developed the CSM based on previous investigations as well as those reported within the DSI.	Adequate.
Contaminant dispersal, characterisation and behaviour.	The CSM within the DSI (ERM, 2023) discusses pathways for the contaminants identified at the site.	Adequate
Potential effects of contaminants on human health and the environment	The CSM identifies the pathways and receptors at the site.	Adequate
Potential and actual contaminant migration routes including potential preferential pathways	The CSM considers the risk of potentially complete pollutant linkages at the site. The CSM has found the risk to be high with regards asbestos and low with regards all other contaminants of potential concern (CoPCs).	Adequate
The adequacy and completeness of all information available for use in the assessment of risk and for	The DSI (ERM, 2023) has been developed within a data quality objective (DQO) framework (see Table 2 , above).	Adequate

Consent Condition Requirement	Addressed	Audit Opinion
making decisions on management requirements, including an assessment of uncertainty		
The review and update of the CSM from the preliminary and detailed site investigations	The DSI (ERM, 2023) has updated the CSM from previous investigations.	Adequate.
Nature and extent of any existing remediation	Section 12 of the DSI (ERM, 2023) notes that the DSI was undertaken to determine the full nature and extent of the areas identified as medium risk.	The auditor notes that Section 12 does not identify any existing remediation at the plant site. Based on information reviewed in previous documents (described in Table 1), the auditor is satisfied that no existing remediation is present at the plant site.
Whether the land is suitable (for the intended final land use) or can be made suitable through remediation	Section 11 of DSI (ERM, 2023) states: “Based on the results of previous investigations, this investigation ... ERM considers that the Site can be made suitable for the proposed land use and comply with the conditions of Approval...” and ERM required that various recommendations are implemented relating to the Site Walkover (to be reported in the DSI Addendum) and a Remedial Action Plan (RAP) be developed and implemented.	Adequate. The auditor notes that DSI Addendum will require his review. The auditor has already approved the RAP, as described in Interim Audit Advice L08 (see Table 1 , above).

5. Auditor's Opinion

Based on a review of the information provided and subject to the limitations in **Attachment 1**, the following audit opinions are presented:

- The auditor considers that the DSI is appropriate for the purposes of assessing the nature and extent of contamination, and to identify what, if any, remediation/management is required for the proposed land use.

Please note that this interim advice does not constitute a Site Audit Statement or a Site Audit Report but is provided to assist in the assessment and management of contamination issues at the site in regard to requirements of the site audit. The information provided herein should not be considered pre-emptive of the final audit conclusions, but rather represent the findings of the audit based on a preliminary review of available site information. Furthermore, the interim advice should not be regarded as approval of any proposed investigations or remedial activities, as any such approval is beyond the scope of an independent auditor.

Should you require clarification, please contact the undersigned on 02 8245 0300 or by email alau@jbsg.com.au.

Yours sincerely:



Andrew Lau
NSW EPA Accredited Site Auditor
Accreditation Number 0503
JBS&G Australia Pty Ltd

Attachments (1) Limitations
 (2) Site Figures

Attachment 1 – Limitations

This audit was conducted with a reasonable level of scrutiny, care and diligence on behalf of the client for the purposes outlined in s.47 (1) of the *Contaminated Land Management Act 1997*. The data used to support the conclusions reached in this audit were obtained by other consultants and the limitations which apply to the consultant's report(s) apply equally to this audit report.

Every reasonable effort has been made to identify and obtain all relevant data, reports and other information that provide evidence about the condition of the site, and those that were held by the client and the client's consultants, or that were readily available. No liability can be accepted for unreported omissions, alterations or errors in the data collected and presented by other consultants. Accordingly, the data and information presented by others are taken and interpreted in good faith.

Sampling and chemical analysis of environmental media is based on appropriate guidance documents made and approved by the relevant regulatory authorities. Conclusions arising from the review and assessment of environmental data are based on the sampling and analysis considered appropriate based on the regulatory requirements. Limited sampling and laboratory analyses were undertaken as part of the investigations reviewed, as described herein. Ground conditions between sampling locations and media may vary, and this should be considered when extrapolating between sampling points. Chemical analytes are based on the information detailed in the site history. Further chemicals or categories of chemicals may exist at the site, which were not identified in the site history and which may not be expected at the site.

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

Attachment 2 – Site Figures



Legend

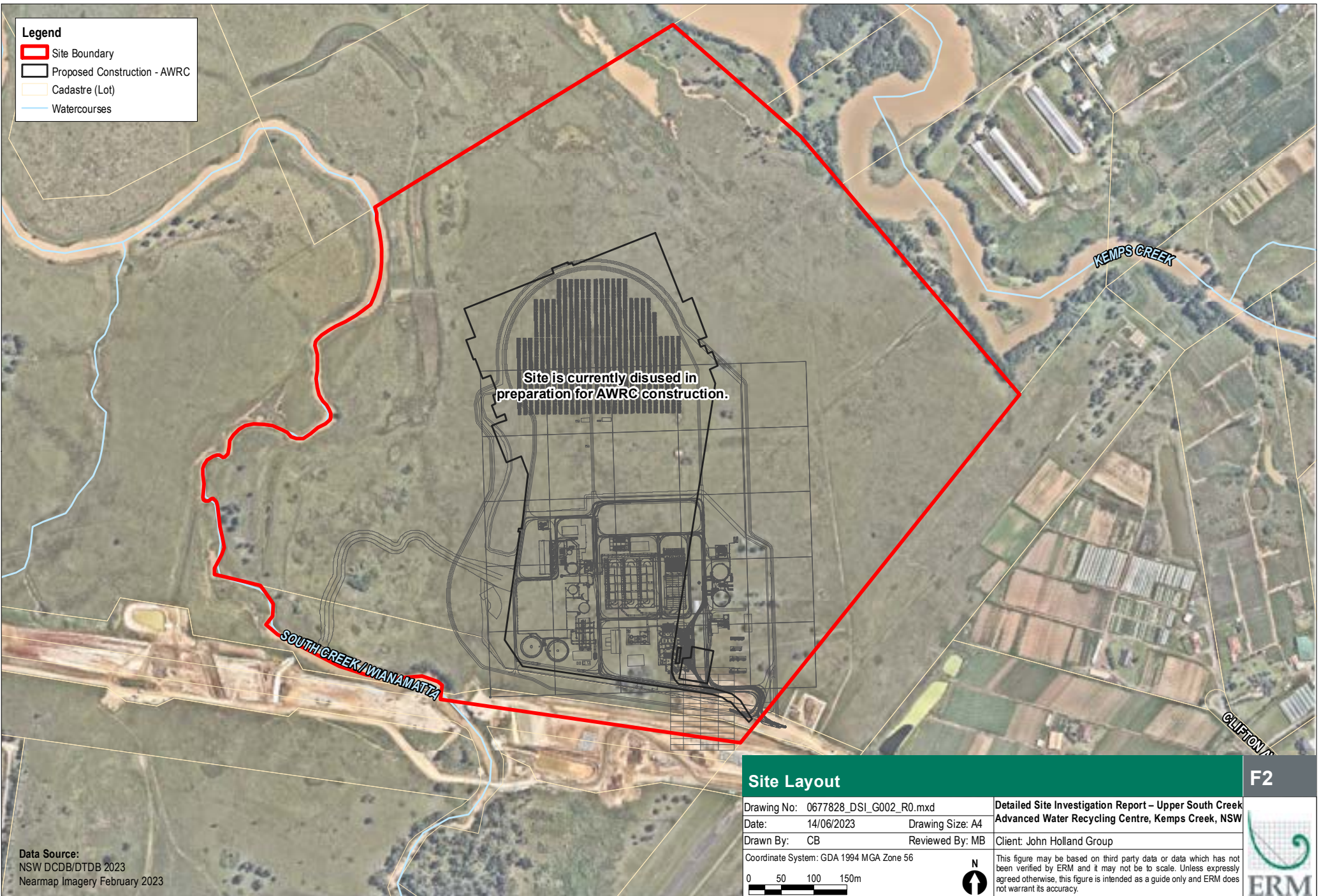
- Site Boundary
- Cadastre (Lot)

Data Source:
NSW DCDB/DTDB 2023
Nearmap Imagery February 2023
Inset: Esri OpenStreetMap 2023

Site Location

Drawing No: 0677828_DSI_G001_R0.mxd		Detailed Site Investigation Report – Upper South Creek Advanced Water Recycling Centre, Kemps Creek, NSW	
Date: 13/06/2023	Drawing Size: A4		
Drawn By: CB	Reviewed By: MB	Client: John Holland Group	
Coordinate System: GDA 1994 MGA Zone 56		<div>This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.</div>	
<div><div>0100200300m</div><div></div></div>			
<div><div></div><div>N</div></div>			

F1



Site Layout

Drawing No: 0677828_DSI_G002_R0.mxd

Date: 14/06/2023

Drawn By: CB

Coordinate System: GDA 1994 MGA Zone 56

0 50 100 150m



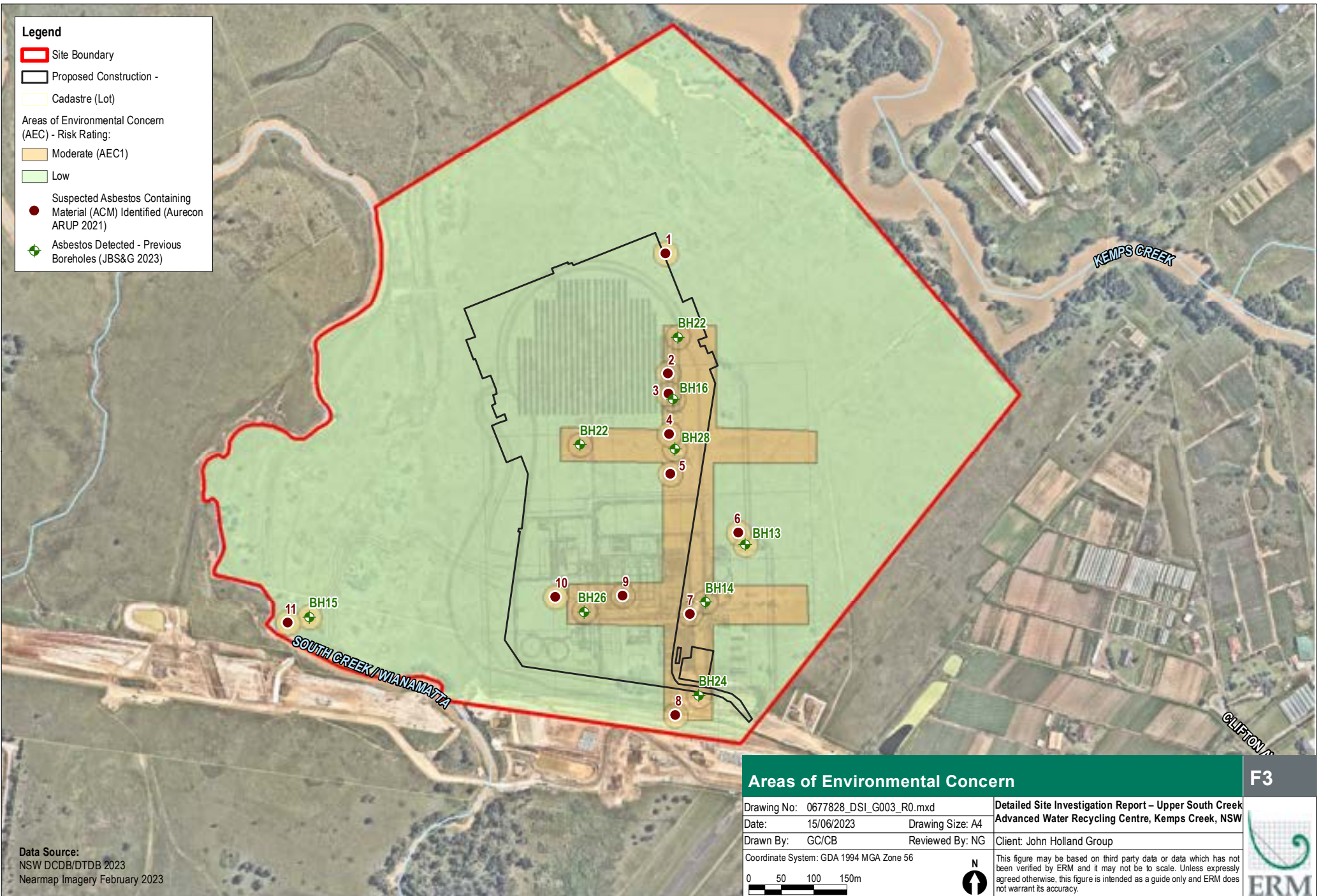
Detailed Site Investigation Report – Upper South Creek
Advanced Water Recycling Centre, Kemps Creek, NSW

Client: John Holland Group

This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.

F2





Legend

- Site Boundary
- Proposed Construction -
- Cadastral (Lot)
- Areas of Environmental Concern (AEC) - Risk Rating:
 - Moderate (AEC1)
 - Low
- Suspected Asbestos Containing Material (ACM) Identified (Aurecon ARUP 2021)
- Asbestos Detected - Previous Boreholes (JBS&G 2023)

Data Source:
NSW DCDB/DTDB 2023
Nearmap Imagery February 2023

Areas of Environmental Concern

Drawing No: 0677828_DSI_G003_R0.mxd	Detailed Site Investigation Report – Upper South Creek Advanced Water Recycling Centre, Kemps Creek, NSW
Date: 15/06/2023	Drawing Size: A4
Drawn By: GC/CB	Reviewed By: NG
Client: John Holland Group	
Coordinate System: GDA 1994 MGA Zone 56	
0 50 100 150m	
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This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.	

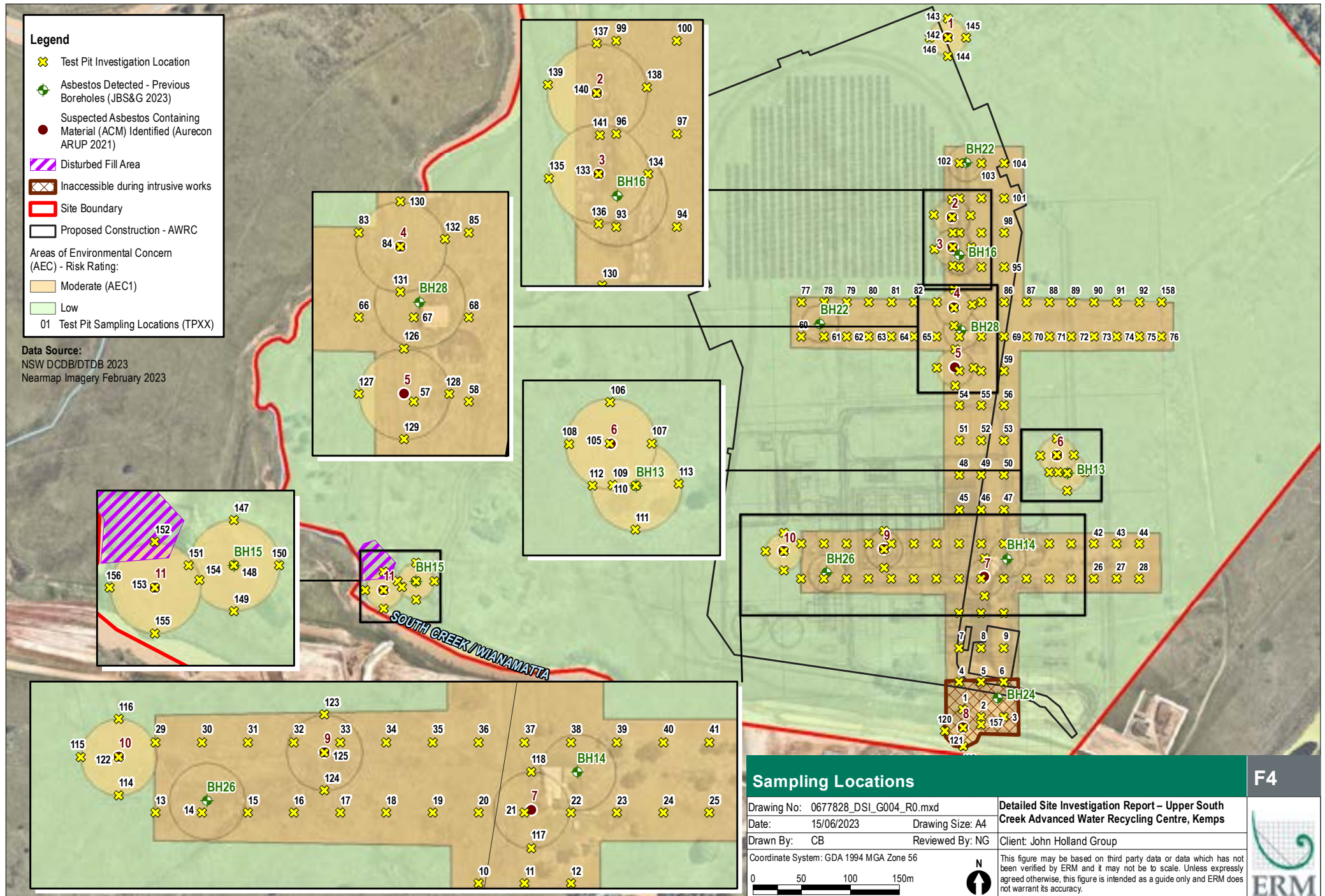
F3



Legend

- ✕ Test Pit Investigation Location
- ✕ Asbestos Detected - Previous Boreholes (JBS&G 2023)
- Suspected Asbestos Containing Material (ACM) Identified (Aurecon ARUP 2021)
- ▨ Disturbed Fill Area
- ⊗ Inaccessible during intrusive works
- ▭ Site Boundary
- ▭ Proposed Construction - AWRC
- Areas of Environmental Concern (AEC) - Risk Rating:
 - ▭ Moderate (AEC1)
 - ▭ Low
- 01 Test Pit Sampling Locations (TPXX)

Data Source:
NSW DCDB/DTDB 2023
Nearmap Imagery February 2023



Sampling Locations

Drawing No: 0677828_DSI_G004_R0.mxd
Date: 15/06/2023
Drawn By: CB
Coordinate System: GDA 1994 MGA Zone 56

Drawing Size: A4
Reviewed By: NG

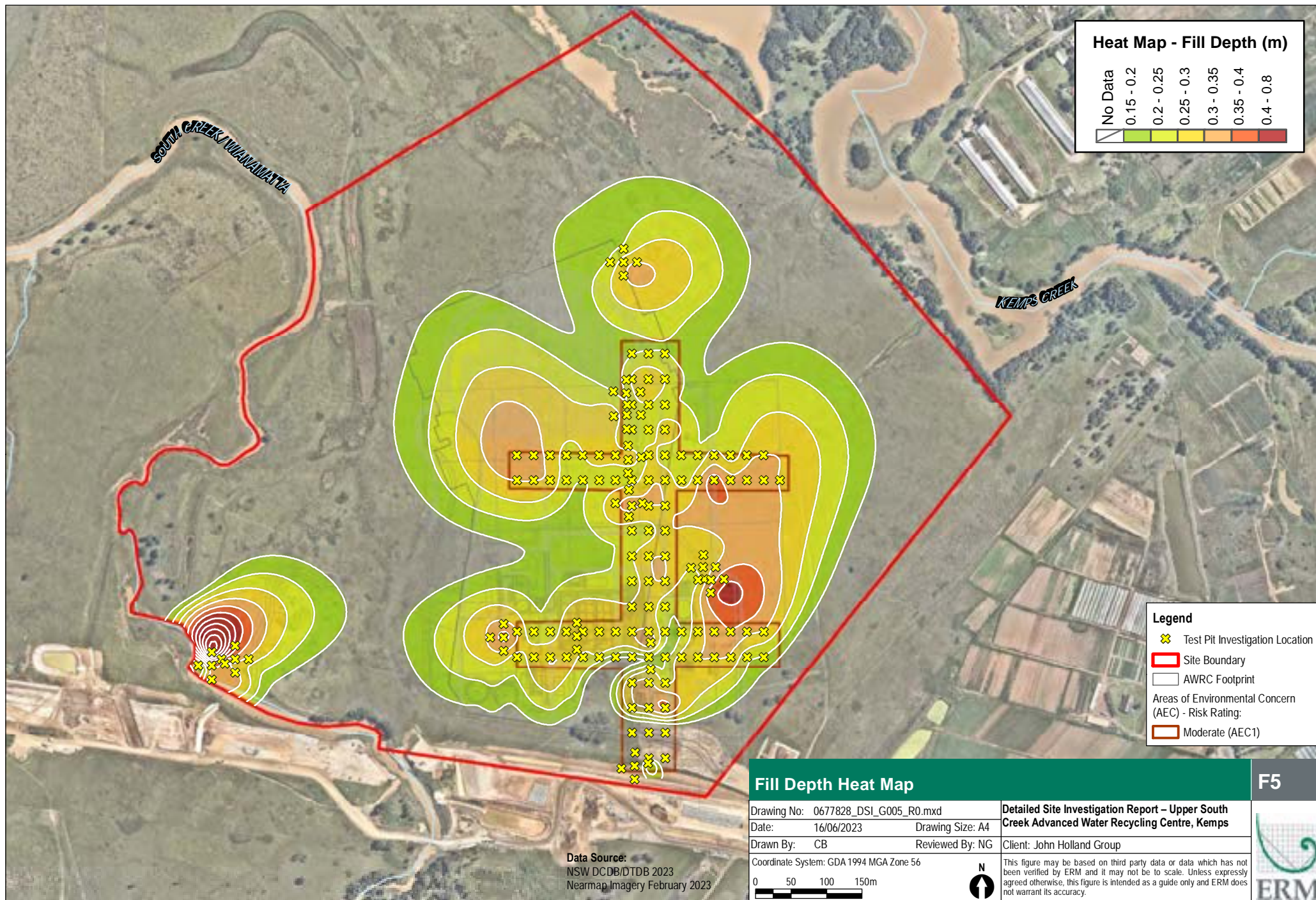
Detailed Site Investigation Report – Upper South Creek Advanced Water Recycling Centre, Kemp's



Client: John Holland Group

This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.

F4



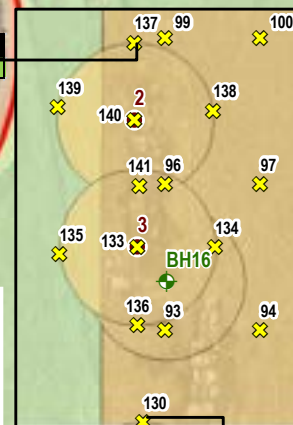


Fill Depth Heat Map			F5
Drawing No: 0677828_DSI_G005_R0.mxd		Detailed Site Investigation Report – Upper South Creek Advanced Water Recycling Centre, Kemps	
Date: 16/06/2023	Drawing Size: A4		
Drawn By: CB	Reviewed By: NG		
Client: John Holland Group			
Coordinate System: GDA 1994 MGA Zone 56		<p>This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.</p>	
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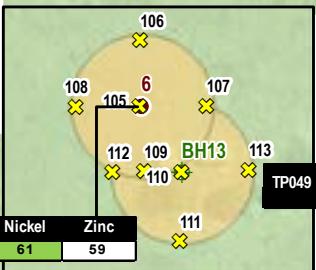
Legend

- ✕ Test Pit Investigation Location
- ⬢ Asbestos Detected - Previous Boreholes (JBS&G 2023)
- Suspected Asbestos Containing Material (ACM) Identified (Aurecon ARUP 2021)
- ▨ Disturbed Fill Area
- ⊠ Inaccessible during intrusive works
- ▭ Site Boundary
- ▭ Proposed Construction - AWRC
- Areas of Environmental Concern (AEC) - Risk Rating:
 - Moderate (AEC1)
 - Low
- 01 Test Pit Sampling Locations (TPXX)

TP137	Depth (m)	Arsenic	Copper	Nickel	Zinc
	0.09-0.11	7	12	6	225



TP130	Depth (m)	Arsenic	Copper	Nickel	Zinc
	0.09-0.11	10	9	4	291



TP105	Depth (m)	Arsenic	Copper	Nickel	Zinc
	0.19-0.21	19	35	61	59

TP118	Depth (m)	Arsenic	Copper	Nickel	Zinc
	0.19-0.21	8	27	74	84

TP021	Depth (m)	Arsenic	Copper	Nickel	Zinc
	0.19-0.21	10	16	11	170

TP117	Depth (m)	Arsenic	Copper	Nickel	Zinc
	0.19-0.21	26	10	6	158

TP122	Depth (m)	Arsenic	Copper	Nickel	Zinc
	0.19-0.21	<5	26	59	69

Analytes	Unit	Metals			
		Arsenic, Total	Copper, Total	Nickel, Total	Zinc, Total
NEPM 2013 HIL D	mg/kg	3000	240000	6000	400000
NEPM 2013 EIL COMM/IND	mg/kg	160	85	55	110

TP052	Depth (m)	Arsenic	Copper	Nickel	Zinc
	0.19-0.21	8	23	35	222

TP046	Depth (m)	Arsenic	Copper	Nickel	Zinc
	0.19-0.21	6	6	6	117

Data Source:
NSW DCDB/DTDB 2023
Nearmap Imagery February 2023

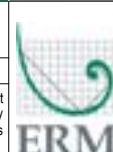
Soil Exceedances

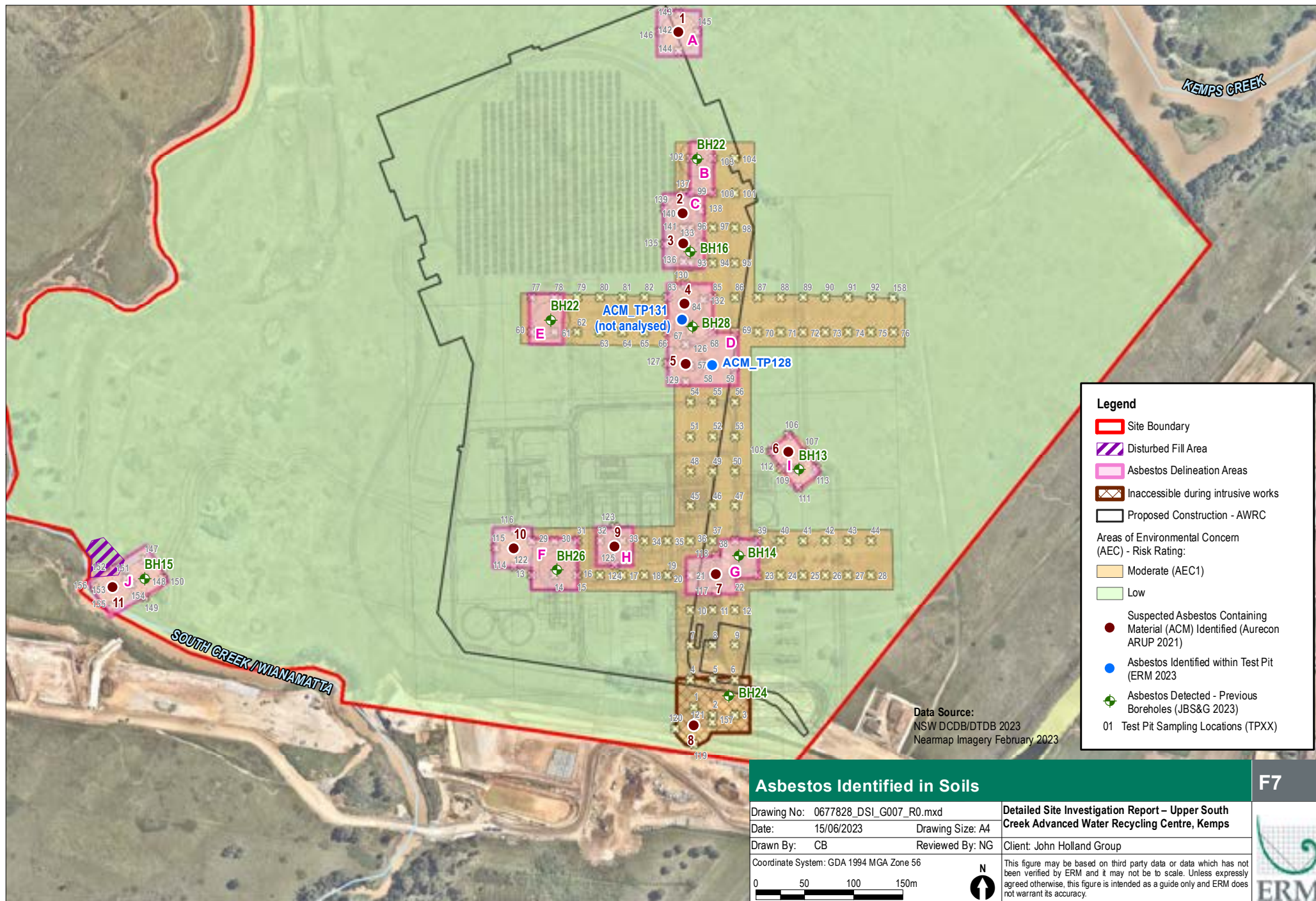
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Drawn By: CB
Coordinate System: GDA 1994 MGA Zone 56

Detailed Site Investigation Report – Upper South Creek Advanced Water Recycling Centre, Kemps
Client: John Holland Group

This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.

F6





JBS&G 64112 | 156551

L10 (0503 2307 SWC USC AWRC Pipelines RAP) Rev 0

22 December 2023

Cheryl Cahill
Environment Lead, Major Projects
Sydney Water
Via email: CHERYL.CAHILL@sydneywater.com.au

**L10 Interim Audit Advice (0503-2307-10) – Sydney Water Corporation – Upper South Creek
Advanced Water Recycling Centre – Review of the Remedial Action Plan for Pipelines Alignment**

Dear Cheryl,

1. Introduction and Background

Andrew Lau of JBS&G Australia Pty Ltd (JBS&G), has been engaged by Sydney Water Corporation (SWC, the client) to conduct a site audit(s) related to the Upper South Creek Advanced Water Recycling Centre (USC AWRC) and associated pipelines. The USC AWRC is located in Clifton Avenue Kemps Creek and occupies approx. 78 ha.

The pipelines occupy lands between the USC AWRC and Lansdowne Reserve in Lansdowne for approx. 24 km ("the brine pipeline") and land between the USC AWRC and the Nepean River in Wallacia for approx. 16.7 km ("the treated water pipeline") collectively referred to as the "Pipelines Alignment" (the site).

The Pipelines Alignment comprises the following zoning:

- AGB – Agribusiness
- C2 – Environmental Conservation
- ENT – Enterprise
- ENZ – Environment and Recreation
- R1, R2, R3 and R4, general, low density, medium density and high density, respectively
- RE1 – Public Recreation
- RU1 – Primary production
- RU2 – Rural landscape
- RU4 – Primary production small lots
- RU5 – Village
- RE1 – Public recreation
- SP2 - infrastructure

SWC holds easements for the Pipelines Alignment along their length and the land is owned by multiple owners. Figures relating to the site and surrounds are shown in **Attachment 2**.

SWC received Ministerial approval for the USC AWRC project on 28th November 2022 as a state significant infrastructure project (Application Number SSI-8609189) ("the consent").

Table 1 shows previously reviewed documents for the audit and relevant interim audit advice correspondence.

Table 1: Previous Interim Audit Advice Correspondence

Document Reviewed	Previous Interim Audit Advice Correspondence
<i>Unexpected Finds Procedure for Contamination</i> , John Holland, issued 07/12/2022, document number USCP-POL-G-002.	L02 Interim Audit Advice (0503-2307-02) – Sydney Water Corporation – Upper South Creek Advanced Water Recycling Centre – <i>Unexpected Finds Protocol</i> , to Cheryl Cahill of Sydney Water, 9 December 2022.
<i>Upper South Creek Advanced Water Recycling Centre - Soils and Contaminated Land Impact Assessment</i> , Aurecon ARUP, 27 July 2021 ("the SCLI document")	L03 Interim Audit Advice (0503-2307-03) – Sydney Water Corporation – Upper South Creek Advanced Water Recycling Centre – <i>Review of the Upper South Creek Advanced Water Recycling Centre - Soils and Contaminated Land Impact Assessment</i> to Cheryl Cahill of Sydney Water, 17 March 2023.
<i>Upper South Creek Wastewater Treatment Plant Options Assessment, Preliminary Site Investigation (Contamination)</i> Aurecon, 2019	
<i>Upper South Creek Advanced Water Recycling Centre and Pipelines Detailed Site Investigation</i> , Aurecon ARP, 12 March 2021 ("the DSI")	L03 provided review of the four documents as related to the AWRC parcel of land, only.
<i>Memorandum re Hazardous Materials Survey – Upper South Creek Advanced Water Recycling Centre</i> , Aurecon to Sydney Water, 18 May 2021	
<i>Upper South Creek Advanced Water Recycling Centre and Pipelines Soils & Contamination Construction Environmental Management Plan ("the CEMP")</i> John Holland, 01/03/2023, USCP-JHG-MPL-ENV-0008 Rev 4, some portions, only.	L04 Interim Audit Advice (0503-2307-04) – Sydney Water Corporation – Upper South Creek Advanced Water Recycling Centre – <i>Review of the Upper South Creek Advanced Water Recycling Centre – Soils and Contamination Construction Environmental Management Plan Sub-Plan</i> to Cheryl Cahill of Sydney Water, 12 May 2023.
<i>Upper South Creek Advanced Water Recycling Centre and Pipelines Soils & Contamination Construction Environmental Management Plan (CEMP) Sub-plan (S&C CEMP sub-plan)</i> , John Holland, issued 10/05/2023 and earlier drafts (11/03/23, 14/04/2023) (uncontrolled copy) Document No: USCP-JHG-MPL-ENV-0003.	
The SCLI Assessment and the DSI, as they relate to the pipelines site only.	L05 Interim Audit Advice (0503-2307-05) – Sydney Water Corporation – Upper South Creek Advanced Water Recycling Centre – <i>Review of the Upper South Creek Advanced Water Recycling Centre - Soils and Contaminated Land Impact Assessment – Pipelines</i> to Cheryl Cahill of Sydney Water, 16 May 2023.
<i>Upper South Creek Water Factory Pipeline Alignments Option Concept Design, Preliminary Site Investigation (Contamination)</i> Aurecon, 2020	
<i>Sampling and Analysis Quality Plan</i> , Upper South Creek Advanced Water Recycling Centre, ERM 6 June 2023.	L06 Interim Audit Advice (0503-2307-06) – Sydney Water Corporation – Upper South Creek Advanced Water Recycling Centre – <i>Review of the USC AWRC Plant Sampling and Analysis Quality Plan</i> , to Cheryl Cahill of Sydney Water, 22 June 2023
<i>Sampling and Analysis Quality Plan</i> , Upper South Creek Advanced Water Recycling Centre, Pipeline Alignment, ERM, 8 August 2023	L07 Interim Audit Advice (0503-2307-07) – Sydney Water Corporation – Upper South Creek Advanced Water Recycling Centre – <i>Review of the Pipelines Sampling and</i>

Document Reviewed	Previous Interim Audit Advice Correspondence
	<i>Analysis Quality Plan, to Cheryl Cahill of Sydney Water, 14 August 2023</i>
<i>Remedial Action Plan, Upper South Creek Advanced Water Recycling Centre, ERM, 29 August 2023</i>	<i>L08 Interim Audit Advice (0503-2307-08) – Sydney Water Corporation – Upper South Creek Advanced Water Recycling Centre – Review of the Remedial Action Plan – Plant Site, to Cheryl Cahill of Sydney Water, 30 August 2023</i>
<i>Detailed Site Investigation, Upper South Creek Advanced Water Recycling Centre, ERM, 16 August 2023</i>	<i>L09 Interim Audit Advice (0503-2307-09) – Sydney Water Corporation – Upper South Creek Advanced Water Recycling Centre – Review of the Detailed Site Investigation – Plant site, to Cheryl Cahill of Sydney Water, 6 September 2023</i>

2. Document Reviewed

The following document was reviewed in preparation of this Interim Audit Advice (IAA):

- *Remedial Action Plan, Upper South Creek Advanced Water Recycling Centre, ERM, 15 November 2023, and earlier drafts ('the RAP', ERM, 2023a)*

3. Objective of this Interim Advice

The objective of this interim advice is to provide an auditor review of the RAP for the Pipelines Alignment. This is required under Conditions E74 (e), E83 and E84 of the consent.

- E74 *"...The Site Auditor is to review all relevant documentation and provide a written opinion on the contamination risk and the appropriateness of the reports and any proposed management measures of the site, including.... (e) Remedial Action Plans in Condition E83..."*.
- E83 *"Where remediation is required to make land suitable for the final intended land use, a Remedial Action Plan must be prepared and/or reviewed and approved by consultants certified under ... the Environment Institute of Australia and New Zealand's Certified Environmental Practitioner (Site Contamination) scheme...."*

"The Remedial Action Plan must be prepared in accordance with relevant guidelines made or approved by the EPA under section 105 of the CLM Act and must include measures to remediate the contamination at the site to ensure the site will be made suitable for the final intended land use."

- E84 *"If remediation is required to make land suitable for the final intended land use, then prior to commencing with the remediation, the Proponent must submit the Remedial Action Plan(s) and an interim audit advice from a NSW EPA accredited Site Auditor to the Planning Secretary for information, which considers that the Remedial Action Plan is appropriate and that the site can be made suitable for the proposed land use. The Remedial Action Plan must be implemented and any changes to the Remedial Action Plan must be approved in writing by the NSW EPA accredited Site Auditor."*

4. Auditor's Assessment

The auditor notes that the RAP (ERM, 2023a) complies with the requirement that it be prepared/reviewed by a Certified Contaminated Land Consultant. The report has been signed by Mr Peter Lavelle of ERM and his seal as a CEnvP SC (EIANZ) is on the title page of the RAP.

The auditor has considered the RAP (ERM, 2023a) against the requirements of the requirements for RAPs in accordance with the relevant Guidelines as shown in **Table 2**.

Table 2: Compliance of the RAP (Pipelines site) (ERM, 2023a) with the requirements of EPA (2020¹)

Report Section	Required Information	Addressed within the RAP	Audit Opinion
Document control	Date, version number, author and reviewer (including certification details) and who commissioned the report	Inside Cover	Adequate
Objectives	The objectives of the remediation	<p><u>Section 1.2</u> states that the objectives of the RAP are to:</p> <ul style="list-style-type: none"> In the event that contamination requiring remediation is identified: detail the required remediation processes and procedures to be implemented within the Pipelines Alignment to enable the Pipelines Alignment to be made suitable for the proposed commercial / industrial USC AWRC development; and Regardless of whether contamination which requires remediation is identified: detail the procedures for classifying materials to be excavated within the Pipelines Alignment. <p><u>Section 8.1</u> states that the overall remediation objective is to effectively manage identified contamination within soils to render the site suitable for the proposed commercial/industrial use.</p> <p><u>Section 1.4</u> notes the interface with the ASC AWRC site RAP.</p>	<p>Adequate.</p> <p>ASC AWRC site RAP has been subject to auditor review (Interim Audit Advice – L08).</p>
Scope of work	Summary of scope of work	<u>Section 1.3</u> describes the works completed to prepare the RAP (ERM, 2023a). These included a review of previous reports and defined remedial goals, based on the conceptual site model (CSM) and proposed future land use. From this the preferred remedial strategy was developed, together with the specific requirements of the recommended remedial approach.	Adequate
Site identification, site history, site condition and surrounding environment	<p>Street number, street name and suburb, Lot/DP, zoning, locality map, neighbouring site uses.</p> <p>Summaries of site history, site condition and surrounding environment.</p> <p>Topography, Geology, hydrogeology and hydrology.</p>	<u>Section 3</u> provides the site identification details, as well as a summary of the site history. <u>Table 3-2</u> provides the site environmental settings and background details, including topography, geology, hydrology and hydrogeological details. These are summarised from previous reports that the auditor has reviewed as described in Table 1 , above.	Adequate

¹ Consultants Reporting on Contaminated Land - Contaminated Land Guidelines, NSW Environmental Protection Authority, April 2020.

Report Section	Required Information	Addressed within the RAP	Audit Opinion
Remediation criteria	A list of criteria and rationale for the criteria, including references.	<p>Section 9: Reference is made to the soil remediation acceptance criteria as being adopted from the NEPM² and CRC Care (2011³) as applicable to the planned future use of the Pipelines alignment for commercial/industrial use.</p> <p>In addition, the following statistical criteria is to be adopted with respect to the validation criteria: 95% Upper Confidence Limit (UCL) of the arithmetic mean for chemical contaminants does not exceed the validation criteria; the individual contaminant concentration does not exceed the validation criterion by more than 250%; and the standard deviation of individual contaminants does not exceed 50% of the validation criteria.</p> <p>The RAP (ERM, 2023a) states that consideration of aesthetic issues arising from soil within the Pipeline Alignment will be undertaken in accordance with aesthetic criteria adopted from the NEPM.</p> <p>The RAP (ERM, 2023a) states that material for offsite disposal will be classified in accordance with EPA (2014a⁴), (EPA 2014b⁵) or other relevant resource recovery orders, resource recovery exemptions and approvals issued by the NSW EPA.</p> <p>The RAP (ERM, 2023a) states that imported material will be assessed for suitability as Virgin Excavated Natural Material (VENM) in accordance with EPA (2014a), Excavated Natural Material (ENM) as defined in EPA (2014b) or resource recovery material as per an EPA order/exemption.</p>	Adequate.
Results	Summary of previous results or reference to previous report(s).	<p><u>Section 4</u> of the RAP (ERM, 2023a) references a number of previous investigations. Based on information provided in the previous reports, the following areas of concern (AEC) have been identified with moderate potential for contamination.</p>	<p>Adequate.</p> <p>The investigation of identified AECs are required to be undertaken in</p>

² National Environment Protection (Assessment of Site Contamination Measure), 1999. National Environment Council, revised 2013.

³ Health screening levels for petroleum hydrocarbons in soil and groundwater, Part 2: Application document, CRC CARE Technical Report no. 10

⁴ Waste Classification Guidelines: Part 1: Classifying Waste, NSW EPA, 2014.

⁵ The excavated natural material order 2014, NSW EPA, 2014.

Report Section	Required Information	Addressed within the RAP	Audit Opinion
		<ul style="list-style-type: none"> AEC-6: SUEZ Kemps Creek Resource Recovery Park (now Cleanaway) relating to landfill gas and leachate within soil/groundwater AEC-8: Corner of Elizabeth Drive and Range Road, Kemps Creek relating to uncontrolled fill containing asbestos AEC-16: petroleum releases from petrol stations. <p>It is noted that an SAQP (ERM, 2023b⁶) was developed to investigate the AECs, however, the RAP has been prepared prior to completion of investigation works due to the logistical requirements of the Project. It is further noted that any remediation works resulting from the investigation undertaken will be undertaken in accordance with the RAP.</p>	accordance with the investigation program outlined in the SAQP (ERM, 2023b) which was subject to auditor review (Interim Audit Advice – L07).
Summary of site Characterisation	Assessment of all types of environmental contamination and assessment of extent of all identified contamination, including off site areas	Not addressed within the RAP. The RAP makes reference to the SAQP (ERM, 2023b) which outlines requirements for investigation of AECs. In addition, <u>Section 6</u> of the RAP outlines requirements for classification of material proposed to be excavated during development works within the Pipeline Alignment.	Adequate. AEC investigation works have not yet been completed due to the logistical requirements of the Project. Investigation of identified AECs is required to be undertaken in accordance with the investigation program outlined in the SAQP (ERM, 2023b) which was subject to auditor review (Interim Audit Advice – L07).
Conceptual Site Model (CSM)	Identification of the CoPC. Identification of potential and known sources of contamination, affected media, potential and actual pathways and human and ecological receptors.	<u>Table 5.1</u> presents a preliminary CSM for the site. The following COPCs were identified:	Adequate.

⁶ Sampling and Analysis Quality Plan, Upper South Creek Advanced Water Recycling Centre, Pipeline Alignment, ERM, 8 August 2023

Report Section	Required Information	Addressed within the RAP	Audit Opinion
	Data gap analysis.	<ul style="list-style-type: none"> AEC-6: heavy metals, ammonia and nitrogen as related to landfill leachate; and methane and carbon dioxide as related to landfill gas. AEC-8: Asbestos, total recoverable hydrocarbons (TRH), benzene, toluene, ethylbenzene, xylenes (BTEX), heavy metals, polycyclic aromatic hydrocarbons (PAH), polychlorinated biphenyls (PCB), organochlorine pesticides (OCP) and organophosphorus pesticides (OPP). AEC-16: TRH, BTEX, PAH. <p>Pathways were identified for both human and ecological receptors and included dermal contact, inhalation, and / or incidental ingestion with contaminated surface waters / groundwater / soil; transport of contamination through surface water / groundwater flows; transport of contamination to underlying groundwater aquifers; inhalation of landfill gases during soil disturbance works; and transport of contamination through mechanical means.</p> <p>Receptors were identified as current and future Pipeline Alignment users, workers carrying out development, installation or maintenance works within the Pipeline Alignment, adjacent sensitive receptors and future potential users of groundwater within the Pipeline Alignment.</p> <p>The CSM noted that the risk of complete linkages for identified potential sources were identified as low to moderate.</p>	
Remedial Options Assessment and Remediation Strategy	Assessment of possible remedial options and how risk can be reduced	<u>Section 8.2</u> : a range of remedial options were presented involving different forms of onsite containment, offsite beneficial reuse or disposal to a licenced landfill facility.	Adequate
	Rationale for the selection of recommended remedial option, in accordance with the preferred hierarchy outlined in the NEPM	<p><u>Section 8.3</u>: The preferred remediation strategy is identified as excavation and on-site containment at the USC AWRC site for asbestos contaminated soil and offsite disposal for non-asbestos contaminated soil.</p> <p>It is noted that that groundwater has not been encountered during previous investigations and not anticipated to be encountered during the pipeline construction program. As such, groundwater remediation is not anticipated to be required. A contingency plan is provided in the</p>	Adequate. If remediation of asbestos-contaminated soils from the Pipelines Alignment is required, it is expected that these soils will be placed within the USC AWRC site encapsulation area. A RAP has been separately

Report Section	Required Information	Addressed within the RAP	Audit Opinion
		RAP (ERM, 2023a) in the event groundwater is encountered in significant amounts during the construction program.	developed by the consultant for the USC AWRC site which was subject to auditor review (Interim Audit Advice – L08) with respect to proposed placement of asbestos-contaminated soils within a purpose-designed encapsulation area located in the northern portion of the USC AWRC site.
	Description of the remediation works to be undertaken	<p><u>Section 7.1</u> provides a general overview on remediation required. It is noted that the nature and extent of remediation required across the Pipeline Alignment is not known at the time of preparing the RAP (ERM, 2023a). It is anticipated that some contamination will be encountered as part of excavations to enable pipeline construction, excavated material classification and the Pipelines AEC investigation to be completed. The RAP sets out a framework to address potential contamination and to allow for management of unexpected finds.</p> <p>In addition, in <u>Section 7.2</u> it is noted that a limited area containing demolition waste including bonded ACM was identified in September 2023 in a portion of the treated water pipeline referred to as the 'Farm Dam' comprising an area of approx. 700 m². Remediation of this area is to be completed in accordance with the requirements of the RAP (ERM, 2023a).</p>	<p>Adequate.</p> <p>Investigation of identified AECs is required to be undertaken in accordance with the investigation program outlined in the SAQP (ERM, 2023b) which was subject to auditor review (Interim Audit Advice – L07).</p>
	Confirmation that waste imported onto the site is lawful.	<p><u>Section 9.7.1</u> requires that imported materials are VENM, ENM or a recycled material meeting the requirements of the applicable resource recovery order. This is discussed above, in Remediation Criteria.</p> <p>The environmental consultant is to observe all material being imported with the visual assessment to confirm that the imported material is consistent with the documentation provided by respective</p>	Adequate.

Report Section	Required Information	Addressed within the RAP	Audit Opinion
		source sites and that the material does not contain building waste or foreign material (unless specifically allowed under a Resource Recovery Order and Exemption), asbestos, staining or discoloration, odours, evidence of potential or actual acid sulfate soil and other evidence of contamination. The Environmental Consultant is to prepare an Imported Material Review Record confirming suitability of the material to be used within the Pipelines Alignment.	
	Contingency plan if the selected remedial strategy fails	<u>Section 12</u> : provides the details for contingency planning. These include chemical spills, excessive rain/drainage/dust, excessive wet materials, equipment failures, release of fuel/oil from machinery, silt fence fails, excessive noise, asbestos contaminated soil from the Pipelines Alignment exceeding storage capacity at the USC AWRC containment area and excavated material failing classification requirements for beneficial reuse (either within the Project Boundary or off-site under Resource Recovery Orders). In addition, Section 12 provides contingencies related to remediation strategy, unexpected finds and groundwater.	Adequate.
	Interim Site Management plans before remediation	The RAP (ERM, 2023a) does not provide any interim site management plans before remediation.	Adequate. The auditor notes that the site is currently being managed under a Construction Environmental Management Plan (CEMP) which was subject to auditor review (Interim Audit Advice – L04) with respect to site contamination.
	Site Management plan requirements (operational phase): <ul style="list-style-type: none"> - site stormwater management plan - soil management plan, including material tracking - noise control plan - dust control plan 	<u>Section 11</u> : provides a general site management plan including site access, personal protective equipment (PPE) requirements, erosion and sediment control, stockpile management, haulage of soil, noise, odour and dust controls, communication and complaints. It is further noted that the Principal Contractor is to prepare a remediation work method statements to address environmental, health and safety	Adequate. The auditor also notes that the site CEMP is in use. The auditor further notes that an AMP is required to be prepared based on asbestos impacted material identified

Report Section	Required Information	Addressed within the RAP	Audit Opinion
	<ul style="list-style-type: none"> - odour control plan - work health and safety plan - remediation schedule hours of operation - contingency plans to respond to site incidents, to remove potential effects on surrounding environment and community 	<p>hazards and risks during remediation. The Principal Contractor is to prepare a project specific health and safety plan.</p> <p>An asbestos management plan (AMP) for the remediation works is to be prepared where asbestos is identified as a contaminant of concern that requires remediation.</p>	on site to date within an area identified as the Farm Dam.
	Description of regulatory compliance requirements such as licences and approvals or financial assurance	<u>Section 9.4</u> lists the planning permitting, approvals and procurement requirements for the RAP (ERM, 2023a).	Adequate. The auditor has noted that the site is being developed under the SSI development consent described above in Section 1 .
	Names and phone numbers of appropriate personnel to contact during remediation	<u>Section 11.2.2</u> – Remediation stage contact details are provided.	Adequate
	Community relations plans (where applicable)	Not provided	Adequate. This is addressed by Sydney Water under the consent.
	Staged progress reporting (where appropriate)	Not applicable	N/A
	Outline of environmental management plan for ongoing management of contamination at the site (if needed)	Not applicable	<p>Adequate.</p> <p>The auditor notes that onsite cap and containment within the Pipeline Alignment has not been proposed. The preferred remediation strategy outlined in the RAP (ERM, 2023a) includes excavation and on-site containment at the USC AWRC site for asbestos contaminated soil and offsite disposal for non-asbestos contaminated soil.</p>

Report Section	Required Information	Addressed within the RAP	Audit Opinion
			Any asbestos impacted material transported to the USC AWRC site asbestos containment area will be subject to a long term environmental management plan (LTEMP) in accordance with the USC AWRC RAP which was subject to auditor review (Interim Audit Advice – L08).
Validation Plan	Data Quality Objectives (DQOs)	<u>Appendix B</u> the RAP (ERM, 2023a) outlines the DQOs for the validation for the site, in accordance with the seven step process outlined in the NEPM.	The DQOs are adequate.
	Validation summary	<u>Section 8:</u> The RAP (ERM, 2023a) has divided the validation requirements into the following: <ol style="list-style-type: none"> 1. General soil excavation and validation 2. ACM impacted fill material validation 3. Areas beneath temporary stockpiled asbestos containing materials (outside of the placement location and haul roads) 4. Stockpile footprint validation 	Adequate.
	Item 1 - General soil excavation and validation	Excavation base to be sampled at a rate of minimum 1 sample per 10 m grid. Excavation walls to be sampled at a rate of minimum 1 sample from each wall per 10 linear meters. Where the excavation is greater than 2 m depth, validation samples are to be collected from the upper 2 m (i.e., 0-2 m) and the lower 2 m (i.e., 2-4 m) of each excavation wall. Samples are to be analysed for relevant chemical COPCs.	Adequate
	Items 2 and 3 – ACM impacted fill material and areas beneath temporary stockpiled asbestos containing materials (outside of the placement location and haul roads)	Where asbestos is a COPC, the following is proposed. Where remediation excavation is completed to expose natural material, visual assessment is to be completed by environmental consultant and licenced asbestos assessor (LAA). Where remediation	Adequate

Report Section	Required Information	Addressed within the RAP	Audit Opinion
		excavation is completed with residual fill remaining insitu, sampling and analysis will be undertaken in accordance with NEPC 2013/WA DoH requirements. Validation samples following asbestos impacted fill removal to be undertaken at a density of 1 sample per 10 m grid and following removal of stockpiled material to be undertaken at a density of 1 sample per 50 m ² .	
	Item 4 – Stockpile footprint validation	Where appropriate ground covering (geofabric and/or plastic) is not present, stockpile footprints will be validated through the collection and analysis of approximately 1 sample per 50 m ² .	Adequate.
	DQIs	<u>Appendix B</u> : DQIs for the validation program have been prepared.	Adequate
Waste Management	Waste is to be classified in accordance with EPA Waste Classification Guidelines	<u>Sections 6 and 10.5</u> indicate that waste will be classified in accordance with EPA Waste Classification Guidelines 2014.	Adequate
	Description of material handling and tracking plan	<u>Section 6.3 and Section 9.7.2</u> indicates that a material tracking register will be maintained on site which will provide information regarding the source, characteristics, destination and quantities of material placed within the placement location, disposed offsite or imported to the site for capping/backfilling purposes.	Adequate The auditor notes that onsite cap and containment within the Pipeline Alignment has not been proposed. Cap and containment within the USC AWRC site is required to be undertaken in accordance with the USC AWRC RAP which was subject to auditor review (Interim Audit Advice – L08).
	Statement regarding materials being disposed via an appropriately licenced facility or re-used under an order or exemption	<u>Table 6.5, Section 6.3 and 10.5</u> : notes that offsite disposal to a suitably licenced receiving facility will be undertaken, after appropriate waste classification documents have been prepared.	Adequate.
	Waste disposal dockets or other waste documentation for any disposed waste	<u>Section 9.7.4</u> notes that landfill disposal certificates will be provided in the validation report where material is transported offsite.	Adequate
	Conclusions addressing the stated objectives	<u>Section 13</u> : The RAP (ERM, 2023a) conclusions are appropriate.	Adequate

Report Section	Required Information	Addressed within the RAP	Audit Opinion
Conclusions and Recommendations	Summary of activities and physical changes to the site	<u>Section 13</u> : notes that the RAP (ERM, 2023a) provides a working plan that details the excavation, soil stockpiling, validation and management strategies for the remediation of the site.	Adequate
	A clear statement as to why the consultant considers the site can be made suitable for the proposed use if the RAP (ERM, 2023a) is implemented	<u>Section 13</u> states "...ERM considers RAP is sufficient to provide a framework for remediation of impacted material within the Pipelines Alignment, if identified during the proposed investigation works or the construction program, which subsequently would render the Pipelines Alignment suitable for the proposed Upper South Creek Advanced Water Recycling Pipeline development following completion of remedial / validation works outlined within this RAP".	Adequate
	A summary of limitations and constraints on the use of the site post remediation and proposed environmental management plan.	Not applicable	Not applicable
	Recommendations for further work.	Not provided. However, requirements for investigations have been included within the SAQP (ERM, 2023b) as referenced in the RAP (ERM, 2023a) and <u>Section 6</u> of the RAP.	Adequate

5. Auditor's Opinion

Based on a review of the information provided and subject to the limitations in **Attachment 1**, the following audit opinions are presented:

- The auditor considers that the RAP is appropriate for its stated purposes, namely to document remedial processes and procedures for the site to be made suitable for the proposed AWRC Pipeline development;
- The proposed remedial strategy of excavation of material exceeding criteria for on-site containment (subject to a LTEMP) at the USC AWRC site for asbestos contaminated soil and offsite disposal for non-asbestos contaminated soil is considered to be technically feasible, environmentally justifiable, consistent with relevant laws, policies and guidelines and sustainable. For these reasons, the auditor considers the RAP to be appropriate;
- The auditor is satisfied that the site can be made suitable for the proposed uses, subject to the successful implementation of the RAP (ERM, 2023a).

Please note that this interim advice does not constitute a Site Audit Statement or a Site Audit Report but is provided to assist in the assessment and management of contamination issues at the site in regard to requirements of the site audit. The information provided herein should not be considered pre-emptive of the final audit conclusions, but rather represent the findings of the audit based on a preliminary review of available site information. Furthermore, the interim advice should not be regarded as approval of any proposed investigations or remedial activities, as any such approval is beyond the scope of an independent auditor.

Should you require clarification, please contact the undersigned on 02 8245 0300 or by email alau@jbsg.com.au.

Yours sincerely:



Andrew Lau
NSW EPA Accredited Site Auditor
Accreditation Number 0503
JBS&G Australia Pty Ltd

Attachments (1) Limitations
 (2) Site Figures

Attachment 1 – Limitations

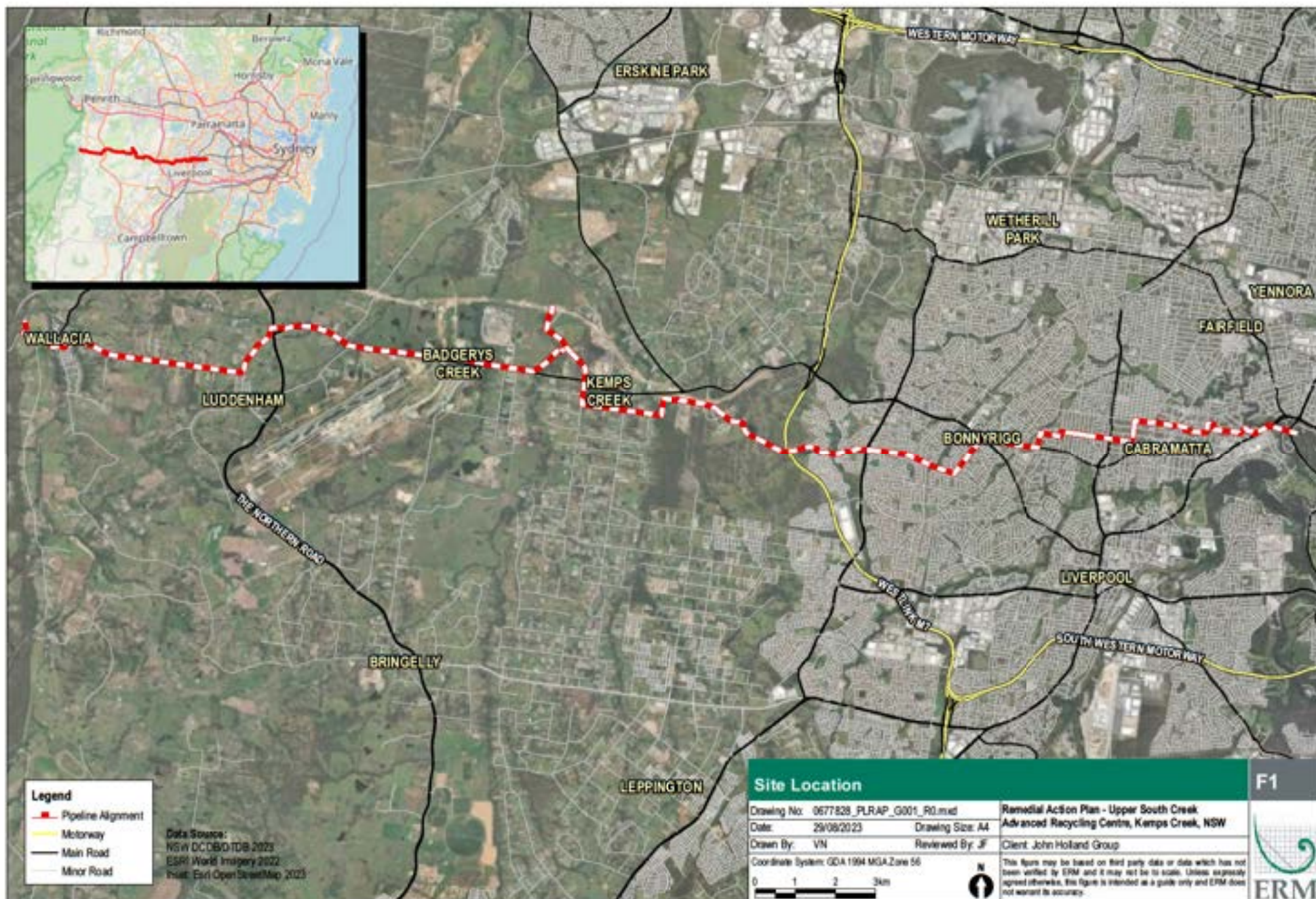
This audit was conducted with a reasonable level of scrutiny, care and diligence on behalf of the client for the purposes outlined in s.47 (1) of the *Contaminated Land Management Act 1997*. The data used to support the conclusions reached in this audit were obtained by other consultants and the limitations which apply to the consultant's report(s) apply equally to this audit report.

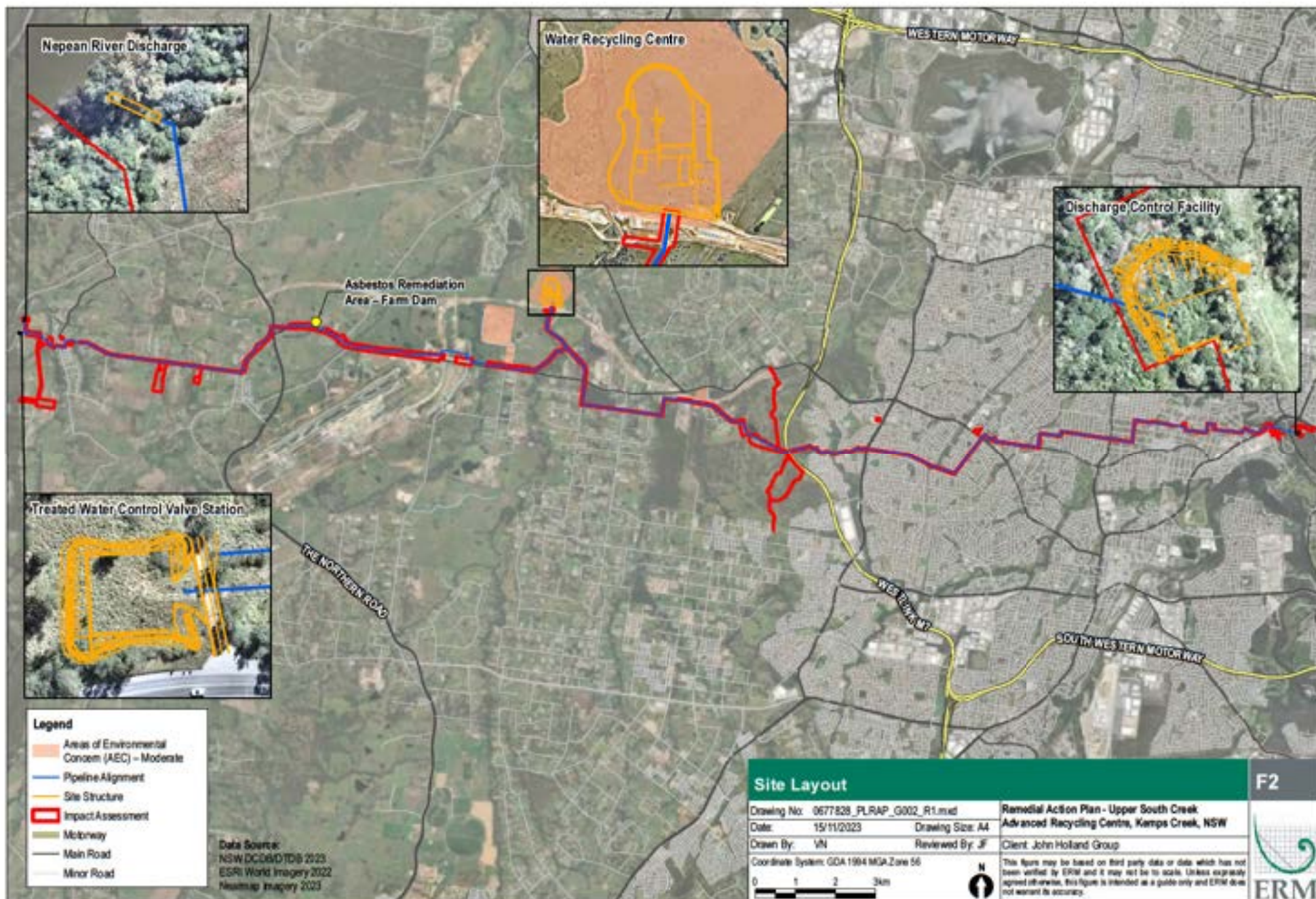
Every reasonable effort has been made to identify and obtain all relevant data, reports and other information that provide evidence about the condition of the site, and those that were held by the client and the client's consultants, or that were readily available. No liability can be accepted for unreported omissions, alterations or errors in the data collected and presented by other consultants. Accordingly, the data and information presented by others are taken and interpreted in good faith.

Sampling and chemical analysis of environmental media is based on appropriate guidance documents made and approved by the relevant regulatory authorities. Conclusions arising from the review and assessment of environmental data are based on the sampling and analysis considered appropriate based on the regulatory requirements. Limited sampling and laboratory analyses were undertaken as part of the investigations reviewed, as described herein. Ground conditions between sampling locations and media may vary, and this should be considered when extrapolating between sampling points. Chemical analytes are based on the information detailed in the site history. Further chemicals or categories of chemicals may exist at the site, which were not identified in the site history and which may not be expected at the site.

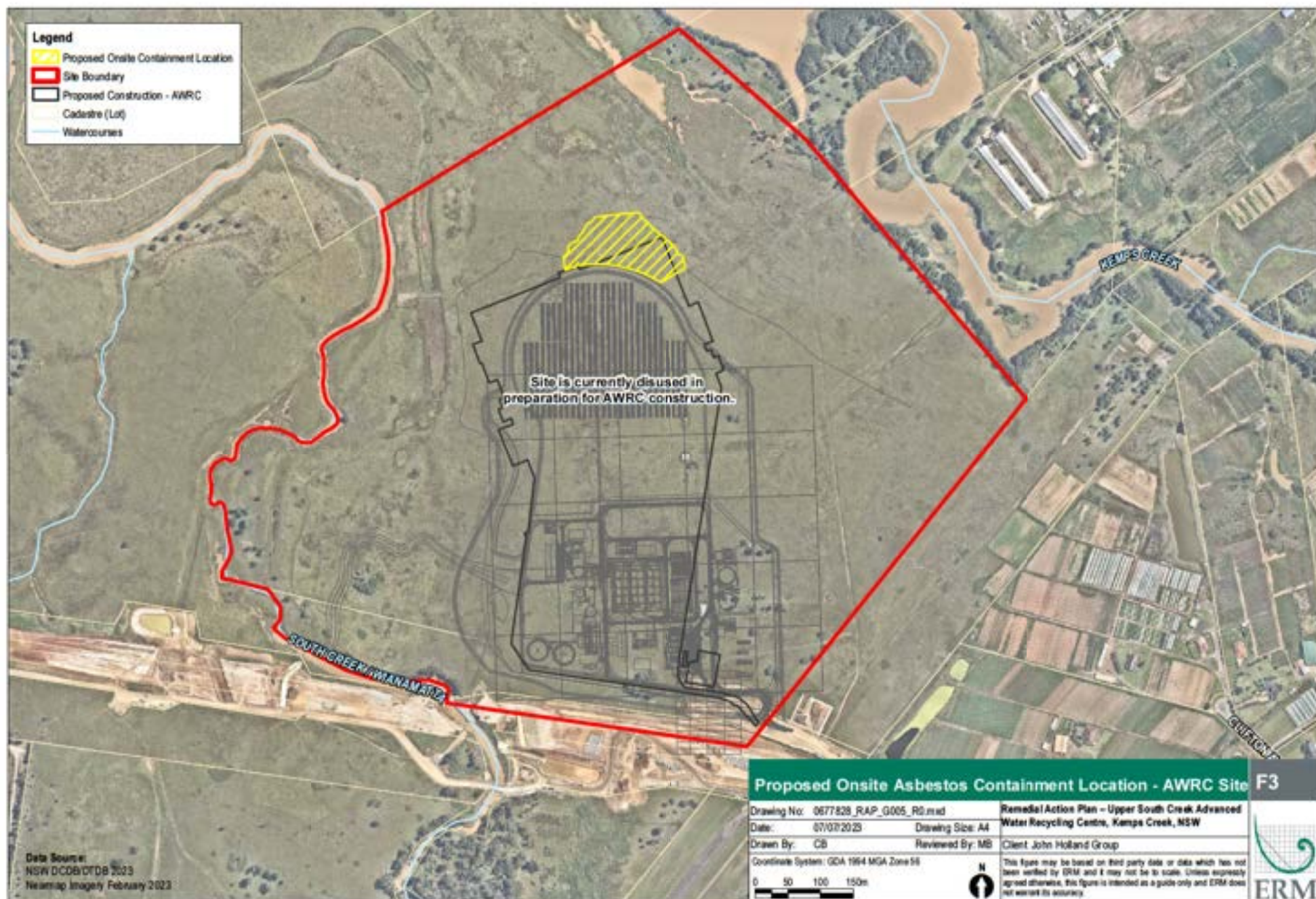
Changes to the subsurface conditions may occur subsequent to the investigations described herein, through natural processes or through the intentional or accidental addition of contaminants. The conclusions and recommendations reached in this audit are based on the information obtained at the time of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

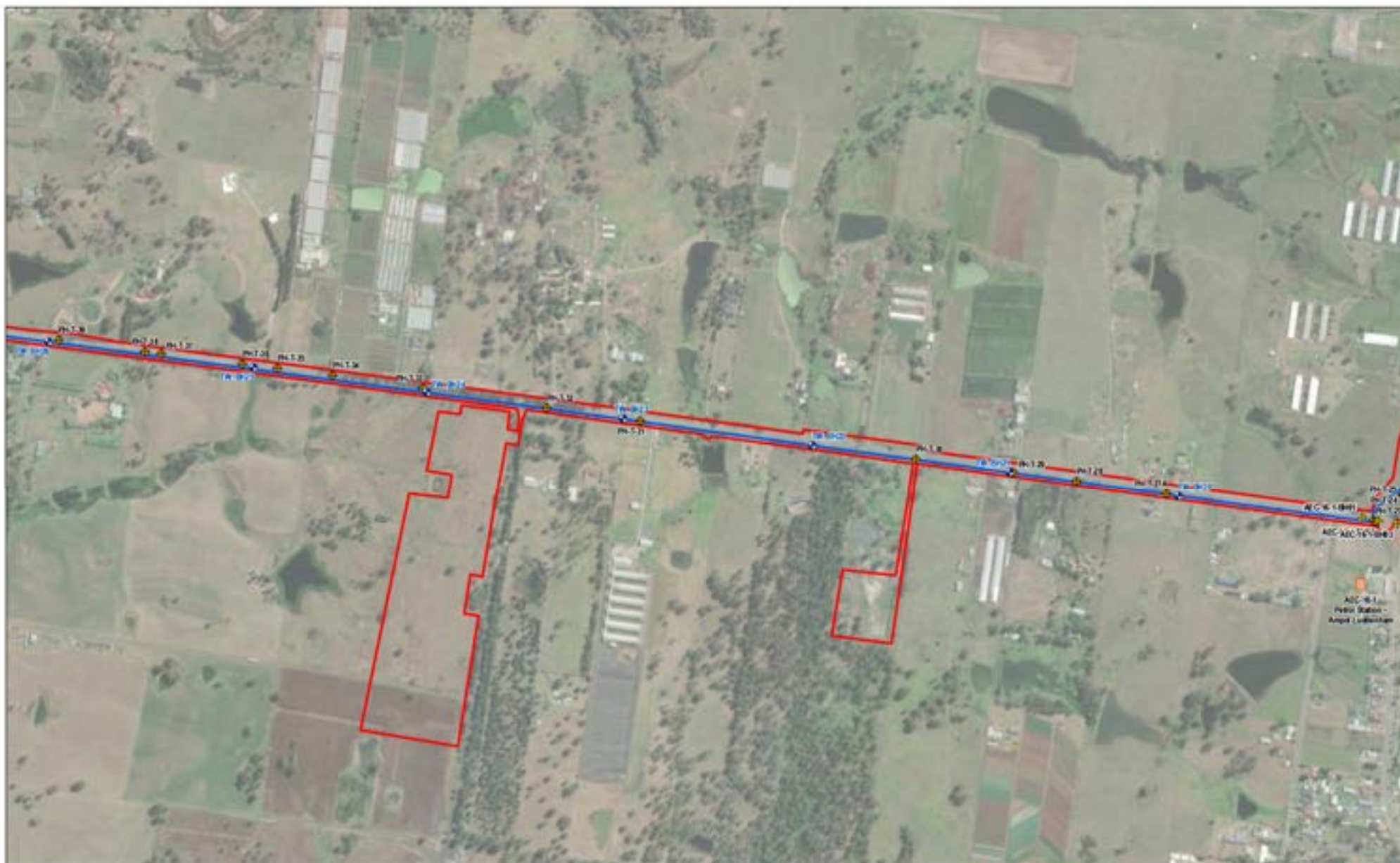
Attachment 2 – Site Figures





F2





Legend

- Impact Assessment Area
- Pipeline Alignment
- Site Structure
- Areas of Environmental Concern (AEC) – Moderate
- Threshold Excavation
- Proposed In-situ Sampling Location, Brine
- Proposed In-situ Sampling Location, Treatment Water
- J4 Proposed Pipeline Location
- Completed Pipeline Location
- Proposed SAQP Locations (DMA 2023)

Data Source:
NSW DPIS OCCASION 2023
GeoWorld Imagery March 2023



Sampling Locations

Drawing No: D071018_PUMP_G004_R1.mxd
Date: 11/10/2023
Drawing Size: A2
Drawn By: GC
Reviewed By: MB
Coordinate System: GDA 1984 MGA Zone 56

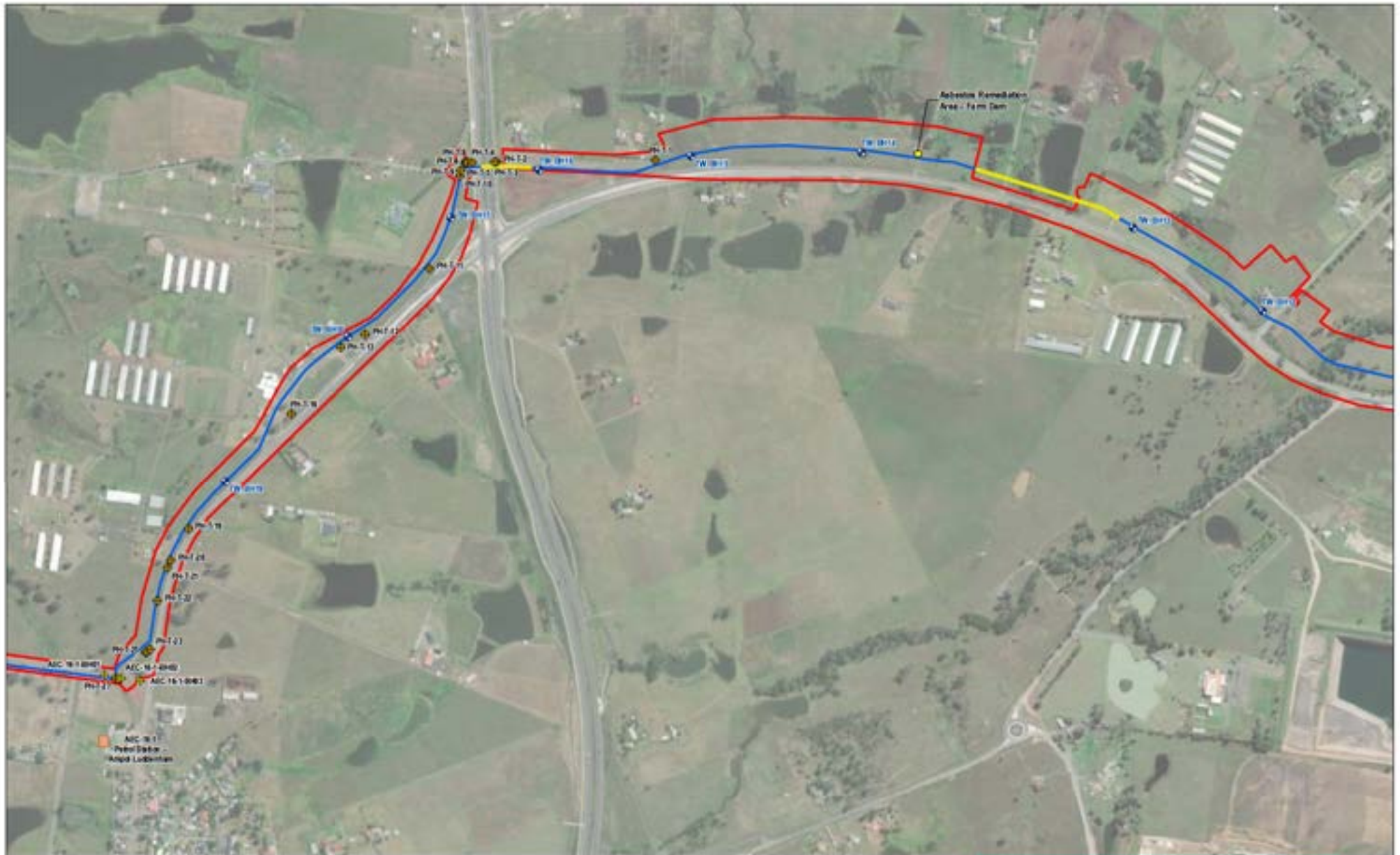
Scale: 1:1000
North Arrow

Remedial Action Plan – Upper South Creek
Advanced Recycling Centre, Kemps Creek, NSW
Client: John Holland Group

This report may be based on third party data or other sources that have not been verified by ERM and it may not be fit for use. Unless otherwise agreed otherwise, this report is intended as a guide only and ERM does not warrant its accuracy.

F4b





Legend

- ▬ Impact Assessment Area
- ▬ Pipeline Alignment
- ▬ Site Structure
- ▬ Areas of Environmental Concern (AEC) - Moderate
- ▬ Threshold Exceedance
- Proposed In-situ Sampling Location, Bore
- Proposed In-situ Sampling Location, Treatment Water
- Existing Bore Location
- Completed Pipeline Location
- Proposed SAQP Locations (SPM 2023)

Data Source:
NSW DPIS (OCCASION 2023)
GeoWorld Imagery March 2023



Sampling Locations

Drawing No: D071018_PUMP_0204_R1.mxd
Date: 15/11/2023
Drawing Size: A2
Client: John Holland Group
Revised By: MB
Coordinate System: GDA 1984 MGA Zone 56
Scale: 1:1000
North Arrow:

F4c





- Legend**
- ▬ Impact Assessment Area
 - ▬ Pipeline Alignment
 - ▬ Site Structure
 - ▬ Treatment Excavation
 - Proposed In-site Sampling Location, Drive
 - Proposed In-site Sampling Location, Treatment Water
 - J1 Proposed Pipeline Location
 - Completed Pipeline Location
 - Proposed SAGP Locations (ERW, 2023)

Data Source:
NSW DP 11/02/2023
East World Imaging March 2023

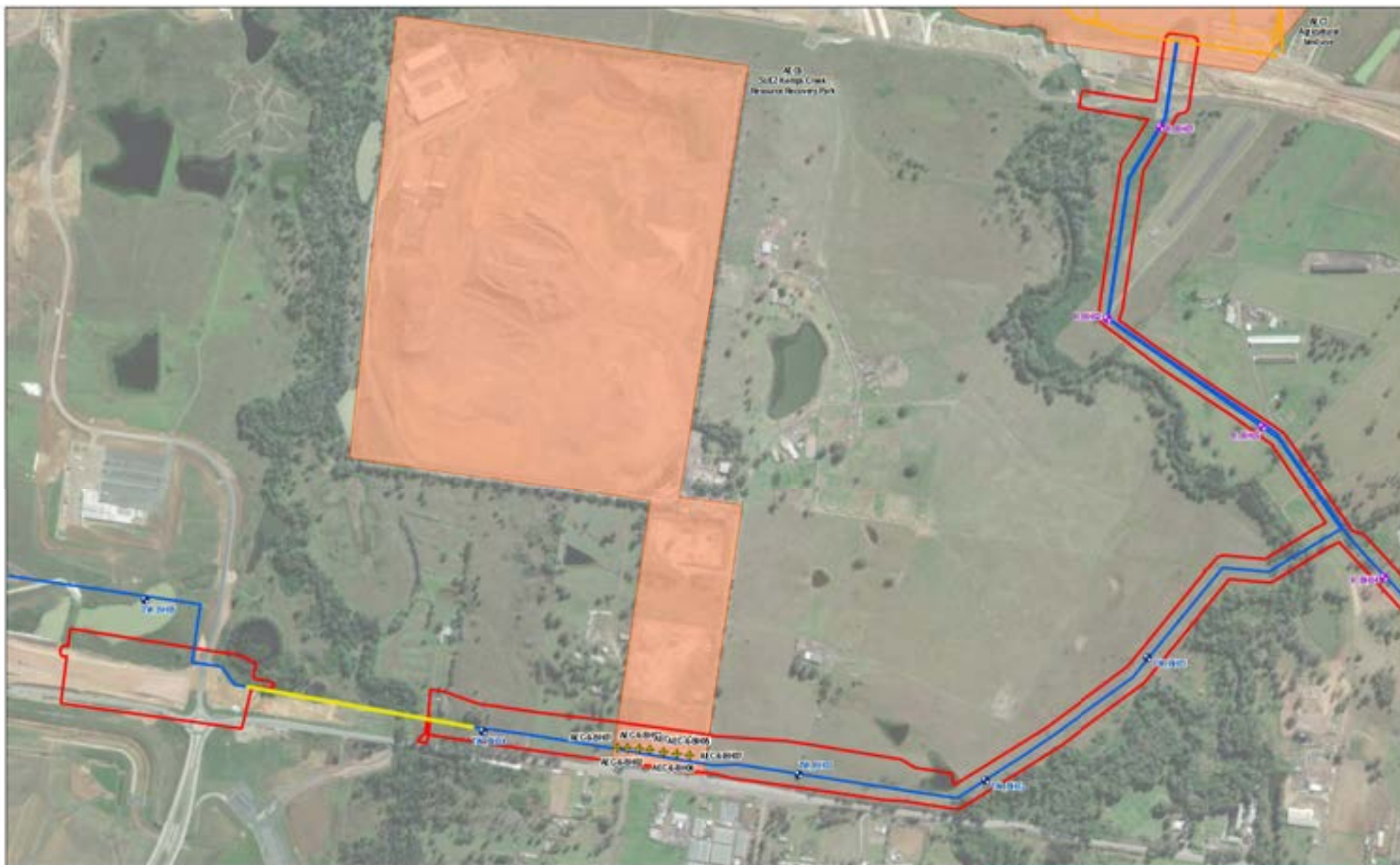


Sampling Locations

Drawing No: INT1018_PRRAP_G004_R1.mxd	Revised Action Plan - Upper South Creek Advanced Recycling Centre, Kangaroo Creek, NSW
Date: 17/10/2023	Drawing Date: 02/10/2023
Drawn By: GC	Reviewed By: MB
Coordinate System: GDA 1984 MGA Zone 56	Client: John Holland Group
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F4d





- Legend**
- Impact Assessment Area
 - Pipeline Alignment
 - Site Structure
 - Area of Environmental Concern (AEC) - Moderate
 - Threshold Excavation
 - Proposed In-situ Sampling Location, Bore
 - Proposed In-situ Sampling Location, Treatment Water
 - J4 Proposed Pithead Location
 - Completed Pithead Location
 - Proposed SAQP Locations (DMA 2023)

Data Source:
NSW DPIS (2020/2021)
Geo World Imaging March 2023

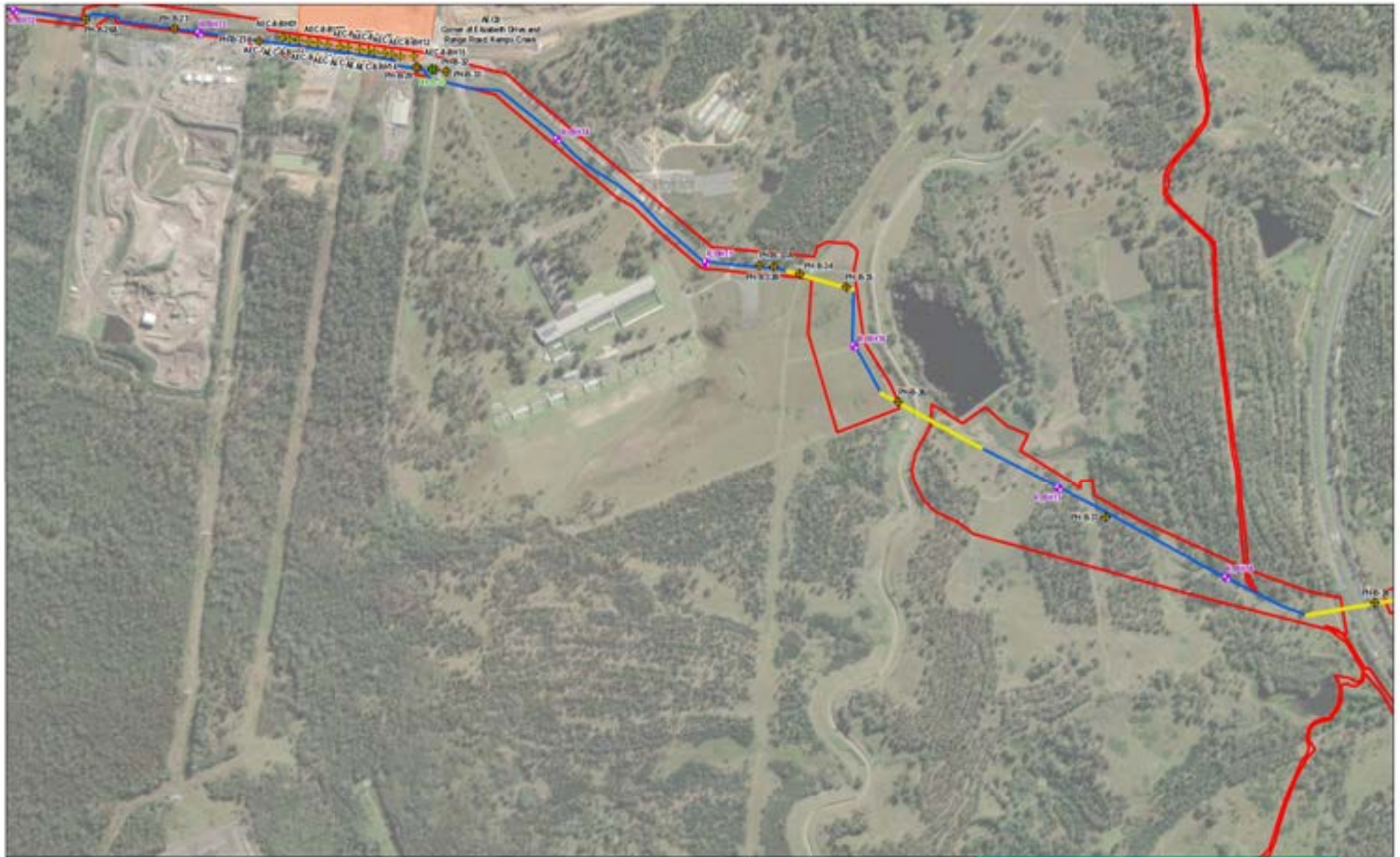


Sampling Locations

Drawing No: DPT1018_PUMP_0204_R1.mxd	Remedial Action Plan - Upper South Creek Advanced Recycling Centre, Kangaroo Creek, NSW
Date: 11/10/2023	Drawing Date: 02/10/2023
Drawn By: JG	Reviewed By: MB
Coordinate System: GDA 1984 MGA Zone 56	Client: John Holland Group
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F4e





Legend

- ▬ Impact Assessment Area
- ▬ Pipeline Alignment
- ▬ Site Structure
- ▬ Areas of Environmental Concern (AEC) – Moderate
- ▬ Threshold Excavation
- Proposed In-situ Sampling Location, Bore
- Proposed In-situ Sampling Location, Treatment Water
- J4 Proposed Pithead Location
- Completed Pithead Location
- Proposed SAQP Locations (DMA 2023)

Data Source:
NSW DPIS (2020/2021)
Geo World Imagery March 2023

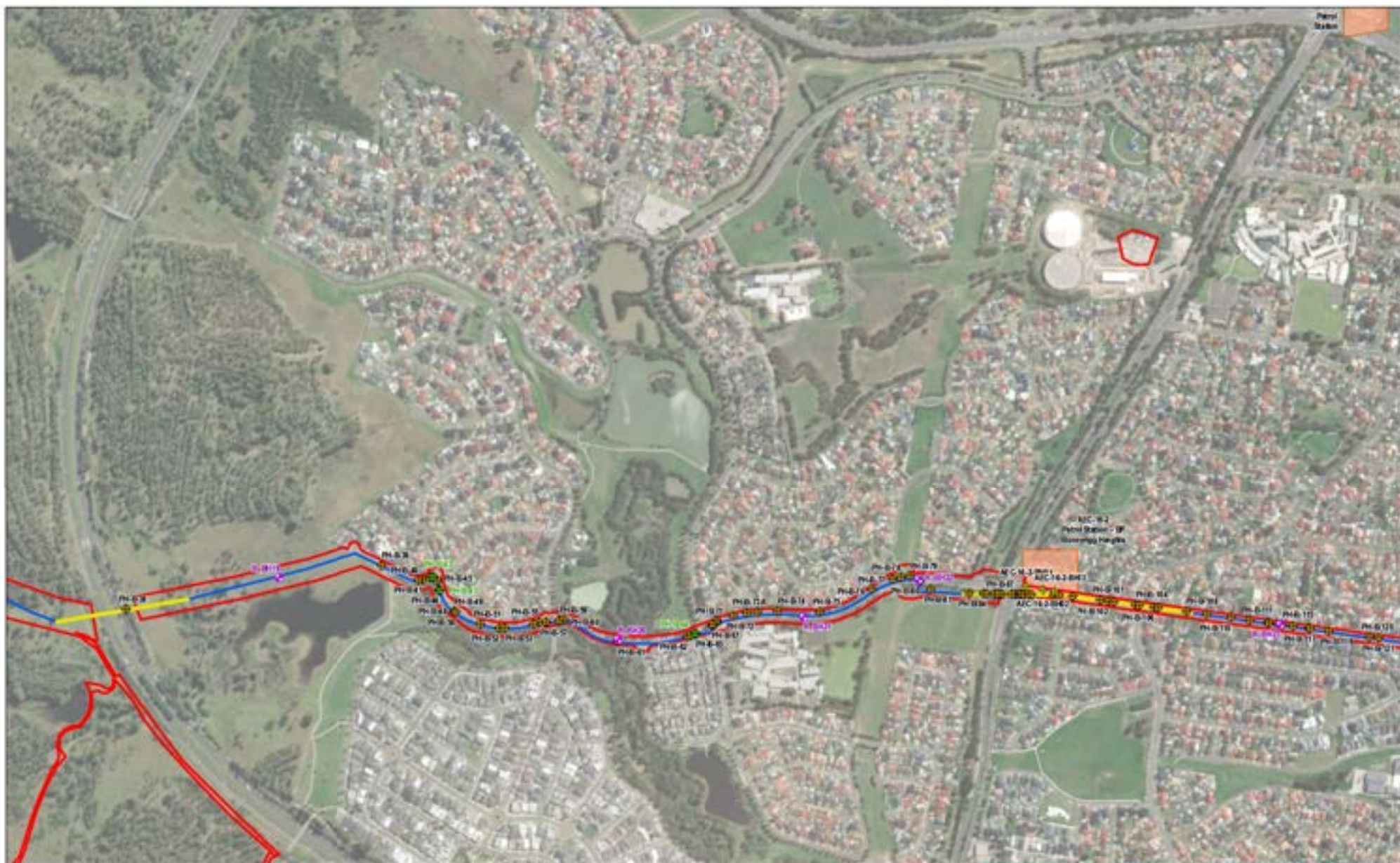


Sampling Locations

Drawing No: D07108_PUMP_0204_R1.mxd	Revised Action Plan – Upper South Creek
Date: 11/10/2023	Advanced Recycling Centre, Kangaroo Creek, NSW
Drawn By: JG	Reviewed By: MB
Coordinate System: GDA 1984 MGA Zone 56	Client: John Holland Group
<p>This figure may be based on third party data or data which has not been verified by ERM and is not fit for use. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.</p>	

F4g





Legend

- Impact Assessment Area
- Pipeline Alignment
- Site Structure
- Areas of Environmental Concern (AEC) - Moderate
- Thresholds Exceedance
- Proposed In-situ Sampling Location, Bore
- Proposed In-situ Sampling Location, Treatment Water
- J4 Proposed Pit-hole Location
- Completed Pit-hole Location
- Proposed SAQP Locations (DMA 2023)

Data Source:
NSW DP (L) OCCASION 2023
Geo World Imagery March 2023



Sampling Locations

Drawing No: D07108_PUMP_G004_R1.mxd	Remedial Action Plan - Upper South Creek
Date: 11/10/2023	Advanced Recycling Centre, Kanger Creek, NSW
Drawn By: JG	Reviewed By: MB
Coordinate System: GDA 1984 MGA Zone 56	Client: John Holland Group

F4h





- Legend**
- Impact Assessment Area
 - Pipeline Alignment
 - Site Structure
 - Areas of Environmental Concern (AEC) – Moderate
 - Threshold Exceedance
 - Proposed In-situ Sampling Location, Storm
 - Proposed In-situ Sampling Location, Treatment Water
 - J4 Proposed Potable Location
 - Completed Potable Location
 - Proposed SAQP Locations (SRM 2023)

Data Source:
NSW DP (N) OC060108 2020
Sat World Imagery March 2023



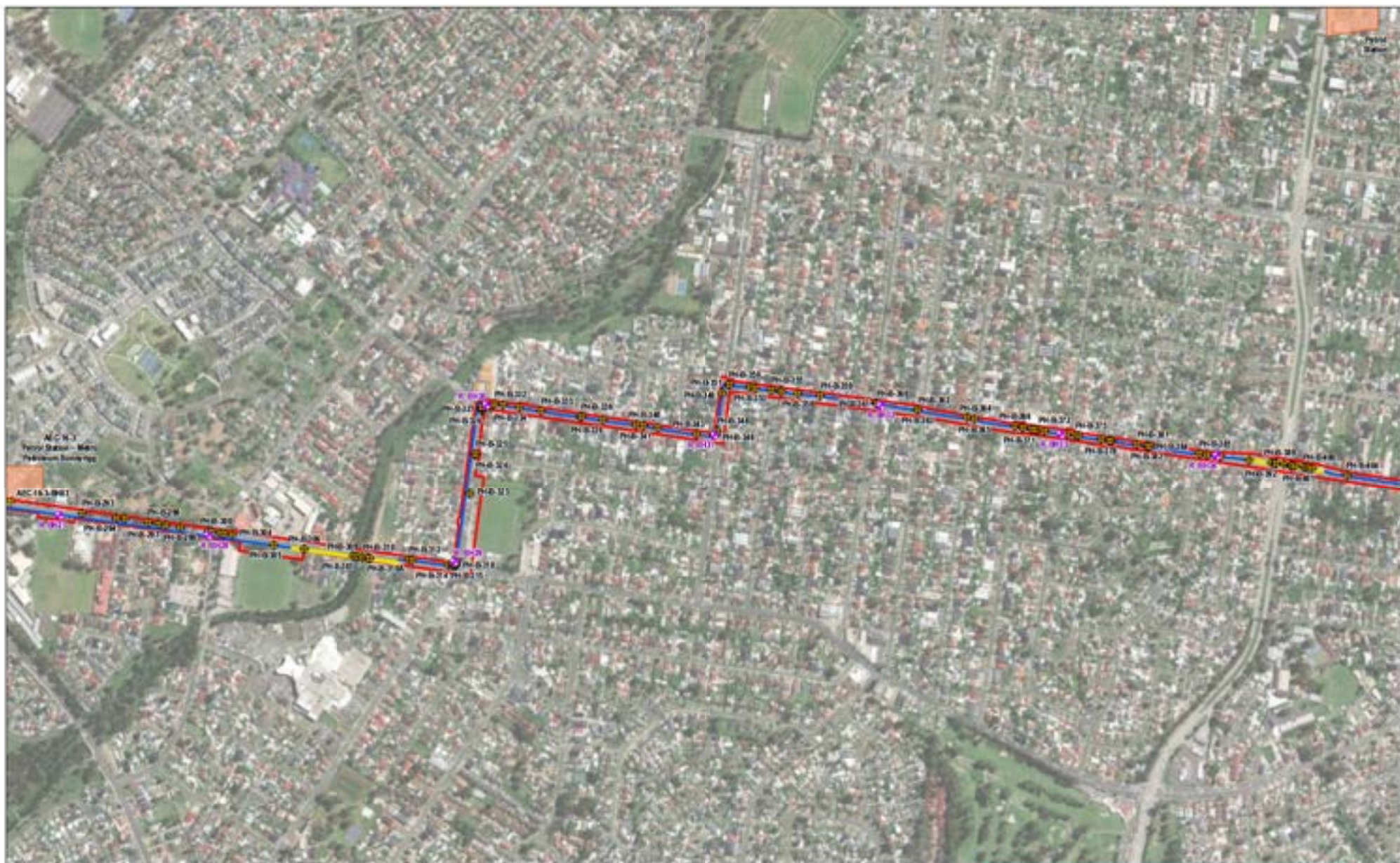
Sampling Locations

Drawing No: D07108_PUMP_G004_R1.mxd
Date: 11/10/2023
Drawn by: JAC
Reviewed by: MB
Coordinate System: GDA 1984 MGA Zone 56

**Remedial Action Plan – Upper South Creek
Advanced Recycling Centre, Kanger Creek, NSW**
Client: John Holland Group
This figure may be based on third party data or data which has not been verified by JHRC and is not fit for use. JHRC does not warrant the accuracy of the data. The figure is intended as a guide only and JHRC does not warrant its accuracy.

F41





Legend

- Impact Assessment Area
- Pipeline Alignment
- Site Structure
- Area of Environmental Concern (AEC) - Moderate
- Threshold Excavation
- Proposed In-situ Sampling Location, Bore
- Proposed In-situ Sampling Location, Treatment Water
- J4 Proposed Pit-hole Location
- Completed Pit-hole Location
- Proposed SA-QP Locations (DMA 2023)

Data Source:
NSW DPIS OC060108 2023
Sat-World Imagery March 2023



Sampling Locations

Drawing No: D07108_PUMP_G004_R1.mxd	Revised Action Plan - Upper South Creek Advanced Recycling Centre, Kangaroo Creek, NSW
Date: 17/10/2023	Drawing Date: 02/10/2023
Drawn By: JQC	Reviewed By: MB
Coordinate System: GDA 1984 MGA Zone 56	Client: John Holland Group

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- Legend**
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 - Proposed In-situ Sampling Location, Treatment Water
 - JH Proposed Pithead Location
 - Completed Pithead Location
 - Proposed SAQP Locations (DMA 2023)

Data Source:
NSW DPW (DODM) 2023
Geo World Imagery March 2023



Sampling Locations		F4k
Drawing No:	D07108_PUMP_004_R1.mxd	Remedial Action Plan - Upper South Creek
Date:	17/10/2023	Advanced Recycling Centre, Kanger Creek, NSW
Drawn By:	QC	Client: John Holland Group
Reviewed By:	MB	
Coordinate System: GDA 1984 MGA Zone 56		
Scale: 1:500		
North Arrow		
This figure may be used as a reference only and is not intended to be used for any other purpose. The figure is intended as a guide only and does not constitute a warranty.		





Legend

- Impact Assessment Area
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- Site Structure
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- Completed Pit-hole Location
- Proposed SAQP Locations (DMA 2023)

Data Source:
NSW DP (IL) 00060108 2023
Geo World Imaging March 2023



Sampling Locations

Drawing No: D07108_PUMP_G004_R1.mxd	Remedial Action Plan - Upper South Creek
Date: 11/10/2023	Advanced Recycling Centre, Kanger Creek, NSW
Drawn By: GJC	Reviewed By: MB
Coordinate System: GDA 1984 MGA Zone 56	Client: John Holland Group

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JBS&G 64112 | 156551

L11 (0503 2307 SWC USC AWRC Pipelines RAP) Rev 0

20 March 2024

Cheryl Cahill
Environment Lead, Major Projects
Sydney Water
Via email: CHERYL.CAHILL@sydneywater.com.au

L11 Interim Audit Advice (0503-2307-11) – Sydney Water Corporation – Upper South Creek Advanced Water Recycling Centre – Review of the Updated Remedial Action Plan for Pipelines Alignment

Dear Cheryl,

1. Introduction and Background

Andrew Lau of JBS&G Australia Pty Ltd (JBS&G), has been engaged by Sydney Water Corporation (SWC, the client) to conduct a site audit(s) related to the Upper South Creek Advanced Water Recycling Centre (USC AWRC) and associated pipelines. The USC AWRC is located in Clifton Avenue Kemps Creek and occupies approx. 78 ha.

The pipelines occupy lands between the USC AWRC and Lansdowne Reserve in Lansdowne for approx. 24 km ("the brine pipeline") and land between the USC AWRC and the Nepean River in Wallacia for approx. 16.7 km ("the treated water pipeline") collectively referred to as the "Pipelines Alignment" (the site).

The Pipelines Alignment comprises the following zoning:

- AGB – Agribusiness
- C2 – Environmental Conservation
- ENT – Enterprise
- ENZ – Environment and Recreation
- R1, R2, R3 and R4, general, low density, medium density and high density, respectively
- RE1 – Public Recreation
- RU1 – Primary production
- RU2 – Rural landscape
- RU4 – Primary production small lots
- RU5 – Village
- RE1 – Public recreation
- SP2 - infrastructure

SWC holds easements for the Pipelines Alignment along their length and the land is owned by multiple owners. Figures relating to the site and surrounds are shown in **Attachment 2**.

SWC received Ministerial approval for the USC AWRC project on 28th November 2022 as a state significant infrastructure project (Application Number SSI-8609189) ("the consent").

Table 1 shows previously reviewed documents for the audit and relevant interim audit advice correspondence.

Table 1: Previous Interim Audit Advice Correspondence

Document Reviewed	Previous Interim Audit Advice Correspondence
<i>Unexpected Finds Procedure for Contamination</i> , John Holland, issued 07/12/2022, document number USCP-POL-G-002.	L02 Interim Audit Advice (0503-2307-02) – Sydney Water Corporation – Upper South Creek Advanced Water Recycling Centre – <i>Unexpected Finds Protocol</i> , to Cheryl Cahill of Sydney Water, 9 December 2022.
<i>Upper South Creek Advanced Water Recycling Centre - Soils and Contaminated Land Impact Assessment</i> , Aurecon ARUP, 27 July 2021 ("the SCLI document")	L03 Interim Audit Advice (0503-2307-03) – Sydney Water Corporation – Upper South Creek Advanced Water Recycling Centre – <i>Review of the Upper South Creek Advanced Water Recycling Centre - Soils and Contaminated Land Impact Assessment</i> to Cheryl Cahill of Sydney Water, 17 March 2023.
<i>Upper South Creek Wastewater Treatment Plant Options Assessment, Preliminary Site Investigation (Contamination)</i> Aurecon, 2019	
<i>Upper South Creek Advanced Water Recycling Centre and Pipelines Detailed Site Investigation</i> , Aurecon ARP, 12 March 2021 ("the DSI")	L03 provided review of the four documents as related to the AWRC parcel of land, only.
<i>Memorandum re Hazardous Materials Survey – Upper South Creek Advanced Water Recycling Centre</i> , Aurecon to Sydney Water, 18 May 2021	
<i>Upper South Creek Advanced Water Recycling Centre and Pipelines Soils & Contamination Construction Environmental Management Plan ("the CEMP")</i> John Holland, 01/03/2023, USCP-JHG-MPL-ENV-0008 Rev 4, some portions, only.	L04 Interim Audit Advice (0503-2307-04) – Sydney Water Corporation – Upper South Creek Advanced Water Recycling Centre – <i>Review of the Upper South Creek Advanced Water Recycling Centre – Soils and Contamination Construction Environmental Management Plan Sub-Plan</i> to Cheryl Cahill of Sydney Water, 12 May 2023.
<i>Upper South Creek Advanced Water Recycling Centre and Pipelines Soils & Contamination Construction Environmental Management Plan (CEMP) Sub-plan (S&C CEMP sub-plan)</i> , John Holland, issued 10/05/2023 and earlier drafts (11/03/23, 14/04/2023) (uncontrolled copy) Document No: USCP-JHG-MPL-ENV-0003.	
The SCLI Assessment and the DSI, as they relate to the pipelines site only.	L05 Interim Audit Advice (0503-2307-05) – Sydney Water Corporation – Upper South Creek Advanced Water Recycling Centre – <i>Review of the Upper South Creek Advanced Water Recycling Centre - Soils and Contaminated Land Impact Assessment – Pipelines</i> to Cheryl Cahill of Sydney Water, 16 May 2023.
<i>Upper South Creek Water Factory Pipeline Alignments Option Concept Design, Preliminary Site Investigation (Contamination)</i> Aurecon, 2020	
<i>Sampling and Analysis Quality Plan, Upper South Creek Advanced Water Recycling Centre</i> , ERM 6 June 2023.	L06 Interim Audit Advice (0503-2307-06) – Sydney Water Corporation – Upper South Creek Advanced Water Recycling Centre – <i>Review of the USC AWRC Plant Sampling and Analysis Quality Plan</i> , to Cheryl Cahill of Sydney Water, 22 June 2023
<i>Sampling and Analysis Quality Plan, Upper South Creek Advanced Water Recycling Centre, Pipeline Alignment</i> , ERM, 8 August 2023	L07 Interim Audit Advice (0503-2307-07) – Sydney Water Corporation – Upper South Creek Advanced Water Recycling Centre – <i>Review of the Pipelines Sampling and</i>

Document Reviewed	Previous Interim Audit Advice Correspondence
	<i>Analysis Quality Plan, to Cheryl Cahill of Sydney Water, 14 August 2023</i>
<i>Remedial Action Plan, Upper South Creek Advanced Water Recycling Centre, ERM, 29 August 2023</i>	<i>L08 Interim Audit Advice (0503-2307-08) – Sydney Water Corporation – Upper South Creek Advanced Water Recycling Centre – Review of the Remedial Action Plan – Plant Site, to Cheryl Cahill of Sydney Water, 30 August 2023</i>
<i>Detailed Site Investigation, Upper South Creek Advanced Water Recycling Centre, ERM, 16 August 2023</i>	<i>L09 Interim Audit Advice (0503-2307-09) – Sydney Water Corporation – Upper South Creek Advanced Water Recycling Centre – Review of the Detailed Site Investigation – Plant site, to Cheryl Cahill of Sydney Water, 6 September 2023</i>
<i>Remedial Action Plan, Upper South Creek Advanced Water Recycling Centre, ERM, 15 November 2023</i>	<i>L10 Interim Audit Advice (0503-2307-10) – Sydney Water Corporation – Upper South Creek Advanced Water Recycling Centre – Review of the Remedial Action Plan for Pipelines Alignment, to Cheryl Cahill of Sydney Water, 22 December 2023</i>

2. Document Reviewed

The following document was reviewed in preparation of this Interim Audit Advice (IAA):

- *Remedial Action Plan, Upper South Creek Advanced Water Recycling Centre, ERM, 6 March 2024, ('the RAP', ERM, 2024)*

3. Objective of this Interim Advice

The objective of this interim advice is to provide an auditor review of the RAP for the Pipelines Alignment. This is required under Conditions E74 (e), E83 and E84 of the consent.

- E74 "...The Site Auditor is to review all relevant documentation and provide a written opinion on the contamination risk and the appropriateness of the reports and any proposed management measures of the site, including.... (e) Remedial Action Plans in Condition E83..."
- E83 "Where remediation is required to make land suitable for the final intended land use, a Remedial Action Plan must be prepared and/or reviewed and approved by consultants certified under ... the Environment Institute of Australia and New Zealand's Certified Environmental Practitioner (Site Contamination) scheme...."

"The Remedial Action Plan must be prepared in accordance with relevant guidelines made or approved by the EPA under section 105 of the CLM Act and must include measures to remediate the contamination at the site to ensure the site will be made suitable for the final intended land use."

- E84 "If remediation is required to make land suitable for the final intended land use, then prior to commencing with the remediation, the Proponent must submit the Remedial Action Plan(s) and an interim audit advice from a NSW EPA accredited Site Auditor to the Planning Secretary for information, which considers that the Remedial Action Plan is appropriate and that the site can be made suitable for the proposed land use. The Remedial Action Plan must be implemented and any changes to the Remedial Action Plan must be approved in writing by the NSW EPA accredited Site Auditor."

4. Auditor's Assessment

The auditor previously reviewed the RAP dated 15 November 2023 as documented in interim audit advice correspondence (0503-2307-10). It is understood that the RAP was subsequently updated to address a request for information (RFI) received from the Department of Planning, Housing and Infrastructure (DPHI¹) in addition to incorporating new investigation findings. On this basis, the auditor completed a review of the updated RAP (ERM 2024) as documented herein.

The auditor notes that the RAP (ERM, 2024) complies with the requirement that it be prepared/reviewed by a Certified Contaminated Land Consultant. The report has been signed by Mr Peter Lavelle of ERM and his seal as a CEnvP SC (EIANZ) is on the title page of the RAP.

The auditor has considered the RAP (ERM, 2024) against the requirements of the requirements for RAPs in accordance with the relevant Guidelines as shown in **Table 2**.

¹ Subject: Upper South Creek Advanced Water Recycling Centre (SSI-8609189) – Remediation Action Plan – Pipelines – Request for Additional Information, Department of Planning, Housing and Infrastructure, 2 February 2024 (DPHI 2024)

Table 2: Compliance of the RAP (Pipelines site) (ERM, 2024) with the requirements of EPA (2020²)

Report Section	Required Information	Addressed within the RAP	Audit Opinion
Document control	Date, version number, author and reviewer (including certification details) and who commissioned the report	Inside Cover	Adequate
Objectives	The objectives of the remediation	<p><u>Section 1.2</u> states that the objectives of the RAP are to:</p> <ul style="list-style-type: none"> In the event that contamination requiring remediation is identified: detail the required remediation processes and procedures to be implemented within the Pipelines Alignment to enable the Pipelines Alignment to be made suitable for the proposed commercial / industrial USC AWRC development; and Regardless of whether contamination which requires remediation is identified: detail the procedures for classifying materials to be excavated within the Pipelines Alignment. <p><u>Section 8.1</u> states that the overall remediation objective is to effectively manage identified contamination within soils to render the site suitable for the proposed commercial/industrial use.</p> <p><u>Section 1.4</u> notes the interface with the ASC AWRC site RAP.</p>	<p>Adequate.</p> <p>ASC AWRC site RAP has been subject to auditor review (Interim Audit Advice – L08).</p>
Scope of work	Summary of scope of work	<u>Section 1.3</u> describes the works completed to prepare the RAP (ERM, 2024). These included a review of previous reports and defined remedial goals, based on the conceptual site model (CSM) and proposed future land use. From this the preferred remedial strategy was developed, together with the specific requirements of the recommended remedial approach.	Adequate
Site identification, site history, site condition and surrounding environment	<p>Street number, street name and suburb, Lot/DP, zoning, locality map, neighbouring site uses.</p> <p>Summaries of site history, site condition and surrounding environment.</p> <p>Topography, Geology, hydrogeology and hydrology.</p>	<u>Section 3</u> provides the site identification details, as well as a summary of the site history. <u>Table 3-2</u> provides the site environmental settings and background details, including topography, geology, hydrology and hydrogeological details. These are summarised from previous reports that the auditor has reviewed as described in Table 1 , above.	Adequate

² Consultants Reporting on Contaminated Land - Contaminated Land Guidelines, NSW Environmental Protection Authority, April 2020.

Report Section	Required Information	Addressed within the RAP	Audit Opinion
Remediation criteria	A list of criteria and rationale for the criteria, including references.	<p>Section 9: Reference is made to the soil remediation acceptance criteria as being adopted from the NEPM³ and CRC Care (2011⁴) as applicable to the planned future use of the Pipelines alignment for commercial/industrial use.</p> <p>In addition, the following statistical criteria is to be adopted with respect to the validation criteria: 95% Upper Confidence Limit (UCL) of the arithmetic mean for chemical contaminants does not exceed the validation criteria; the individual contaminant concentration does not exceed the validation criterion by more than 250%; and the standard deviation of individual contaminants does not exceed 50% of the validation criteria.</p> <p>The RAP (ERM, 2024) states that consideration of aesthetic issues arising from soil within the Pipeline Alignment will be undertaken in accordance with aesthetic criteria adopted from the NEPM.</p> <p>The RAP (ERM, 2024) states that material for offsite disposal will be classified in accordance with EPA (2014a⁵), (EPA 2014b⁶) or other relevant resource recovery orders, resource recovery exemptions and approvals issued by the NSW EPA.</p> <p>The RAP (ERM, 2024) states that imported material will be assessed for suitability as Virgin Excavated Natural Material (VENM) in accordance with EPA (2014a), Excavated Natural Material (ENM) as defined in EPA (2014b) or resource recovery material as per an EPA order/exemption.</p>	Adequate.
Results	Summary of previous results or reference to previous report(s).	<u>Section 4</u> of the RAP (ERM, 2024) references a number of previous investigations. Based on information provided in the previous reports, the following areas of concern (AEC) have been identified with moderate potential for contamination.	<p>Adequate.</p> <p>The investigation of identified AECs are required to be undertaken in</p>

³ National Environment Protection (Assessment of Site Contamination Measure), 1999. National Environment Council, revised 2013.

⁴ Health screening levels for petroleum hydrocarbons in soil and groundwater, Part 2: Application document, CRC CARE Technical Report no. 10

⁵ Waste Classification Guidelines: Part 1: Classifying Waste, NSW EPA, 2014.

⁶ The excavated natural material order 2014, NSW EPA, 2014.

Report Section	Required Information	Addressed within the RAP	Audit Opinion
		<ul style="list-style-type: none"> AEC-6: SUEZ Kemps Creek Resource Recovery Park (now Cleanaway) relating to landfill gas and leachate within soil/groundwater AEC-8: Corner of Elizabeth Drive and Range Road, Kemps Creek relating to uncontrolled fill containing asbestos AEC-16: petroleum releases from petrol stations. <p>It is noted that an SAQP (ERM, 2023b⁷) was developed to investigate the AECs, however, the RAP has been prepared prior to completion of investigation works due to the logistical requirements of the Project. It is further noted that any remediation works resulting from the investigation undertaken will be undertaken in accordance with the RAP.</p>	accordance with the investigation program outlined in the SAQP (ERM, 2023b) which was subject to auditor review (Interim Audit Advice – L07).
Summary of site Characterisation	Assessment of all types of environmental contamination and assessment of extent of all identified contamination, including off site areas	Not addressed within the RAP. The RAP makes reference to the SAQP (ERM, 2023b) which outlines requirements for investigation of AECs. In addition, <u>Section 6</u> of the RAP outlines requirements for classification of material proposed to be excavated during development works within the Pipeline Alignment.	Adequate. AEC investigation works have not yet been completed due to the logistical requirements of the Project. Investigation of identified AECs is required to be undertaken in accordance with the investigation program outlined in the SAQP (ERM, 2023b) which was subject to auditor review (Interim Audit Advice – L07).
Conceptual Site Model (CSM)	Identification of the CoPC. Identification of potential and known sources of contamination, affected media, potential and actual pathways and human and ecological receptors.	<u>Table 5.1</u> presents a preliminary CSM for the site. The following COPCs were identified:	Adequate.

⁷ Sampling and Analysis Quality Plan, Upper South Creek Advanced Water Recycling Centre, Pipeline Alignment, ERM, 8 August 2023

Report Section	Required Information	Addressed within the RAP	Audit Opinion
	Data gap analysis.	<ul style="list-style-type: none"> AEC-6: heavy metals, ammonia and nitrogen as related to landfill leachate; and methane and carbon dioxide as related to landfill gas. AEC-8: Asbestos, total recoverable hydrocarbons (TRH), benzene, toluene, ethylbenzene, xylenes (BTEX), heavy metals, polycyclic aromatic hydrocarbons (PAH), polychlorinated biphenyls (PCB), organochlorine pesticides (OCP) and organophosphorus pesticides (OPP). AEC-16: TRH, BTEX, PAH. <p>Pathways were identified for both human and ecological receptors and included dermal contact, inhalation, and / or incidental ingestion with contaminated surface waters / groundwater / soil; transport of contamination through surface water / groundwater flows; transport of contamination to underlying groundwater aquifers; inhalation of landfill gases during soil disturbance works; and transport of contamination through mechanical means.</p> <p>Receptors were identified as current and future Pipeline Alignment users, workers carrying out development, installation or maintenance works within the Pipeline Alignment, adjacent sensitive receptors and future potential users of groundwater within the Pipeline Alignment.</p> <p>The CSM noted that the risk of complete linkages for identified potential sources were identified as low to moderate.</p>	
Remedial Options Assessment and Remediation Strategy	Assessment of possible remedial options and how risk can be reduced	<u>Section 8.2</u> : a range of remedial options were presented involving different forms of onsite containment, offsite beneficial reuse or disposal to a licenced landfill facility.	Adequate
	Rationale for the selection of recommended remedial option, in accordance with the preferred hierarchy outlined in the NEPM	<p><u>Section 8.3</u>: The preferred remediation strategy is identified as excavation and on-site containment at the USC AWRC site for asbestos contaminated soil and offsite disposal for non-asbestos contaminated soil.</p> <p>It is noted that that groundwater has not been encountered during previous investigations and not anticipated to be encountered during the pipeline construction program. As such, groundwater remediation is not anticipated to be required. A contingency plan is provided in the</p>	Adequate. If remediation of asbestos-contaminated soils from the Pipelines Alignment is required, it is expected that these soils will be placed within the USC AWRC site encapsulation area. A RAP has been separately

Report Section	Required Information	Addressed within the RAP	Audit Opinion
		RAP (ERM, 2024) in the event groundwater is encountered in significant amounts during the construction program.	developed by the consultant for the USC AWRC site which was subject to auditor review (Interim Audit Advice – L08) with respect to proposed placement of asbestos-contaminated soils within a purpose-designed encapsulation area located in the northern portion of the USC AWRC site.
	Description of the remediation works to be undertaken	<p><u>Section 7.1</u> provides a general overview on remediation required. It is noted that the nature and extent of remediation required across the Pipeline Alignment is not known at the time of preparing the RAP (ERM, 2024). It is anticipated that some contamination will be encountered as part of excavations to enable pipeline construction, excavated material classification and the Pipelines AEC investigation to be completed. The RAP sets out a framework to address potential contamination and to allow for management of unexpected finds.</p> <p>In addition, in <u>Section 7.2</u> it is noted that a limited area containing demolition waste including bonded ACM was identified in September 2023 in a portion of the treated water pipeline referred to as the 'Farm Dam' comprising an area of approx. 700 m². Further it is noted that AEC8 located at the corner of Elizabeth Drive and Range Road in Kemps Creek, was confirmed to contain bonded ACM fragments on the ground surface over an area of approx. 2000 m². following investigations in October and November 2023 in accordance with the investigation scope noted in the RAP. Remediation of these area is to be completed in accordance with the requirements of the RAP (ERM, 2024).</p>	<p>Adequate.</p> <p>Investigation of identified AECs is required to be undertaken in accordance with the investigation program outlined in the SAQP (ERM, 2023b) which was subject to auditor review (Interim Audit Advice – L07).</p>
	Confirmation that waste imported onto the site is lawful.	<u>Section 9.7.1</u> requires that imported materials are VENM, ENM or a recycled material meeting the requirements of the applicable	Adequate.

Report Section	Required Information	Addressed within the RAP	Audit Opinion
		<p>resource recovery order. This is discussed above, in Remediation Criteria.</p> <p>The environmental consultant is to observe all material being imported with the visual assessment to confirm that the imported material is consistent with the documentation provided by respective source sites and that the material does not contain building waste or foreign material (unless specifically allowed under a Resource Recovery Order and Exemption), asbestos, staining or discoloration, odours, evidence of potential or actual acid sulfate soil and other evidence of contamination. The Environmental Consultant is to prepare an Imported Material Review Record confirming suitability of the material to be used within the Pipelines Alignment.</p>	
	Contingency plan if the selected remedial strategy fails	<p><u>Section 12</u>: provides the details for contingency planning. These include chemical spills, excessive rain/drainage/dust, excessive wet materials, equipment failures, release of fuel/oil from machinery, silt fence fails, excessive noise, asbestos contaminated soil from the Pipelines Alignment exceeding storage capacity at the USC AWRC containment area and excavated material failing classification requirements for beneficial reuse (either within the Project Boundary or off-site under Resource Recovery Orders).</p> <p>In addition, Section 12 provides contingencies related to remediation strategy, unexpected finds and groundwater.</p>	Adequate.
	Interim Site Management plans before remediation	The RAP (ERM, 2024) does not provide any interim site management plans before remediation.	Adequate. The auditor notes that the site is currently being managed under a Construction Environmental Management Plan (CEMP) which was subject to auditor review (Interim Audit Advice – L04) with respect to site contamination.

Report Section	Required Information	Addressed within the RAP	Audit Opinion
	Site Management plan requirements (operational phase): <ul style="list-style-type: none"> - site stormwater management plan - soil management plan, including material tracking - noise control plan - dust control plan - odour control plan - work health and safety plan - remediation schedule hours of operation - contingency plans to respond to site incidents, to remove potential effects on surrounding environment and community 	<p><u>Section 11:</u> provides a general site management plan including site access, personal protective equipment (PPE) requirements, erosion and sediment control, stockpile management, haulage of soil, noise, odour and dust controls, communication and complaints. It is further noted that the Principal Contractor is to prepare a remediation work method statements to address environmental, health and safety hazards and risks during remediation. The Principal Contractor is to prepare a project specific health and safety plan.</p> <p>An asbestos management plan (AMP) for the remediation works is to be prepared where asbestos is identified as a contaminant of concern that requires remediation.</p>	<p>Adequate. The auditor also notes that the site CEMP is in use.</p> <p>The auditor further notes that an AMP is required to be prepared based on asbestos impacted material identified on site to date within an area identified as the Farm Dam and AEC8.</p>
	Description of regulatory compliance requirements such as licences and approvals or financial assurance	<u>Section 9.4</u> lists the planning permitting, approvals and procurement requirements for the RAP (ERM, 2024).	Adequate. The auditor has noted that the site is being developed under the SSI development consent described above in Section 1 .
	Names and phone numbers of appropriate personnel to contact during remediation	<u>Section 11.2.2</u> – Remediation stage contact details are provided.	Adequate
	Community relations plans (where applicable)	Not provided	Adequate. This is addressed by Sydney Water under the consent.
	Staged progress reporting (where appropriate)	Not applicable	N/A
	Outline of environmental management plan for ongoing management of contamination at the site (if needed)	Not applicable	Adequate. The auditor notes that onsite cap and containment within the Pipeline Alignment has not been proposed. The preferred remediation strategy outlined in the RAP

Report Section	Required Information	Addressed within the RAP	Audit Opinion
			<p>(ERM, 2024) includes excavation and on-site containment at the USC AWRC site for asbestos contaminated soil and offsite disposal for non-asbestos contaminated soil.</p> <p>Any asbestos impacted material transported to the USC AWRC site asbestos containment area will be subject to a long term environmental management plan (LTEMP) in accordance with the USC AWRC RAP which was subject to auditor review (Interim Audit Advice – L08).</p>
Validation Plan	Data Quality Objectives (DQOs)	<u>Appendix B</u> the RAP (ERM, 2024) outlines the DQOs for the validation for the site, in accordance with the seven step process outlined in the NEPM.	The DQOs are adequate.
	Validation summary	<p><u>Section 8:</u> The RAP (ERM, 2024) has divided the validation requirements into the following:</p> <ol style="list-style-type: none"> 1. General soil excavation and validation 2. ACM impacted fill material validation 3. Areas beneath temporary stockpiled asbestos containing materials (outside of the placement location and haul roads) 4. Stockpile footprint validation 	Adequate.
	Item 1 - General soil excavation and validation	Excavation base to be sampled at a rate of minimum 1 sample per 10 m grid. Excavation walls to be sampled at a rate of minimum 1 sample from each wall per 10 linear meters. Where the excavation is greater than 2 m depth, validation samples are to be collected from the upper	Adequate

Report Section	Required Information	Addressed within the RAP	Audit Opinion
		2 m (i.e., 0-2 m) and the lower 2 m (i.e., 2-4 m) of each excavation wall. Samples are to be analysed for relevant chemical COPCs.	
	Items 2 and 3 – ACM impacted fill material and areas beneath temporary stockpiled asbestos containing materials (outside of the placement location and haul roads)	Where asbestos is a COPC, the following is proposed. Where remediation excavation is completed to expose natural material, visual assessment is to be completed by environmental consultant and licenced asbestos assessor (LAA). Where remediation excavation is completed with residual fill remaining insitu, sampling and analysis will be undertaken in accordance with NEPC 2013/WA DoH requirements. Validation samples following asbestos impacted fill removal to be undertaken at a density of 1 sample per 10 m grid and following removal of stockpiled material to be undertaken at a density of 1 sample per 50 m ² .	Adequate
	Item 4 – Stockpile footprint validation	Where appropriate ground covering (geofabric and/or plastic) is not present, stockpile footprints will be validated through the collection and analysis of approximately 1 sample per 50 m ² .	Adequate.
	DQIs	<u>Appendix B</u> : DQIs for the validation program have been prepared.	Adequate
Waste Management	Waste is to be classified in accordance with EPA Waste Classification Guidelines	<u>Sections 6 and 10.5</u> indicate that waste will be classified in accordance with EPA Waste Classification Guidelines 2014.	Adequate
	Description of material handling and tracking plan	<u>Section 6.3 and Section 9.7.2</u> indicates that a material tracking register will be maintained on site which will provide information regarding the source, characteristics, destination and quantities of material placed within the placement location, disposed offsite or imported to the site for capping/backfilling purposes.	Adequate The auditor notes that onsite cap and containment within the Pipeline Alignment has not been proposed. Cap and containment within the USC AWRC site is required to be undertaken in accordance with the USC AWRC RAP which was subject to auditor review (Interim Audit Advice – L08).

Report Section	Required Information	Addressed within the RAP	Audit Opinion
Conclusions and Recommendations	Statement regarding materials being disposed via an appropriately licenced facility or re-used under an order or exemption	<u>Table 6.5, Section 6.3 and 10.5</u> : notes that offsite disposal to a suitably licenced receiving facility will be undertaken, after appropriate waste classification documents have been prepared.	Adequate.
	Waste disposal dockets or other waste documentation for any disposed waste	<u>Section 9.7.4</u> notes that landfill disposal certificates will be provided in the validation report where material is transported offsite.	Adequate
	Conclusions addressing the stated objectives	<u>Section 13</u> : The RAP (ERM, 2024) conclusions are appropriate.	Adequate
	Summary of activities and physical changes to the site	<u>Section 13</u> : notes that the RAP (ERM, 2024) provides a working plan that details the excavation, soil stockpiling, validation and management strategies for the remediation of the site.	Adequate
	A clear statement as to why the consultant considers the site can be made suitable for the proposed use if the RAP (ERM, 2024) is implemented	<u>Section 13</u> states "...ERM considers RAP is sufficient to provide a framework for remediation of impacted material within the Pipelines Alignment, if identified during the proposed investigation works or the construction program, which subsequently would render the Pipelines Alignment suitable for the proposed Upper South Creek Advanced Water Recycling Pipeline development following completion of remedial / validation works outlined within this RAP".	Adequate
	A summary of limitations and constraints on the use of the site post remediation and proposed environmental management plan.	Not applicable	Not applicable
	Recommendations for further work.	Not provided. However, requirements for investigations have been included within the SAQP (ERM, 2023b) as referenced in the RAP (ERM, 2024) and <u>Section 6</u> of the RAP.	Adequate

5. Auditor's Opinion

Based on a review of the information provided and subject to the limitations in **Attachment 1**, the following audit opinions are presented:

- The auditor considers that the RAP is appropriate for its stated purposes, namely to document remedial processes and procedures for the site to be made suitable for the proposed AWRC Pipeline development;
- The proposed remedial strategy of excavation of material exceeding criteria for on-site containment (subject to a LTEMP) at the USC AWRC site for asbestos contaminated soil and offsite disposal for non-asbestos contaminated soil is considered to be technically feasible, environmentally justifiable, consistent with relevant laws, policies and guidelines and sustainable. For these reasons, the auditor considers the RAP to be appropriate;
- The auditor is satisfied that the site can be made suitable for the proposed uses, subject to the successful implementation of the RAP (ERM, 2024).

Please note that this interim advice does not constitute a Site Audit Statement or a Site Audit Report but is provided to assist in the assessment and management of contamination issues at the site in regard to requirements of the site audit. The information provided herein should not be considered pre-emptive of the final audit conclusions, but rather represent the findings of the audit based on a preliminary review of available site information. Furthermore, the interim advice should not be regarded as approval of any proposed investigations or remedial activities, as any such approval is beyond the scope of an independent auditor.

Should you require clarification, please contact the undersigned on 02 8245 0300 or by email alau@jbsg.com.au.

Yours sincerely:



Andrew Lau
NSW EPA Accredited Site Auditor
Accreditation Number 0503
JBS&G Australia Pty Ltd

Attachments (1) Limitations
 (2) Site Figures

Attachment 1 – Limitations

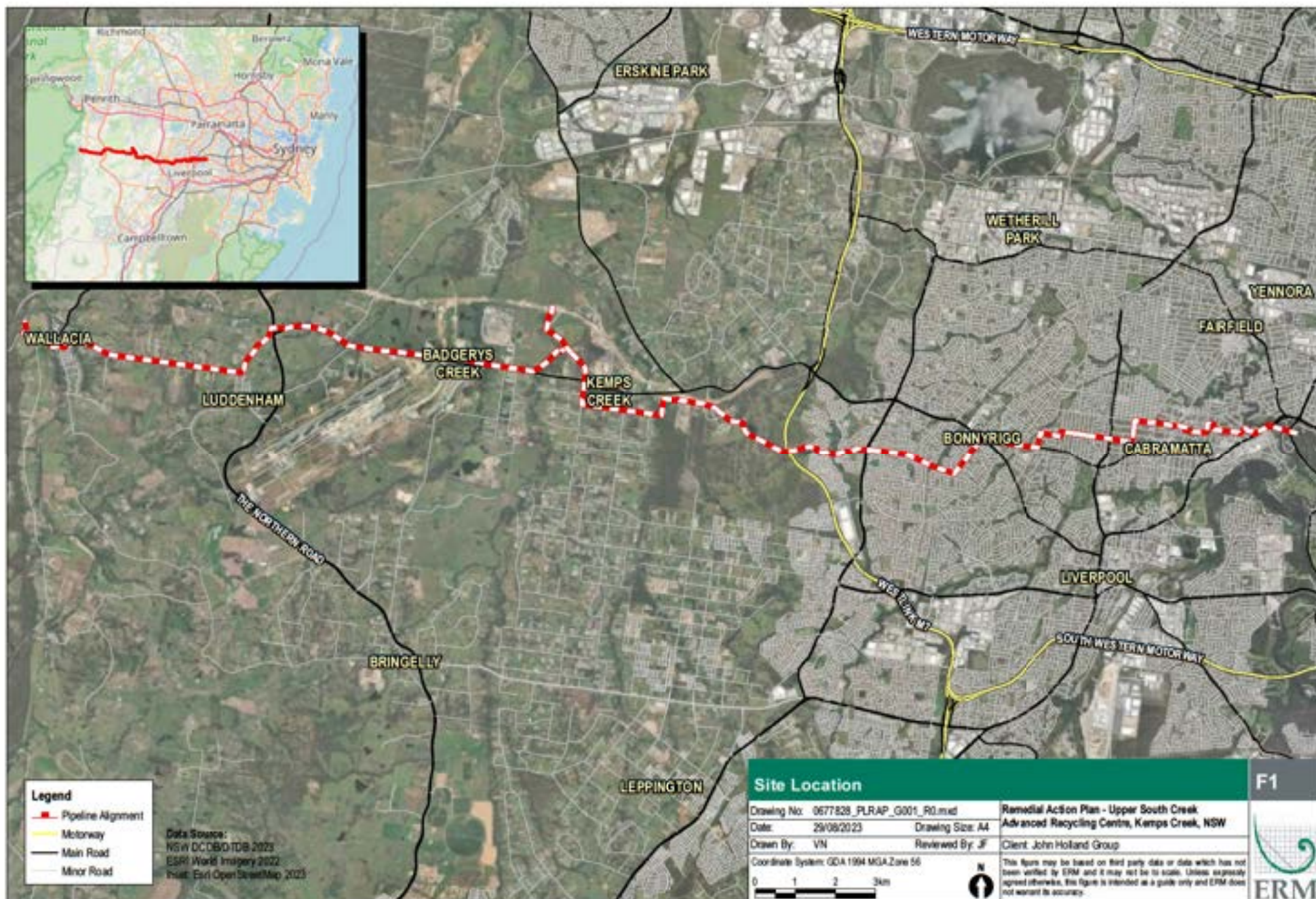
This audit was conducted with a reasonable level of scrutiny, care and diligence on behalf of the client for the purposes outlined in s.47 (1) of the *Contaminated Land Management Act 1997*. The data used to support the conclusions reached in this audit were obtained by other consultants and the limitations which apply to the consultant's report(s) apply equally to this audit report.

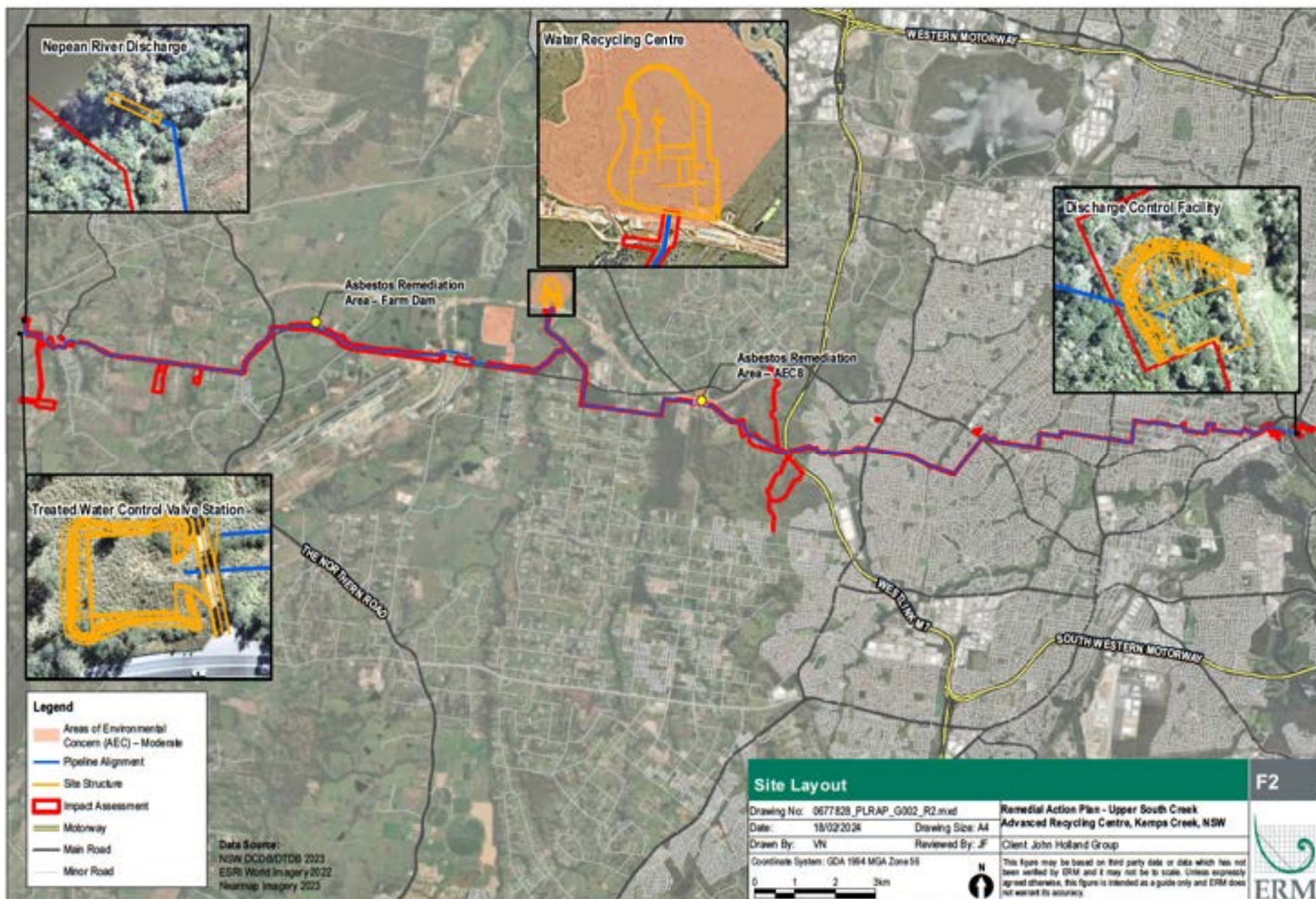
Every reasonable effort has been made to identify and obtain all relevant data, reports and other information that provide evidence about the condition of the site, and those that were held by the client and the client's consultants, or that were readily available. No liability can be accepted for unreported omissions, alterations or errors in the data collected and presented by other consultants. Accordingly, the data and information presented by others are taken and interpreted in good faith.

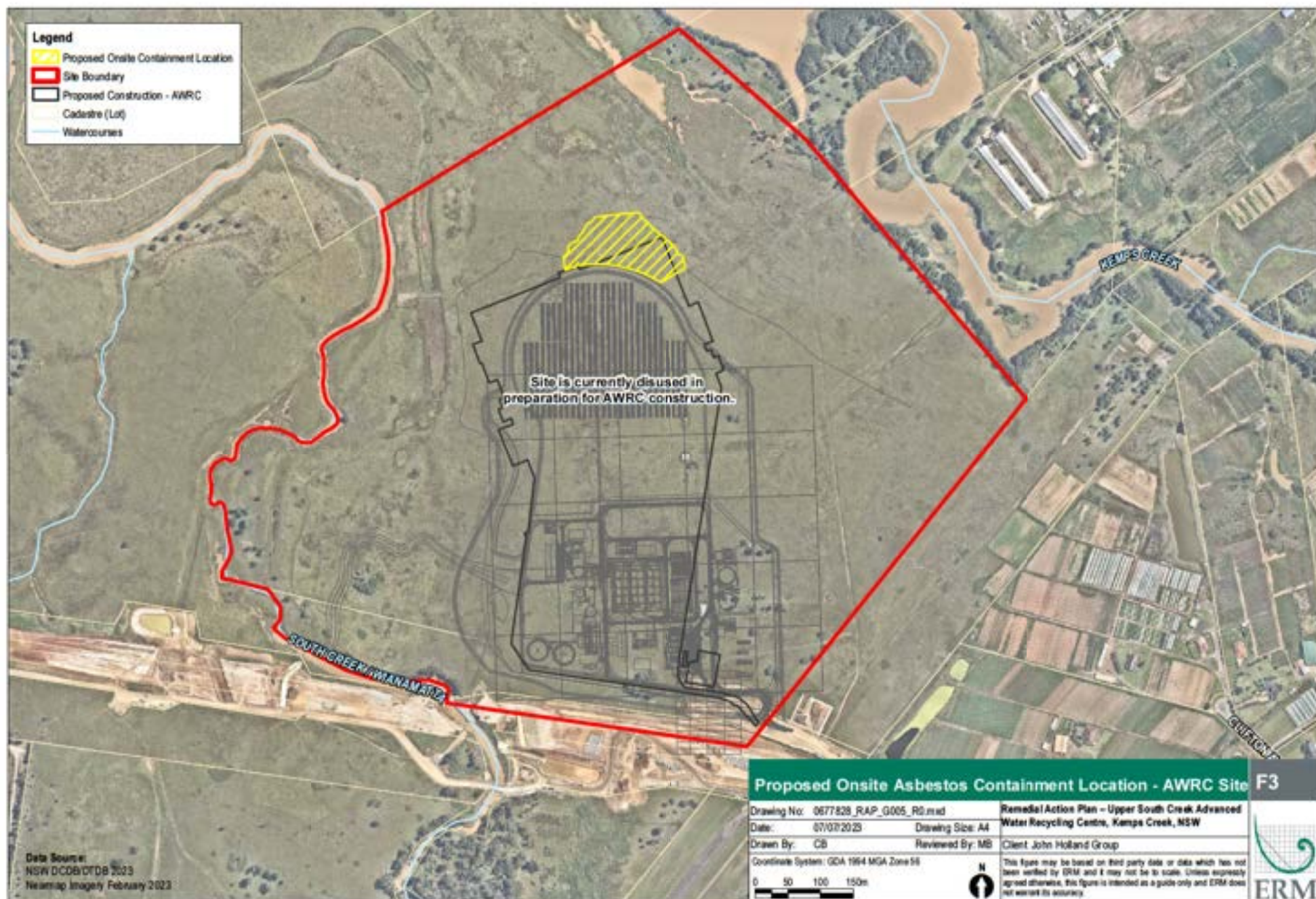
Sampling and chemical analysis of environmental media is based on appropriate guidance documents made and approved by the relevant regulatory authorities. Conclusions arising from the review and assessment of environmental data are based on the sampling and analysis considered appropriate based on the regulatory requirements. Limited sampling and laboratory analyses were undertaken as part of the investigations reviewed, as described herein. Ground conditions between sampling locations and media may vary, and this should be considered when extrapolating between sampling points. Chemical analytes are based on the information detailed in the site history. Further chemicals or categories of chemicals may exist at the site, which were not identified in the site history and which may not be expected at the site.

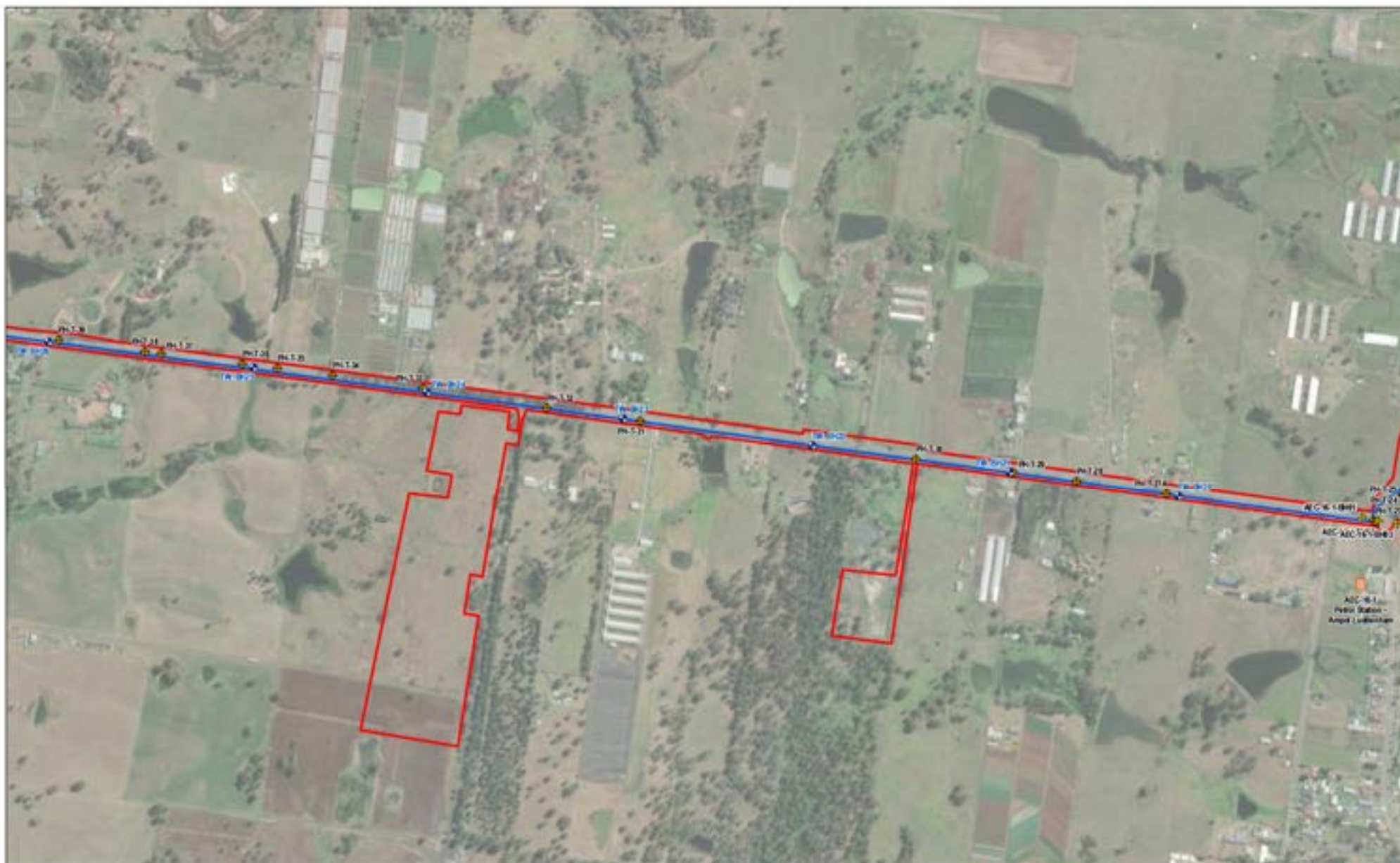
Changes to the subsurface conditions may occur subsequent to the investigations described herein, through natural processes or through the intentional or accidental addition of contaminants. The conclusions and recommendations reached in this audit are based on the information obtained at the time of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

Attachment 2 – Site Figures









Legend

- Impact Assessment Area
- Pipeline Alignment
- Site Structure
- Areas of Environmental Concern (AEC) – Moderate
- Threshold Excavation
- Proposed In-situ Sampling Location, Brine
- Proposed In-situ Sampling Location, Treatment Water
- J4 Proposed Pipeline Location
- Completed Pipeline Location
- Proposed SAQP Locations (DMA 2023)

Data Source:
NSW DPIS OCCASION 2023
GeoWorld Imagery March 2023



Sampling Locations

Drawing No: D07108_PUMP_G004_R1.mxd
Date: 11/10/2023
Drawing Size: A2
Drawn By: GC
Reviewed By: MB
Coordinate System: GDA 1984 MGA Zone 56

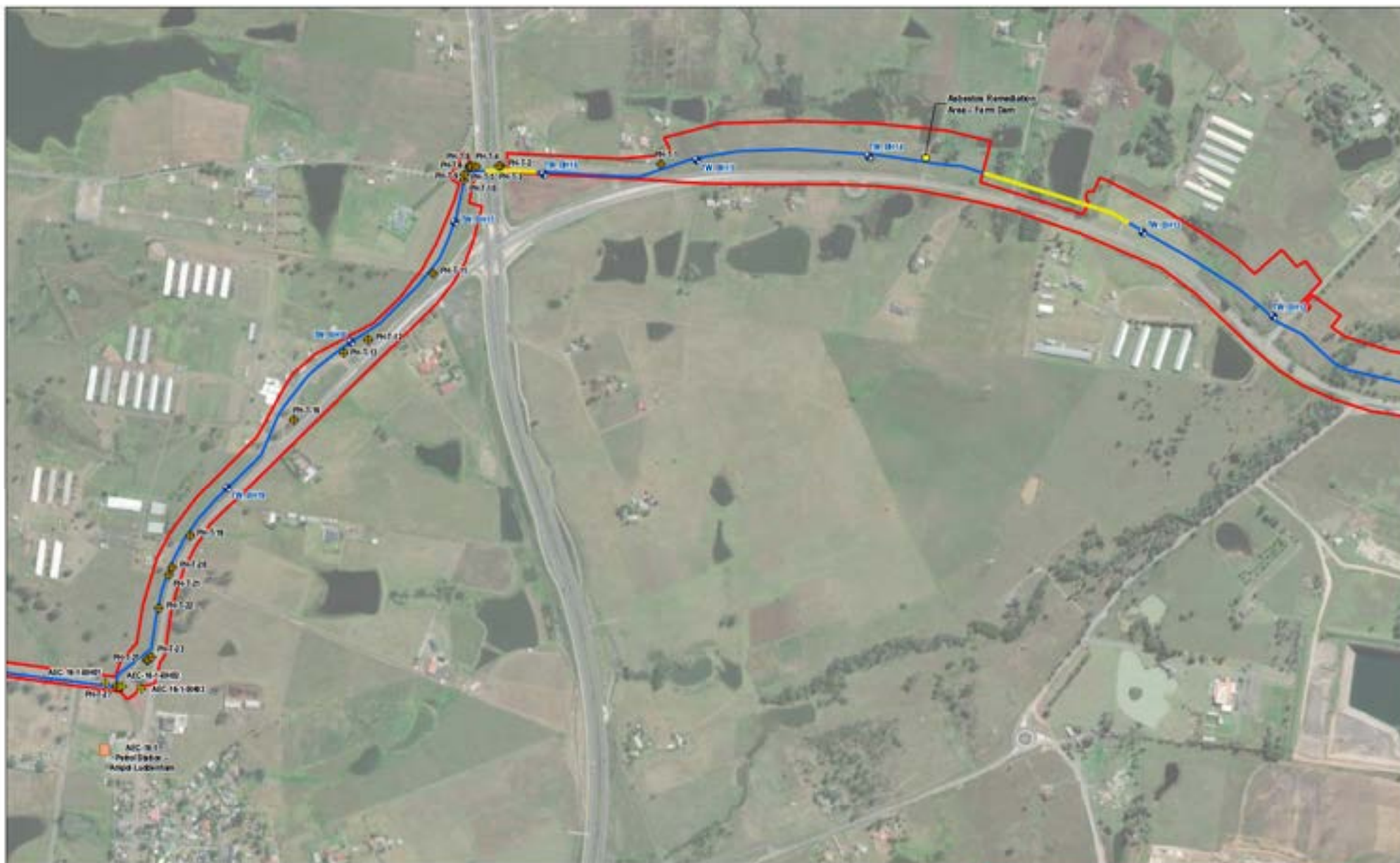
Scale: 1:1000
North Arrow

Remedial Action Plan – Upper South Creek
Advanced Recycling Centre, Kemps Creek, NSW
Client: John Holland Group

This report may be based on third party data or other sources that have not been verified by ERM and it may not be fit for use. Unless otherwise agreed otherwise, this report is intended as a guide only and ERM does not warrant its accuracy.

F4b





Legend

- ▬ Impact Assessment Area
- ▬ Pipeline Alignment
- ▬ Site Structure
- ▬ Areas of Environmental Concern (AEC) - Moderate
- ▬ Threshold Exceedance
- Proposed In-situ Sampling Location, Bore
- Proposed In-situ Sampling Location, Treatment Water
- Existing Bore Location
- Completed Pipeline Location
- Proposed SAQP Locations (SPM 2023)

Data Source:
NSW DPIS (2020/2021)
GeoWorld Imagery March 2023



Sampling Locations

Drawing No: D071018_PUMP_0204_R1.mxd
Date: 15/11/2023
Drawing Size: A2
Drawn By: GC
Reviewed By: MB
Coordinate System: GDA 1984 MGA Zone 56
Scale: 1:1000
North Arrow:

F4c



Remedial Action Plan - Upper South Creek
Advanced Recycling Centre, Kanger Creek, NSW
Client: John Holland Group
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- Legend**
- ▬ Impact Assessment Area
 - ▬ Pipeline Alignment
 - ▬ Site Structure
 - ▬ Treatment Excavation
 - Proposed In-situ Sampling Location, Drive
 - Proposed In-situ Sampling Location, Treatment Water
 - J1 Proposed Pipeline Location
 - Completed Pipeline Location
 - Proposed SAGP Locations (ERW, 2023)

Data Source:
NSW DP 11 (2020/2021)
East World Imaging March 2023

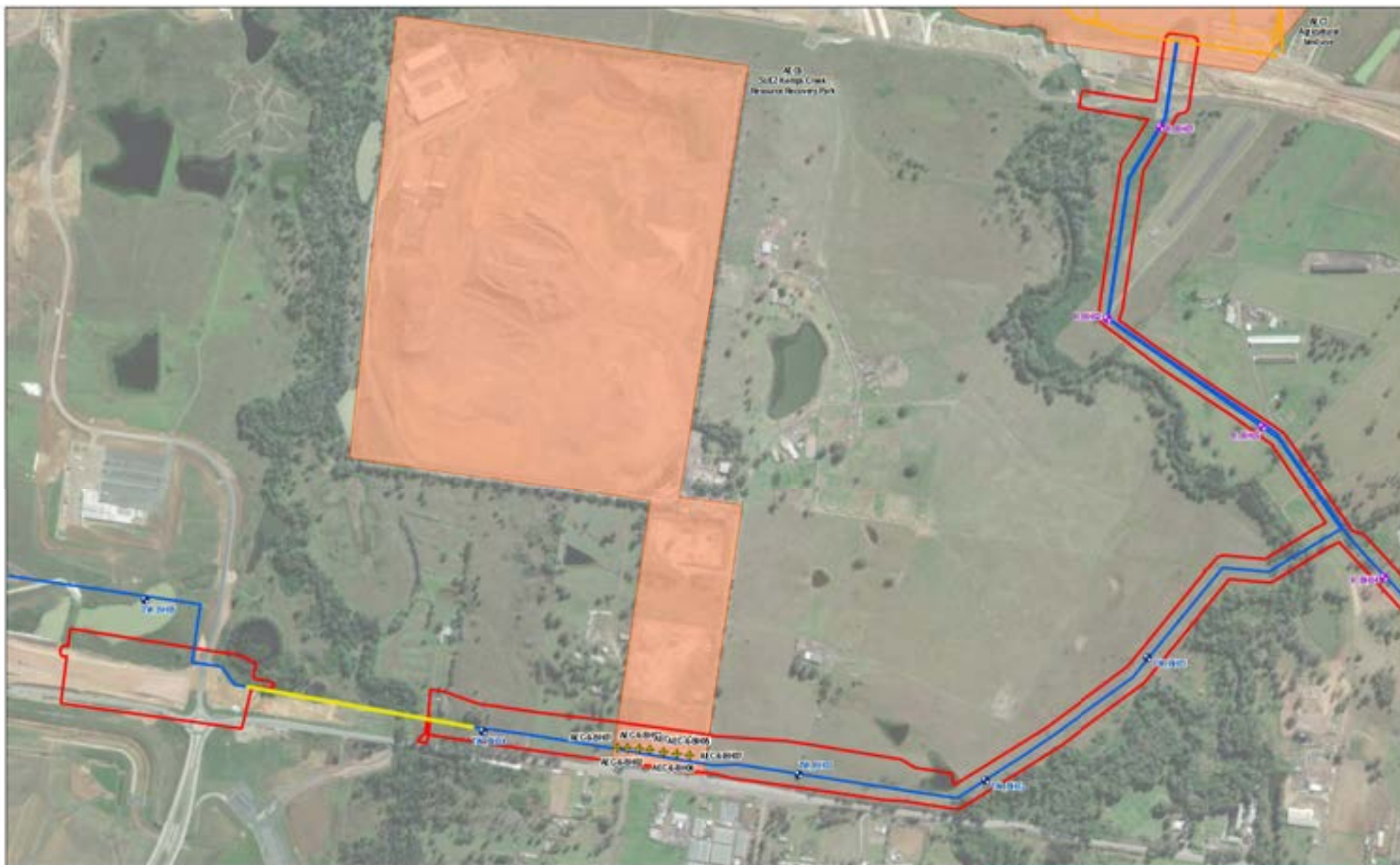


Sampling Locations

Drawing No: INT1018_PRRAP_G004_R1.mxd	Revised Action Plan - Upper South Creek Advanced Recycling Centre, Kangaroo Creek, NSW
Date: 17/10/2023	Drawing Date: 02/10/2023
Drawn By: GC	Reviewed By: MB
Coordinate System: GDA 1984 MGA Zone 56	Client: John Holland Group
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F4d





- Legend**
- ▭ Impact Assessment Area
 - Pipeline Alignment
 - ▭ Site Structure
 - ▭ Area of Environmental Concern (AEC) - Moderate
 - ▭ Threshold Excavation

- Proposed In-situ Sampling Location, Bore
- Proposed In-situ Sampling Location, Treatment Water
- J4 Proposed Pit-hole Location
- Completed Pit-hole Location
- Proposed SAQP Locations (DMA 2023)

Data Source:
NSW DPIS (2020/2021)
Geo World Imaging March 2023



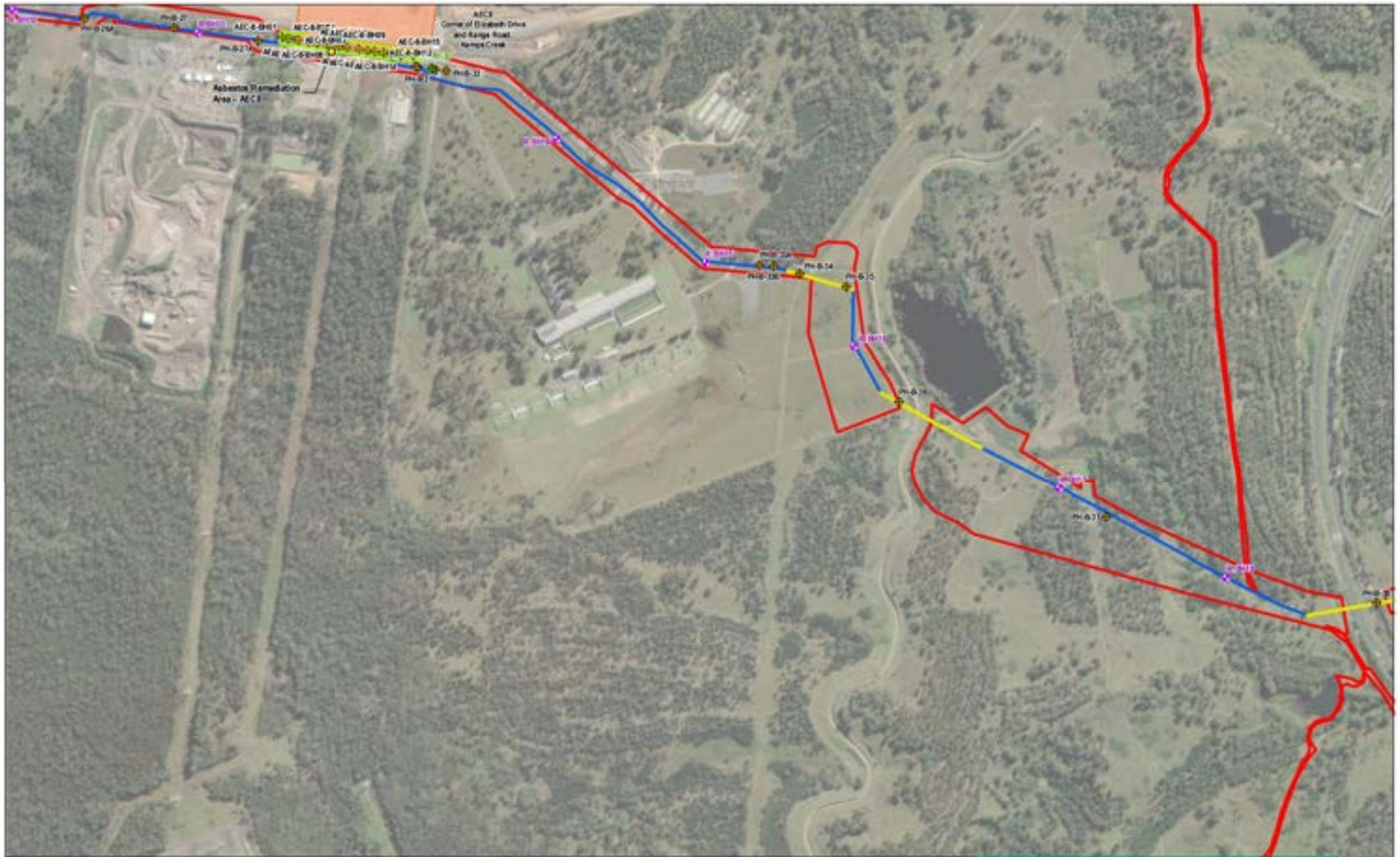
Sampling Locations

Drawing No: D071018_PUMP_0204_R1.mxd	Remedial Action Plan - Upper South Creek
Date: 11/10/2023	Advanced Recycling Centre, Kangaroo Creek, NSW
Drawn By: GC	Reviewed By: MB
Coordinate System: GDA 1984 MGA Zone 56	Client: John Holland Group

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Legend

- ▬ Impact Assessment Area
- ▬ Pipeline Alignment
- ▬ Site Structure
- ▬ Asbestos Remediation Area - AECB
- ▬ Areas of Environmental Concern (AEC) - Moderate
- ▬ Trenchless Excavation
- Proposed In-situ Sampling Location, Bore
- Proposed In-situ Sampling Location, Treatment Water
- 2H Proposed Profile Location
- Completed Profile Location
- Proposed SAGP Locations (SRM, 2023)

Data Source:
NSW DPI, SCOROTON 2023
Earl World Imagery March 2023



Sampling Locations

Drawing No: 0111018_P&AP_0004_01.mxd
Date: 21/02/2024
Drawn By: SCOR
Reviewed By: MLI

Coordinate System: GDA 1984 MGA Zone 56

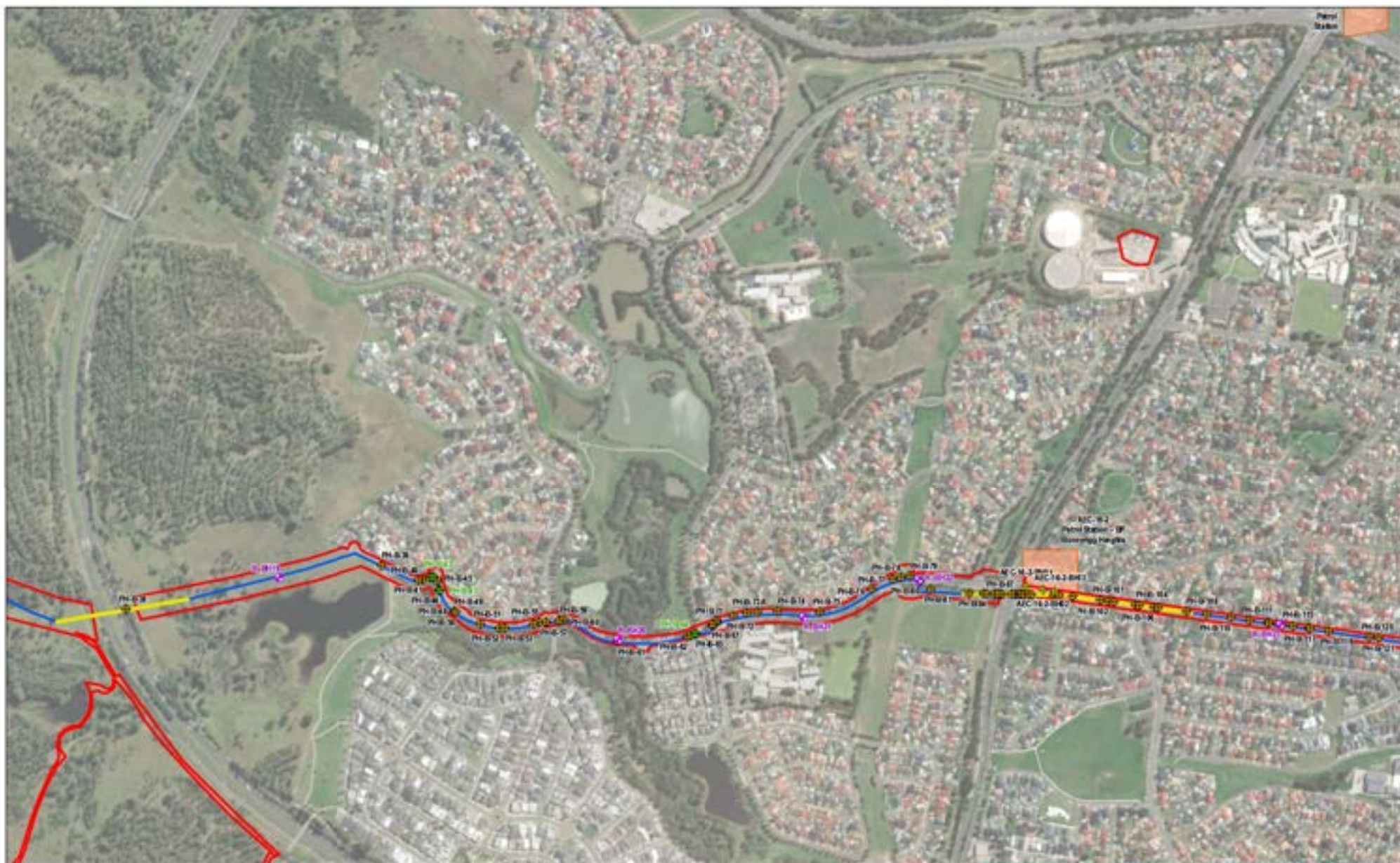
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Remedial Action Plan - Upper South Creek
Advanced Recycling Centre, Nangai Creek, NSW
Client: John Holland Group

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Legend

- Impact Assessment Area
- Pipeline Alignment
- Site Structure
- Areas of Environmental Concern (AEC) - Moderate
- Thresholds Evaluation

- Proposed In-situ Sampling Location, Bore
- Proposed In-situ Sampling Location, Treatment Water
- J4 Proposed Pithead Location
- Completed Pithead Location
- Proposed SAQP Locations (DMA 2023)

Data Source:
NSW DP (L) OCCASION 2023
Geo World Imagery March 2023



Sampling Locations

Drawing No: D07108_PUMP_0004_R1.mxd

Date: 11/11/2023

Drawn by: JG

Coordinate System: GDA 1984 MGA Zone 56

Scale: 1:1000

Remedial Action Plan - Upper South Creek

Advanced Recycling Centre, Kanger Creek, NSW

Client: John Holland Group

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Legend

- Impact Assessment Area
- Pipeline Alignment
- Site Structure
- Areas of Environmental Concern (AEC) – Moderate
- Threshold Excavation
- Proposed In-situ Sampling Location, Storm
- Proposed In-situ Sampling Location, Treatment Water
- J4 Proposed Pithead Location
- Completed Pithead Location
- Proposed SAQP Locations (DMA 2023)

Data Source:
NSW DP (S) OC060108 2023
Geo World Imagery March 2023

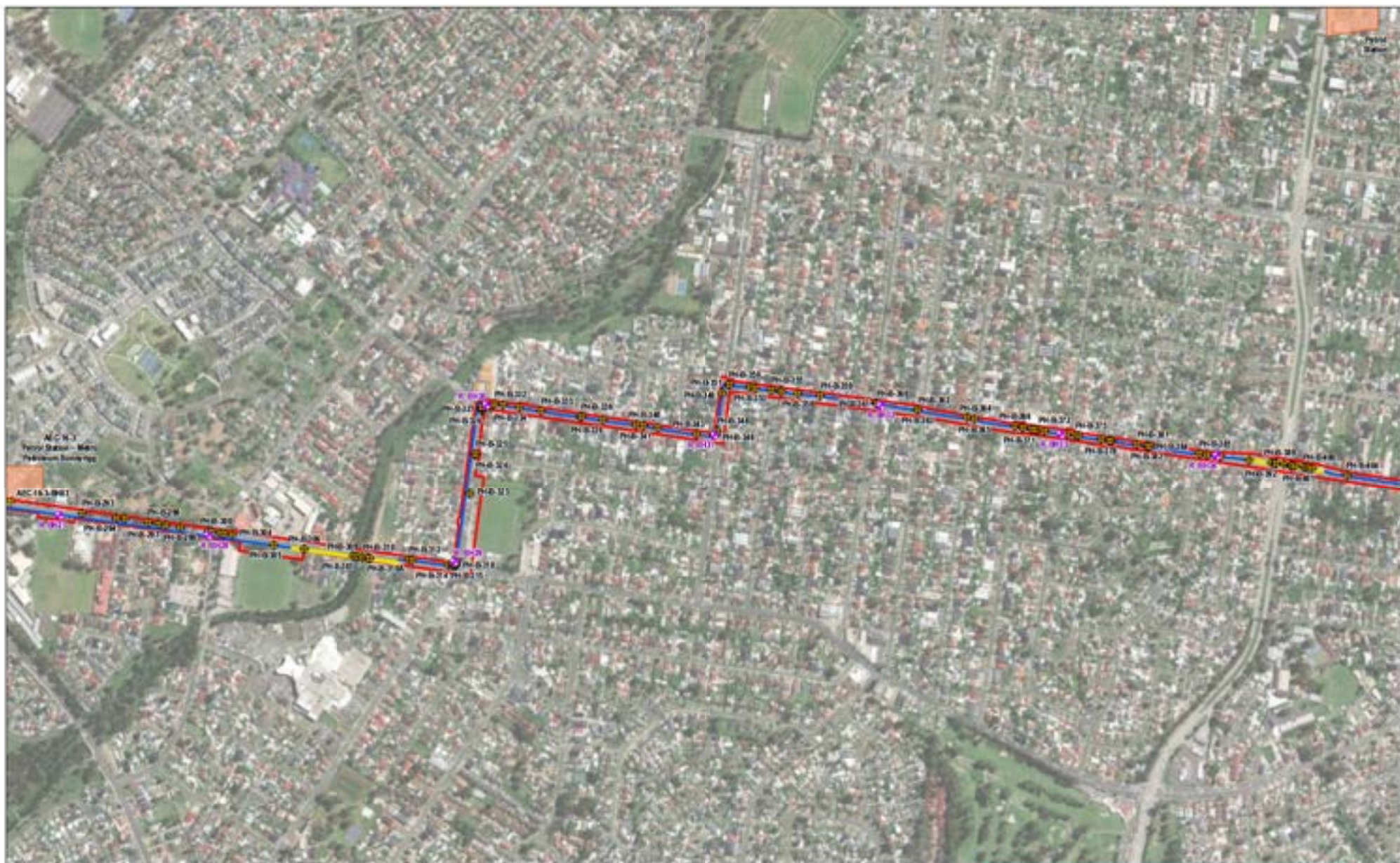


Sampling Locations

Drawing No: D07108_PUMP_G004_R1.mxd	Revised Action Plan – Upper South Creek
Date: 11/10/2023	Advised Recycling Centre, Kanger Creek, NSW
Drawn by: JG	Reviewed by: MB
Coordinate System: GDA 1984 MGA Zone 56	Client: John Holland Group

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Data Source:
 NSW DPIS OC060108 2020
 Geo World Imagery March 2023



F4J



- Legend**
- Impact Assessment Area
 - Pipeline Alignment
 - Site Structure
 - Areas of Environmental Concern (AEC) - Moderate
 - Threshold Excavation
 - Proposed In-situ Sampling Location, Bore
 - Proposed In-situ Sampling Location, Treatment Water
 - JH Proposed Pithead Location
 - Completed Pithead Location
 - Proposed SAQP Locations (DMA 2023)

Data Source:
NSW DP (L) OCC60108 2020
Geo World Imagery March 2023



Sampling Locations		F4k
Drawing No: D07108_PUMP_G004_R1.mxd	Remedial Action Plan - Upper South Creek	
Date: 17/10/2023	Advanced Recycling Centre, Kanger Creek, NSW	
Drawn By: JQC	Reviewed By: MB	
Coordinate System: GDA 1984 MGA Zone 56	Client: John Holland Group	

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Legend

- Impact Assessment Area
- Pipeline Alignment
- Site Structure
- Areas of Environmental Concern (AEC) – Moderate
- Threshold Excavation
- Proposed In-situ Sampling Location, Bore
- Proposed In-situ Sampling Location, Treatment Water
- J4 Proposed Pit-hole Location
- Completed Pit-hole Location
- Proposed SAQP Locations (DMA 2023)

Data Source:
NSW DPIS (2020/2021)
Geo World Imaging March 2023



Sampling Locations

Drawing No: D07108_PUMP_G004_R1.mxd	Remedial Action Plan – Upper South Creek
Date: 11/10/2023	Advanced Recycling Centre, Kemps Creek, NSW
Drawn By: JG	Reviewed By: MB
Coordinate System: GDA 1984 MGA Zone 56	Client: John Holland Group
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