Upper South Creek

Advanced Water Recycling Centre and Pipelines

Surface Water & Groundwater CEMP Sub-Plan

Document No: USCP-JHG-MPL-ENV-0001
Revision No: D

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), Soils & Contamination CEMP Sub-plan (USCP-JHG-MPL-ENV-0003), Flood Emergency Response CEMP Sub-plan (USCP-JHG-MPL-0002) and Biodiversity CEMP Sub-plan (USCP-JHG-MPL-ENV-0004).

Distribution

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

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Authorised By: Date:	Richard Ioffrida (Project Director)

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 lettering commencing at Revision A. Revision letters shall commence at Rev. A, B etc.

Date	Rev	Remarks	Section	Prepared By	Reviewed & Approved By
14/02/2023	01	Initial draft for John Holland and SWC review	All	RL / ML	AH
27/03/2023	02	Updated to incorporate SWC comments	All	RL / ML	AH
31/03/2023	03	Updated to incorporate SWC final comments	All	AH	AH
25/05/2023	04	Updated to incorporate ER and agency comments	All	DOB / WC / BD	AH
13/06/2023	05	Updated to incorporate ER comments	All	MS	AH
11/07/2023	06	Updated to incorporate DPE review comments	All	MS / AH	AH
24/07/2023	07	Updated to incorporate DPE review comments	All	MS / AH	AH
24/07/2023	08	Updated Appendix C	Appendix C	MS	AH
25/07/2023	09	Updated Appendix C	Appendix C, Section 2.3	MS	AH
02/08/2023	10	Updated to address DCCEEW comments	All	AH/ CC	AH

03/08/2023	11	Updated following EHG comments	Appendix C, Appendix E	MS / AH	AH
22/08/2023	A	Issued for construction	All	MS	DOB
12/01/2024	B	Updated to include revised information following EPL variation approval, In-stream Works Procedure and monitoring	All	MS	AH
10/04/2024	C	Updated to include revised information following EPL variation approval	All	RM	AH
07/01/2025	D	Annual review and update	All	RM	AH

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11 February 2025

Cheryl Cahill
Sydney Water Major Projects - Environment Lead
Sydney Water
Level 11, 1 Smith Street
Parramatta NSW 2150

By Email: cheryl.cahill@sydneywater.com.au

Dear Cheryl,

Subject: Environmental Representative (ER) review and approval – Revised Surface Water and Groundwater CEMP Sub-plan, Revision D

SSI-8609189 – Upper South Creek Advanced Water Recycling Centre

Pursuant to SSI-8609189 Condition A28(j), I have reviewed the updated Surface Water and Groundwater Construction Environmental Management Plan (CEMP) Sub-plan (SWGCSP) which has been updated to include minor updates in relation to sustainability / ISC targets consistent with changes made in other CEMP documents, and other minor administrative / formatting changes.

Complete details of the reviewed document as follows:

- Upper South Creek Advanced Water Recycling Centre and Pipelines – Surface Water and Groundwater CEMP Sub-plan Document No: USCP-JHG-MPL-ENV-0001, Revision D, dated 07/01/2025, including review of Appendix E – Surface Water Quality Construction Monitoring Program (Rev D, dated 07/01/2025)

As the approved Environmental Representative (ER) for the Upper South Creek Advanced Recycling Centre Project, I am satisfied the amendments do not increase impacts to nearby sensitive land uses 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,

Ben Bracken

Environmental Representative

Upper South Creek Advanced Water Recycling Centre Project

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Table of Contents

GLOSSARY & ABBREVIATIONS 6
1 INTRODUCTION 9
1.1 Context 9
1.2 Project Description and Background 9
1.3 Purpose 10
1.4 SWGCSP Development and Approval 10
1.5 Relationship to Other Plans 10
2 OBJECTIVES & TARGETS 14
2.1 Objectives 14
2.2 Targets 14
2.3 Environmental Performance Outcomes 15
3 LEGISLATIVE AND GUIDANCE REQUIREMENTS 16
3.1 Project Specifications and Plans 16
3.2 Guidelines and Standards 16
3.3 Minister's Conditions of Approval 17
3.4 Updated Management Measures (UMMs) 22
3.5 Licences, Permits and Exemptions 26
4 CONSULTATION 29
5 EXISTING ENVIRONMENT 30
5.1 Climate 30
5.2 Topography and Soil characteristics 30
5.3 Hydrology 33
5.4 Groundwater 38
6 ENVIRONMENTAL ASPECTS & CONSTRUCTION IMPACTS 43
6.1 Construction Activities 43
6.2 Surface Water Impacts 44
6.3 Groundwater Impacts 46
7 ENVIRONMENTAL CONTROLS AND MANAGEMENT MEASURES 47
7.1 Acid Sulfate Soils 48
7.2 Contaminated Land 48
7.3 Dewatering Procedure 48
7.4 Drilling Fluid Management Procedure 48
7.5 Erosion and Sediment Control 48
7.6 Offsite Stormwater Flows 50
7.7 Refuelling, Maintenance and Chemical Storage 52
7.8 Saline Soils Management 52
7.9 Sediment Basin Management 53
7.10 Spill Prevention and Emergency Response 53
7.11 Stockpile Management 53
7.12 Tannin Management 54
7.13 Water Abstraction Management 55

7.14 Wet Weather Preparation and Review 55
7.15 Work in Waterways and Waterfront Lands 55
7.16 Summary of Management Measures 57
8 COMPLIANCE, REVIEW AND CONTINUOUS IMPROVEMENT 68
8.1 Resources 68
8.2 Training and Awareness 68
8.3 Monitoring and Inspections 68
8.4 Auditing and Reporting 69
8.5 Continuous Improvement 70
8.6 SWGCSP Update and Change Management 70
APPENDIX A: DEWATERING PROCEDURE 71
APPENDIX B: DRILLING FLUID MANAGEMENT PROCEDURE 72
APPENDIX C: COA A9 CONSULTATION SUMMARY REPORT 73
APPENDIX D: TANNIN MANAGEMENT 74
APPENDIX E: SURFACE WATER QUALITY CONSTRUCTION MONITORING PROGRAM 75
APPENDIX F: GROUNDWATER CONSTRUCTION MONITORING PROGRAM 76
APPENDIX G: EROSION AND SEDIMENT CONTROL PROCEDURE 77
APPENDIX H: INITIAL EROSION AND SEDIMENT CONTROL PLAN (ESCP) 79
APPENDIX I: IN-STREAM WORKS PROCEDURE 80

Glossary & Abbreviations

Abbreviations	Meaning
AEC	Areas of Environmental Concern
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)
ANZG	Australian and New Zealand Guidelines for Fresh and Marine Water Quality
ARI	Average recurrence interval
ASS	Acid Sulfate Soil
Assessments related to*	Hydrodynamics and water quality impacts Hydrodynamics relates to the motion of water within the creeks and rivers, including how flows, velocities and water depths may be affected by structures, boundaries or changes in surrounding catchments (relevant project phase is Operation).
	Surface water impacts Assesses construction and operational impacts related to local runoff and stormwater management at the AWRC site and along the pipeline routes (relevant project phases are Construction and Operation).
	Groundwater impacts Assesses construction and operational impacts to local and regional groundwater sources from proposed activities at the AWRC site as well as along the pipeline routes (relevant project phases are Construction and Operation).
	Ecohydrology and geomorphology impacts Ecohydrology links flow patterns in a waterway to aquatic flora and fauna responses. Geomorphology is the study of landforms and analysis of how processes (such as running water) can shape and change landforms. Assesses how AWRC releases will impact the ecohydrology and geomorphology of the Hawkesbury Nepean River and South Creek. Also assesses impacts to the geomorphic attributes of waterways from the construction of pipelines and release structures (relevant project phases are Construction and Operation).
AWRC	Advanced Water Recycling Centre
BoM	Bureau of Meteorology
BTEX	Benzene, toluene, ethylbenzene, and xylenes
CAA	Commonwealth Controlled Activity Approval
CEMP	Construction Environmental Management Plan
CEMS	Contractors Environmental Management System
CIP	Community Involvement Plan
CLM	Contaminated Land Management
CLMP	Contaminated Land Management Plan
Compliance audit	Verification of how implementation is proceeding with respect to a Construction Environmental Management Plan (CEMP) (which incorporates the relevant approval conditions).
CoA	Minister's Conditions of Approval
CoPC	Contaminants of Potential Concern
CPESC	Certified Professional in Erosion and Sediment Control
CSSI	Critical State Significant Infrastructure
D&C	Design and construct
DCC	Development Consent Condition
DEC	Department of Environment and Conservation
DECCW	Department of Environment, Climate Change and Water
DPHI	NSW Department of Planning, Housing and Infrastructure
DPI	Department of Primary Industries

Abbreviations	Meaning
DSI	Detailed Site Investigation
DTW	Depth to Water (groundwater)
EA	Environmental Assessment
TEC	Threatened Ecological Community
EHG	The Environment and Heritage Group (part 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)
EM	Environment Manager
EMS	Environmental Management System
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 incident	An unexpected event that has, or has the potential to, cause harm to the environment and requires some action to minimise the impact or restore the environment.
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 policy	Statement by an organisation of its intention and principles for environmental performance.
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.
EP&A Act	Environmental Planning and Assessment Act 1979 (NSW)
EPA	NSW Environment Protection Authority
EPL	Environment Protection Licence
ERG	Environmental Review Group
ESCP	Erosion and Sediment Control Plan
EWMS	Environmental Work Method Statement
FM Act	Fisheries Management Act 1994 (NSW)
GDE	Groundwater Dependent Ecosystem
GMR	Global Mandatory Requirements (John Holland)
HDD	Horizontal Directional Drilling
HEPA	Heads of EPAs Australia and New Zealand
HILs	Health Investigation Levels
HGL	Hydrogeological Landscape
Hold point	Verification point that prevents work from commencing prior to approval from Client / Verifier
HSLs	Health Screening Levels
JH	John Holland (the Principal Contractor)
JHET	John Holland Event Tracker
L/s	Litres Per Second
LGA	Local Government Area
MBGL	Metres Below Ground Level
Non-compliance	Failure to comply with the requirements of the Project approval or any applicable licence, permit or legal requirements.
Non-conformance	Failure to conform to the requirements of Project system documentation including this CEMP or supporting documentation.

Abbreviations	Meaning
NPW Act	National Parks and Wildlife Act 1974 (NSW)
NRAR	NSW Natural Resources Access Regulator
OCP	Organochlorine Pesticide
OEH	NSW Office of Environment and Heritage
OPP	Organophosphate Pesticide
PAH	Polycyclic Aromatic Hydrocarbons
PASS	Potential acid sulfate soils
PCB	Polychlorinated Biphenyls
PFAS	Per-and poly-fluoroalkyl substances
PEI	Preliminary Environmental Investigation
PESCP	Progressive Erosion and Sediment Control Plan
PIRMP	Pollution Incident Response Management Plan
POEO Act	Protection of the Environment Operations Act 1997 (NSW)
Project, the	Upper South Creek Advanced Water Recycling Centre and Pipelines Project
RAP	Remediation Action Plan
RUSLE	Revised Universal Soil Loss Equation
SAP	Sensitive Area Plan
SCCSP	Soils & Contamination CEMP Sub-plan
SEPP	State Environmental Planning Policy
SMART	Specific, Measurable, Achievable, Realistic and Timely
SWC	Sydney Water Corporation (the client and Proponent)
SWGCSP	Surface Water & Groundwater CEMP Sub-plan (this Plan)
SWL	Standing Water Level (elevation of groundwater table)
SWMP	Surface Water Monitoring Program
SWQ-CMP	Surface Water Quality Construction Monitoring Program
SWTC	Scope of work and technical criteria
TRH	Total Recoverable Hydrocarbons
TW	Treated water
UFP	Unexpected Find Protocol
UMM	Updated Management Measures
UPSS	Underground Petroleum Storage System
USC	Upper South Creek
UST	Underground Storage Tanks
VENM	Virgin Excavated Natural Material
WQO	Water Quality Objectives
WSP	Water Sharing Plan
WSUD	Water Sensitive Urban Design

1 Introduction

1.1 Context

This Surface Water & Groundwater CEMP Sub-plan (SWGCSP) 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 SWGCSP 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 DPE 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 DPE 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)
- Modification of Infrastructure Approval CSSI 8609189, 10 October 2023 (herein referred to as Mod-2)
- Infrastructure Sustainability Council technical manual version 2.1 (ISC V2.1)
- Environmental Protection License number 21800
- 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;
- Upper South Creek Commonwealth approval (EPBC 2020/8816), 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 and the Staging Report developed in accordance with CoA A11. This SWGCSP 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 SWGCSP.

1.2 Project Description and Background

A comprehensive project description, including staging of the project, is outlined in Sections 1.1 to 1.3 of the CEMP and the Staging Report.

Figure 1.5-1 and 1.5-2 includes an overview of the Project site and associated pipelines. Figure 1.5-3 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 surface water and groundwater and potential impacts due to the development of the project. This also included the characterisation of the existing environment and surrounding sensitive receivers. The relevant assessments undertaken as part of the EIS and corresponding appendices include:

- Surface water impact - Section 9.2 of the EIS and in Appendix K (Surface Water Impact Assessment). No additional surface water impact assessments were included in the scope of the Amendment Report.
- Groundwater impact - Section 9.4 of the EIS and in Appendix M (Groundwater Impact Assessment). No additional groundwater impact assessments were included in the scope of the Amendment Report.

1.3 Purpose

The purpose of this SWGCSP is to describe how construction impacts on surface water and groundwater will be minimised and managed during the construction of the project in accordance with Specific, Measurable, Achievable, Realistic and Timely (SMART) principles. These include:

- **S**pecific – water mitigation and management measures explored in Section 7 of this Plan specifically speak to JH's approach to managing erosion and sediment impacts to waterways and other potential/cumulative surface water and groundwater impacts during construction as identified within the EIS.
- **M**easurable – Inspection and monitoring requirements detailed in Section 8.3 of this Plan include specific measures or indicators for which inspection and monitoring requirements will be triggered. Provision of project-specific inspection and monitoring requirements for surface water and groundwater during construction are also included in the surface water quality and groundwater construction monitoring programs (detailed in Appendices E and F, respectively).
- **A**chievable – Ongoing compliance with relevant CoAs and UMM requirements (Tables 3-1 and 3-2, respectively), is achievable throughout the delivery of the USC construction work and represents the minimum requirements to be implemented by JH.
- **R**elevant - The management measures outlined in Section 7 of this Plan represent JH's approach to monitoring and tracking against the objectives, targets and environmental performance outcomes (which are identified in Section 2.3 of this Plan).
- **T**ime-bound – On a broader scale, the management measures set out within Section 7 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 SWGCSP Development and Approval

In accordance with CoA C8, this SWGCSP has been prepared by suitably qualified expert Rohan Last of Environment & Natural Resource Solutions (ENRS). Rohan is a qualified hydrogeologist (MSc) and environmental scientist (BSc). This SWGCSP will be prepared in accordance with DPHI requirements (Section 4) and will be endorsed by the Environmental Representative (ER). The SWGCSP will then be submitted to the Planning Secretary for approval no later than one month before the commencement of construction. In accordance with CoA 11, construction will not commence until the CEMP and all CEMP Sub-plans have been approved by the Planning Secretary.

1.5 Relationship to Other Plans

This SWGCSP details measures and requirements to manage surface water and groundwater during the construction phase of the project works. Strategies to manage soils and contamination and potential impacts of the project are documented within the Soils and Contamination CEMP Sub-plan (SCCSP). Detailed erosion and sediment control requirements and measures are included within this SWGCSP, however, specific soil management not related to erosion prevention is detailed in the SCCSP. This plan should also be read in conjunction with the Biodiversity CEMP Sub-plan for biodiversity controls around waterways

Figure 1.5-1 Overview of the project site (AWRC) and treated water pipeline

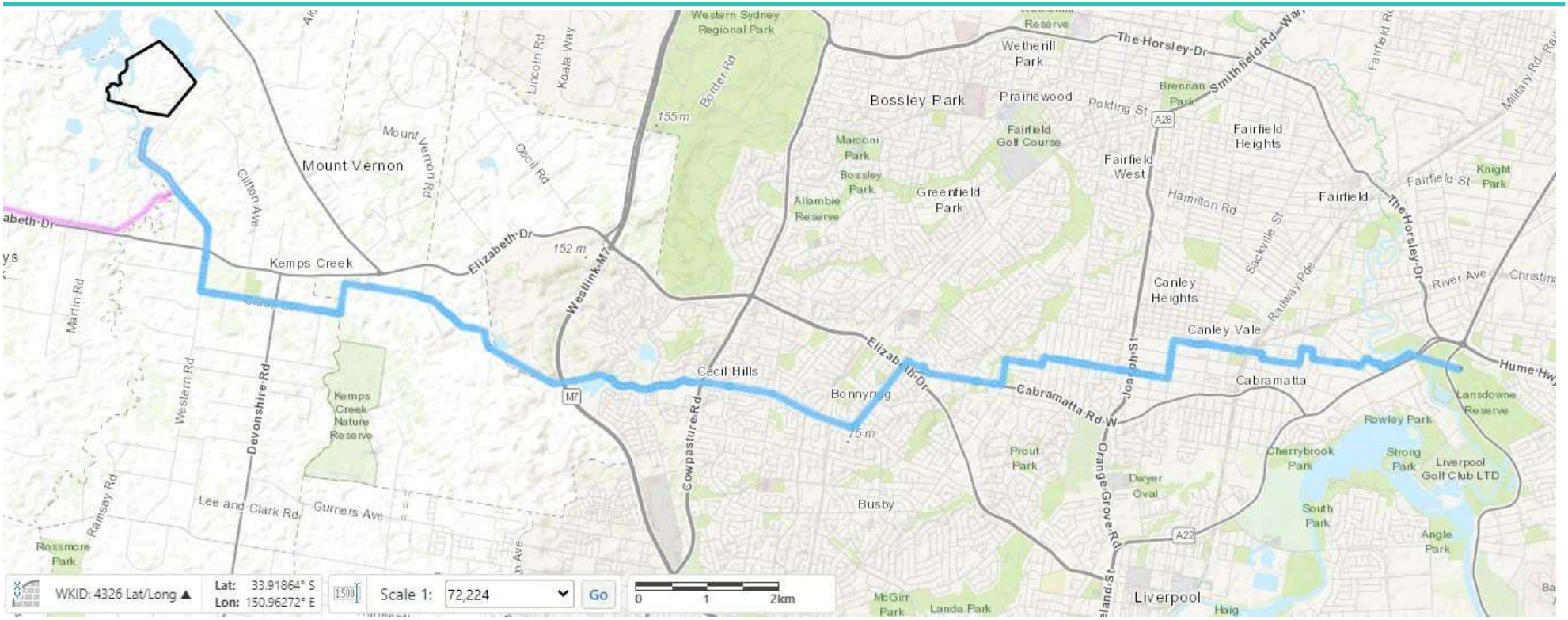


Figure 1.5-2 Overview of the project site (AWRC) and brine pipeline

Figure 1.5-3 AWRC site arrangement (indicative and pending detailed design)

2 Objectives & Targets

This SWGCSP is applicable to the construction stage of work associated with the USC project and applies to both John Holland and its subcontractors.

2.1 Objectives

The objective of this SWGCSP is to ensure that all avoidance, mitigation and management measures relevant to surface water and groundwater matters within the following documents, are adopted and implemented:

- 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, including the Updated Management Measures (UMMs)
- The Amendment Report prepared for the Upper South Creek Advanced Water Recycling Centre Project
- The relevant Minister's Conditions of Approval (CoA)
- Relevant conditions of the project's Environmental Protection License (including water quality testing and discharge criteria)
- Relevant requirements of the Water Access License (WAL 45184)
- Relevant conditions of the Commonwealth Controlled Activity Approval (CAA EPBC 2020/8816)
- Sydney Water Management Specification
- Environmental Protection License (EPL) number 21800
- Legislative requirements detailed in Section 3 of this SWGCSP.

2.2 Targets

The following targets related to surface water and groundwater matters have been identified for implementation during the construction period of the project:

- Ensure 100% compliance with the relevant legislative requirements, CoA, UMMs and Commonwealth approval conditions throughout the construction of the project.
- Implement mitigation measures during construction to achieve compliance with the NSW Government Wianamatta South Creek waterway health objectives and construction phase stormwater management targets, in accordance with the Wianamatta MUSIC modelling toolkit and Technical Guidance for Achieving Wianamatta South Creek Stormwater Management Targets (DPE, 2022);
- Ensure compliance with relevant licence obligations included in EPL number 21800 by maintaining accurate records, performing compliance checks and promptly addressing any deviations or issues.
- Manage potential surface water and groundwater impacts (i.e. maintain waterway health by avoiding introduction of nutrients, sediment and chemicals outside of that permitted by the EPL 21800) by regularly monitoring water quality parameters to ensure compliance with the limits set in this plan and EPL 21800.
- Deliver information on best practice surface water and groundwater management is provided to all construction personnel regularly during site inductions and via targeted training through suitably qualified and experienced staff, including soil conservationists engaged on the project;
- Minimize and prevent degradation to the receiving environment as a result of disturbance of surface water and groundwater aquifer systems during construction activities by implementing appropriate measures with the guidance of suitably qualified professionals;
- No contamination of surface water and groundwater as a result of spillages or other impacts arising from construction activities to be enforced via protocols and procedures. Regular inspections and training to be conducted to ensure compliance with contamination prevention measures; and
- Meet all requirements as specified in John Holland Global Mandatory Requirements (GMRs) by tracking and recording adherence to GMRs on an ongoing basis during construction.

2.3 Environmental Performance Outcomes

The environmental performance outcomes related to surface water and groundwater for the project are included in Table 2.3-1 below.

Table 2.3-1 Environmental performance outcomes related to surface water and groundwater

Desired Performance Outcome	How performance outcomes would be achieved	Measurement tool
Water – Hydrology and Quality • Long term impacts on surface water and groundwater are minimised. • The environmental values of nearby, connected and affected water sources are maintained (where values are achieved) or improved and maintained (where values are not achieved). • Sustainable use of water resources. • The project is designed and constructed to protect the NSW Water Quality Objectives where they are currently being achieved and contribute towards achievement of the Water Quality Objectives over time where they are currently not being achieved, including downstream of the project to the extent of the project impact including estuarine and marine waters (if applicable).	Establish water quality discharge criteria with consideration of NSW Water Quality Objectives and the NSW Government Wianamatta South Creek waterway health objectives: • Effectively treat water to meet water quality discharge criteria • Undertake dewatering in line with the Dewatering procedure • Construction of pipelines across waterways in accordance with approved methodologies • Maximise reuse of treated water during construction.	• Management of soil and surface water will be undertaken throughout the delivery of the project in accordance with the Surface Water and Groundwater CEMP Sub-plan, and Soil and Contamination CEMP Sub-plan. • Monitoring to be undertaken in accordance with the Surface Water Quality Monitoring Program and the Groundwater Monitoring Program.

3 Legislative and Guidance Requirements

All relevant legislation and associated requirements, including approvals, licences and permits are tabulated and discussed in Appendix A3 of the CEMP.

3.1 Project Specifications and Plans

The project specifications and plans relevant to surface water and groundwater management include:

- Sydney Water Management Specification (1041412)
- Sydney Water Guidance Standard 9.6 erosion and sediment control (ENV-GS-006)
- Sydney Water Guidance Standard 9.7 chemical storage and management (ENV-GS-007)
- USC Construction Environmental Management Plan (USCP-JHG-MPL-ENV-0008)
- USC Soils & Contamination CEMP Sub-plan (USCP-JHG-MPL-ENV-0003)
- USC Flood Emergency Response CEMP Sub-plan (USCP-JHG-MPL-0002)
- USC Biodiversity CEMP Sub-plan (USCP-JHG-MPL-ENV-0004).

3.2 Guidelines and Standards

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

- ANZG (2018) Australian and New Zealand Guidelines for Fresh and Marine Water Quality. Australian and New Zealand Governments;
- AS/NZS 5667.1.1988 (R2016) Water quality Sampling Guidance on the design of sampling programs, sampling techniques and the preservation and handling of samples;
- Commonwealth of Australia (2012). Australian groundwater modelling guidelines;
- DEC (1997). Bunding & Spill Management. Insert to the Environment Protection Manual for Authorised Officers - Technical section "Bu";
- DEC (2004). Environmental Best Management Practice Guideline for Concreting Contractors;
- DECC (2022). Approved Methods for the Sampling and Analysis of Water Pollutants in NSW;
- DECCW (2008). Managing Urban Stormwater: Soils and Construction Volume 2A Installation of Services;
- DECCW (2008). Managing Urban Stormwater: Soils and Construction Volume 2C Unsealed Roads;
- DECCW (2008). Managing Urban Stormwater: Soils and Construction Volume 2D Main Roads Construction;
- DLWC (1998). Guidelines for the Use of Acid Sulfate Soil Risk Maps (2nd ed);
- DPE (2022) Technical guidance for achieving Wianamatta South Creek stormwater management targets;
- EPA NSW (1995). Bunding and Spill Management Guidelines contained within EPA Environmental Protection Manual for Authorised Officers;
- EPA NSW (2007) Guidelines for the Assessment and Management of Groundwater Contamination;
- EPA Vic. (2009). Acid Sulfate Soil and Rock – Victorian EPA Information Bulletin, Publication 655.1;
- EPA NSW (2020). Guidelines for Consultants Reporting on Contaminated Land;
- Fairfull, S. and Witheridge, G. (2003) Why do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings. NSW Fisheries;
- Hazelton, P.A. and Murphy, B. W., (2016). What Do All the Numbers Mean? A Guide for the Interpretation of Soil Test Results (3rd ed) CSIRO Publishing, Melbourne;
- HEPA (2020), PFAS National Environmental Management Plan Version 2.0
- IECA (2008). Best Practice Erosion and Sediment Control: Appendix P - Land-Based Pipeline Construction; Isbell, R.F. and the National Committee on Soil and Terrain (2016). The Australian Soil Classification (2nd ed) CSIRO Publishing, Clayton South;
- Landcom (March 2004). Managing Urban Stormwater: Soils and Construction (4th Edition) (reprinted 2006), Volume 1 (the “Blue Book”);
- National Environment Protection Council (2013). National Environment Protection Measures for the Assessment of Site Contamination;
- National Uniform Drillers Licensing Committee, (2020). Minimum construction requirements for water bores in Australia, 4th edition;
- NRAR (2018). Guidelines for controlled activities on waterfront land – Riparian Corridors;
- NSW ASSMAC (1998).Acid Sulfate Soil Manual;

- NSW ASSMAC, QASSIT / QLD NRM&E / SCU / NatCASS / QASSMAC(2004). Acid Sulfate Soils Laboratory Methods Guidelines, Version 2.1;
- NSW DPI (2013). Policy and guidelines for fish habitat conservation and management (update 2013);
- NSW DPI (Fisheries) (2003). Fishnote – Policy and Guidelines for Fish Friendly Waterway Crossings;
- NSW DPI (Fisheries) (2003). Why do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings;
- NSW DPIE (2021). Minimum requirements for building site groundwater investigations and reporting;
- NSW DPI (2012). Guidelines for controlled activities on waterfront land;
- NSW Office of Water (2012). NSW Aquifer Interference Policy;
- NSW Office of Water (2012). Guidelines for watercourse crossings on waterfront land;
- NSW Soil Conservation Service (1982). Design Manual for Soil Conservation Earthworks – Technical Handbook No. 5;
- Standards Australia Committee CE/28 (1990). AS2368—1990 Test pumping of water wells;
- Standards Australia, Joint Technical Committee EV/8, (R2016). AS/NZS 5667:11 1998 Water quality - Sampling - Guidance on sampling of groundwaters, Sydney;
- Sundaram, B. et al., (2009). Groundwater Sampling and Analysis—A Field Guide, Canberra: Commonwealth of Australia;
- W.A. Department of Health (2021). Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia;
- WorkCover NSW (2005). Storage and Handling of Dangerous Goods Code of Practice

3.3 Minister's Conditions of Approval

Table 3.3-1 below provides a summary of the CoA relevant to surface water and groundwater and how and where these items are addressed in this plan.

Table 3.3-1 Minister's Conditions of Approval

Condition	Condition Requirement	Document Reference
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: a. documentation of the engagement with the party identified in the condition of approval that has occurred before submitting the document for approval; b. a log of the dates of engagement or attempted engagement with the identified party; 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; d. outline of the issues raised by the identified party and how they have been addressed; and e. a description of the outstanding issues raised by the identified party and the reasons why they have not been addressed.	Appendix C
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. a) Surface water and groundwater (EPA, EHG, DPE Water, DPI Fisheries, Water NSW and relevant council(s))	This Plan Section 4 Appendix C
C5	The CEMP Sub-plans must state how: a) 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;	Section 2.3 Summary of Management Measures

Condition	Condition Requirement	Document Reference
	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 (Specific, Measurable, Achievable, Realistic and Timely) principles.	A summary of the specific surface water and groundwater management measures to be applied during the construction phase of the project are provided in the table below. Table 7.16-1A summary of the specific surface water and groundwater management measures to be applied during the construction phase of the project are provided in Section 7.16 below. Section 3.3, Section 3.4 Section 1.3
C6	The Surface Water and Groundwater CEMP Sub-Plan must be prepared by a suitably qualified expert and include, but not limited to: a) measures to achieve compliance with the NSW Government Wianamatta South Creek waterway health objectives and construction phase stormwater management targets, in accordance with the Wianamatta MUSIC modelling toolkit and Technical Guidance for Achieving Wianamatta South Creek Stormwater Management Targets (DPE, 2022); b) detail erosion and sediment controls to be implemented during construction, including as a minimum, measures in accordance with the publication Managing Urban Stormwater: Soils & Construction (4th edition, Landcom 2004) commonly referred to as the 'Blue Book'; c) detail all off-site flows from the AWRC site; and d) the Dewatering Procedure and Drilling Fluid Management Procedure as committed to in the documents listed in Condition A1.	Section 1.4 Section 7.6 Table 7-1 Section 7.6 Sections 7.3 and 7.4
C11	Construction must not commence until the CEMP and all CEMP Sub-plans have been approved by the Planning Secretary.	Section 4
C12	The CEMP and CEMP Sub-plans as approved, including any minor amendments approved by the ER, must be implemented for the duration of construction of Stage 1 of the CSSI.	Section 4
C13	The following Construction Monitoring Programs must be prepared in consultation with the relevant government agencies identified for each to compare actual performance of construction of Stage 1 of the CSSI against the performance predicted in the documents listed in Condition A1 or in the CEMP: • Surface water quality (EPA, EHG, DPE Water, DPI Fisheries, Water NSW and relevant council(s)) • Groundwater (EPA and DPE Water)	Appendix E Appendix F
C14	Each Construction Monitoring Program (CMP) must have consideration of SMART principles and provide: a) details of baseline data available; b) details of baseline data to be obtained and when; c) details of all monitoring of the project to be undertaken; d) the parameters of the project to be monitored; e) the frequency of monitoring to be undertaken; f) the location of monitoring; g) the reporting of monitoring results and analysis results against relevant criteria; h) details of the methods that will be used to analyse the monitoring data;	Section 8.3 Appendices E and F

Condition	Condition Requirement	Document Reference
	i) procedures to identify and implement additional mitigation measures where the results of the monitoring indicate unacceptable project impacts; and j) any consultation to be undertaken in relation to the monitoring programs.	
C15	The CMP(s) 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 4
C16	Construction must not commence until the relevant CMP(s) have been approved by the Planning Secretary and all relevant baseline data for the specific construction activity has been collected.	Section 4
C17	The CMP(s), as approved, including any minor amendments approved by the ER, must be implemented for the duration of construction and for any longer period set out in the monitoring program or specified by the Planning Secretary, whichever is the greater.	Section 4
C18	The results of the CMP(s) must be submitted to the Planning Secretary, and relevant regulatory agencies, for information in the form of a Construction Monitoring Report at the frequency identified in the relevant CMP.	Appendices G and H
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 *Managing Urban Stormwater: Soils & Construction* (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 *Technical Guidance for Achieving Wianamatta South Creek Stormwater Management Targets* (DPE, 2022).	Section 7.5
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.	Section 7.5 Section 8.3
E114	Works on waterfront land and within watercourses must have regard to Guidelines for controlled activities on waterfront land – Riparian Corridors (NRAR, 2018), Controlled activities on waterfront land – Guidelines for watercourse crossings on waterfront land (NSW Office of Water, 2013) and Policy and Guidelines for Fish Habitat Conservation and Management (DPI Fisheries, 2013). This includes outlets and watercourse crossings	Section 7.15
E115	Suitably qualified expert(s) must agree to methods of construction of pipelines across waterways and through shallow aquifers, in consultation with relevant State and/or local authorities.	Section 7.15
E116	Drainage feature crossings (permanent and temporary watercourse crossings and stream diversions) and drainage swales and depressions must be carried out taking into consideration relevant guidelines and designed by a suitably qualified and experienced person.	Section 7.15
E117	Rehabilitation and revegetation of the riparian corridor and banks of watercourses impacted by Stage 1 of the CSSI must be commenced within three months of the completion of the watercourse Work and any other Work required in the riparian corridor.	Section 7.15 Section 8.3
E118	The Proponent must ensure sufficient water entitlement is held in a Water Access License(s) (WAL) to account for the maximum predicted take for each water source prior to the take occurring.	Section 3.5.2
E119	The Proponent must develop and implement an ongoing Water Quality Monitoring Program (WQMP) to assess the impacts of the AWRC effluent discharges on water quality. The WQMP must include: a. monitoring of treated effluent from the AWRC under different release streams; b. monitoring of waterways that may be impacted by AWRC discharges (including comparison with baseline and upstream conditions). c. details of the sampling frequency, analysis, and locations used in the program; d. reporting requirements for the program to the EPA, including consideration of any expanded Beachwatch monitoring program in the Hawkesbury Nepean catchment	Requirement is acknowledged and Sydney Water will develop and implement a WQMP in accordance with the requirements of CoA E119 and E120 prior to the commencement of operation.
E120	The WQMP required under Condition E119 must be submitted to the EPA for review at least 18 months prior to the commencement of operation of Stage 1 of the CSSI and	

Condition	Condition Requirement	Document Reference
	must be approved by the EPA and submitted to the Planning Secretary for information at least one year prior to the commencement of operation of Stage 1 of the CSSI.	
E121	The Proponent must develop and implement a monitoring program to assess wet weather infiltration into the sewer network connected to the AWRC. The program must include: a. monitoring of sewer infiltration rates throughout the AWRC sewer catchment from the commencement of operation onward; b. proposed investigative actions and potential remedial actions for wet weather infiltration in the sewer network in the event that high wet weather infiltration is identified; and c. reporting requirements for the program to the EPA.	Requirement is acknowledged and Sydney Water will develop and implement a WQMP in accordance with the requirements of CoA E121 and E122 prior to the commencement of operation.
E122	The monitoring program required under Condition E121 must be submitted to the EPA for review at least 18 months prior to the commencement of operation of Stage 1 of the CSSI and must be approved by the EPA and submitted to the Planning Secretary for information at least one year prior to the commencement of operation of Stage 1 of the CSSI. Note: 1. Part C-B of Schedule 2 of this approval provides additional water quality assessment and monitoring requirements that must be met. 2. The WQMP and monitoring program to assess wet weather infiltration into the sewer network must be provided to the Planning Secretary and/or the EPA upon request. 3. The WQMP and monitoring program to assess wet weather infiltration into the sewer network are required to be updated on an ongoing basis throughout operation of Stage 1 of the CSSI	
E123	Surface water drainage on the AWRC site as part of Stage 1 of the CSSI must be designed, constructed and operated to achieve compliance with the NSW Government Wianamatta South Creek waterway health objectives and construction and operational phase stormwater management targets, in accordance with the Wianamatta MUSIC modelling toolkit and Technical Guidance for Achieving Wianamatta South Creek Stormwater Management Targets (DPE, 2022).	Section 2.2 aligns targets with Wianamatta South Creek waterway health objectives and construction phase stormwater management targets. Addressed in Section 7.6 (Offsite stormwater flows), and under mitigation measure SWG10 and SWG73. This requirement is also addressed in Appendix G - Erosion and Sediment Control Procedure. Addressed in Section 3.2 of the Surface Water Quality Monitoring Program, including the tabulated requirements of the Wianamatta - South Creek Stormwater Management Targets for the construction phase
E124	If construction stage stormwater discharges are proposed, a Water Pollution Impact Assessment will be required to inform licensing consistent with section 45 of the POEO Act. Any such assessment must be prepared in consultation with the EPA and be consistent with the National Water Quality Guidelines, with a level of detail commensurate with the potential water pollution risk.	Section 3.5.1
E125	The Proponent must undertake further hydrological and hydraulic modelling for the AWRC site based on the detailed design of Stage 1 of the CSSI to determine the ability of the receiving stormwater drainage systems to effectively convey pavement drainage from Stage 1 of the CSSI where it is proposed to discharge these flows to council or Sydney Water receiving stormwater drainage systems. The modelling must be undertaken in consultation with the relevant council(s) and the outcomes documented in the Stormwater Drainage Report required under Condition E126.	This condition is not applicable to the scope of John Holland's work as there are no existing stormwater drainage systems that will receive stormwater from the AWRC site.
E126	The Stormwater Drainage Report must be prepared at least one month prior to the commencement of any new permanent drainage Works, modifications or connections to existing drainage Works, construction of hard surfaces that are associated with the	This condition is not applicable to the scope of John Holland's work as there are no existing

Condition	Condition Requirement	Document Reference
	operation of the project and would result in runoff to existing council or Sydney Water stormwater drainage systems. The Stormwater Drainage Report must: a. assess the potential impacts of pavement drainage discharges from Stage 1 of the CSSI drainage systems on the receiving environment and capacity of council(s) or Sydney Water's drainage infrastructure; b. identify all mitigation measures to be implemented where pavement drainage from Stage 1 of the CSSI drainage systems are predicted to adversely impact on the receiving environment or capacity of council or Sydney Water drainage infrastructure; and c. set out a clear time frame for the implementation of mitigation measures. Nothing in this condition prevents the Proponent from preparing separate Stormwater Drainage Reports for pavement discharges to the drainage system provided that each report is prepared at least one month prior to the subject Works/discharges commencing	stormwater drainage systems that will receive stormwater from the AWRC site.
E127	All new or modified drainage systems associated with Stage 1 of the CSSI must be designed to: a. where they connect with council(s) or Sydney Water drainage system, meet the capacity constraints to receive and convey the proposed flows from Stage 1 of the CSSI, or otherwise upgrade council(s) or Sydney Water drainage system at the Proponent's expense, in consultation with the relevant council(s); b. minimise impacts on the receiving environment at the final outflow point resulting from any additional flow volume (including, but not limited to scour, flooding, water quality impacts, and impacts on riparian vegetation, aquatic ecology and property); and c. ensure mitigation measures are implemented where increased flows through cross drainage systems adversely impact on council or Sydney Water drainage infrastructure and the receiving environment.	The project will be designed in accordance with Penrith City Council requirement not to increase post development run-off.
E128	Prior to the commencement of operation of Stage 1 of the CSSI, the Proponent must submit a report to the Planning Secretary, the EPA and EHG for information, that provides an update on the status of implementing any proposed stormwater harvesting system(s) across the Western Sydney Parkland City that connect to the AWRC.	Requirement is acknowledged and Sydney Water will prepare a report prior to the commencement of operation in accordance with CoA E128.

3.4 Updated Management Measures (UMMs)

Table 3.4-1 below provides a summary of the Updated Management Measures (UMMs) relevant to surface water and groundwater and how and where these items are addressed in this and/or other plans.

Table 3.4-1 Updated Management Measures (UMMs)

Ref	Management Measure	Reference
G12	Consult with DPI Fisheries during development of the CEMP, including the Biodiversity Management Plan, Soil and Water Management Plan and management measures at the Hinchinbrook Creek crossing.	Section 4
G13	Consult with WaterNSW during the development of relevant sections of the CEMP.	Section 4 Appendix C
SW01	Prepare and implement a Soil and Water Management Plan as part of the project's CEMP. The plan will include: • construction phase surface water, groundwater, contaminated land and soils and waterways management measures from this table • roles and responsibilities • monitoring and auditing requirements	This Plan and the Soils & Contamination CEMP Sub-plan (SCCSP)
SW02	Design, install and maintain stormwater management measures on the AWRC site (including a range of Water Sensitive Urban Design measures) to ensure: • operational releases to South Creek achieve DPE EES water quality and flow objectives by considering stormwater quality and flow targets in the draft Western Sydney Aerotropolis DCP – Phase 2 (October 2021) • operational efficiency of installed measures • post-development peak flows do not exceed pre-development peak flows for the 50%, and 1% AEP storm events.	Operational aspect of SW02 to maintain – not included in the scope of this CEMP. The performance outcomes and benchmark solutions for stormwater management in the draft Phase 2 Western Sydney Airport DCP respond to the waterway health objectives and stormwater management targets in the relevant areas, of which the AWRC site is included. Objective O1, Section 2.3.2 confirms that the DCP must be implemented consistently with the Technical guidance for achieving Wianamatta South Creek stormwater management targets (DPE, 2022). This requirement has been translated to construction phase documentation via site specific ESCP
SW03	Progressively construct operational stormwater management measures for potential use and contribution to stormwater management during construction, if practical.	Table 7.16-1.
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 4.3.2 and PO1-PO5 in section 9.6.2) and the guidance provided in the project's Surface Water Impact Assessment (Aurecon, Arup, 2021d).	Section 7.5 and Appendix G
SW06	Store chemicals, fuels and oils in bunded areas on the AWRC site.	Section 7.7
SW07	Develop and implement the following as part of the CEMP: • 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.	Section 7.7 and Appendix B of Soils and Contamination CEMP

Ref	Management Measure	Reference
WW01	Design and implement construction methodologies for works in waterways to appropriately manage site-specific geomorphic conditions in each waterway (for example dispersive soils in South Creek), seeking inputs from a qualified geomorphologist where needed.	Table 7.16-1.
WW02	• Minimise the duration of instream works and where practical, conduct instream work during periods of low flow. • Minimise the 'wet area' impacted during the installation of trenched crossings.	Table 7.16-1.
WW03	Whenever possible: • operate equipment on land or from a floating barge to minimise disturbance to the banks and bed of the water body • use temporary crossing structures or other practices to cross watercourses with steep and/or highly erodible banks and beds. • limit machinery fording of the watercourse to a one-time event (ie over and back).	Table 7.16-1.
WW04	Isolate works in waterways using booms, silt curtains or similar to contain suspended sediment.	Table 7.16-1.
WW05	Undertake the following measures: • Store materials excavated from the trench above the top of bank until the materials can be backfilled into the trench. The top 10 to 50 cm of channel substrate should be stored separately and replaced during backfilling, where practical or material of the same quality should be used. • Restore bed and banks of the watercourse or water body to their original contour and gradient; if the original gradient cannot be restored due to instability, a stable gradient should be restored. Consider principles in relevant policy and guidelines including Fish Habitat Conservation and Management (DPI, 2013a) and Why do fish need to cross the road? (Fairfull and Witheridge, 2003).	Table 7.16-1
WW06	When using an isolated construction method such as a coffer dam, do not remove the isolation method until all works, including backfilling, contouring and stabilisation have taken place.	Table 7.16-1.
WW07	If replacement rock reinforcement or armouring is required to stabilise eroding or exposed areas, ensure that appropriately sized, clean rock is used; and that rock is installed at a similar slope to maintain a uniform bank and natural stream alignment.	Table 7.16-1.
WW08	Ensure pipeline designed to sufficient depth to avoid streambed slumping, incision and erosion. Determine failure-threshold criteria to indicate when a trenchless crossing method has failed, and construction works will be stopped. Examples of failure-threshold criteria may include: • an in-water frac-out that cannot be contained or mitigated • streambed slumping • schedule delays resulting from unexpected equipment failure or weather.	Table 7.16-1.
WW09	Determine an alternative crossing method (eg contingency crossing plan) in the event the trenchless crossing method is not successful.	Table 7.16-1.
WW10	Locate the entry and exit points back from the channel, beyond the top of bank to allow containment of any sediment or other substances above the top of bank. Restore entry and exit points to pre-construction conditions.	Table 7.16-1.
WW12	Ensure that the erosion control and armouring extends sufficiently into the waterways. Confirm the existing substrate prior to construction to determine the likelihood of erosion as well as the scale of time over which erosion can be expected to occur. If non-cohesive substrate or easily eroded substrate is identified, instream works may be required for protection of the riverbed.	Table 7.16-1.
WW13	Implement subsurface drainage controls, where appropriate, to maintain stability groundwater and surface water interactions and to maintain the stability of any reclaimed land. The type and location of subsurface drainage controls should be determined through onsite investigation with considerations for: subsurface flow potential, erodibility of backfill materials, and degree of slope.	Table 7.16-1.Section 5
WW14	Design and install coffer dams and temporary in-stream structures associated with open trenching in accordance with the Policy and Guidelines for Fish Habitat Conservation and Management (DPI, 2013a).	Section 7.15 Table 7.16-1.

Ref	Management Measure	Reference
WW15	Temporary in-stream structures should be installed during low-flow periods, and measures established in the CEMP about how high flow events will be managed to limit erosion of the structures and associated sedimentation of downstream waterways.	Section 7.15
WW16	For dewatering of temporary in-stream structures: • notify NSW DPI seven days prior to any dewatering activities in order to organise potential fish rescue activities. A separate s.37 permit may be required from NSW DPI to relocate fish. • pump water a minimum of 30 m away from the waterway so it preferentially does not re-enter the waterway. If water is to re-enter the waterway, the ANZG or the waterway objectives (Wianamatta -South Creek Water Quality Objectives) need to be adhered to.	Section 7.15 Table 7.16-1.
WW17	Where practical, open trenching of waterways, particularly Kemps Creek and South Creek are to be avoided between late April and early June, and late October to late December, to minimise disruption of downstream and upstream Australian Bass migration.	Table 7-1
WW20	Consider opportunities, where practical, to improve mixing and dilution of releases (for example investigating options for submerging release structures). The feasibility/acceptance of alternative options would need to be assessed against a number of key considerations including (but not limited to) engineering requirements, operations and maintenance risk, geomorphology and energy dissipation requirements.	SWC and JH will undertake final design feasibility investigations to determine what possible opportunities will be pursued as part of the detailed design.
WW21A	Where reasonable and practical, incorporate recommendations in the 'Guidelines for controlled activities on waterfront land' (DPI 2012) and 'Guidelines for controlled activities on waterfront land – Riparian corridors' (NRAR 2018).	Section 7.15
WW22	Continue baseline monitoring program outlined in section 8.2.2 of EIS until project starts operating. Complete a report documenting results and analysis at completion of monitoring program. Monitoring results from construction or commissioning phases to be analysed separately to avoid skewing baseline results.	Sydney Water will continue implementing their baseline monitoring program associated with the project.
GW01	Identify appropriate trench/shaft support systems (for example sheet piling) in areas with higher hydraulic conductivity and storage properties to minimise groundwater drawdown. This includes all areas mapped as Quaternary alluvial sediments/deposits (Mid-Nepean hydrogeological landscape (HGL), Mulgoa HGL, Upper South Creek HGL, Upper South Creek (Variant A) HGL and Moorebank HGL).	Appendix A, Appendix F and Table 7-1.
GW02	Monitor baseline groundwater levels at the AWRC site and levels in South Creek, by: • installing two additional groundwater monitoring wells mid-way between the South Creek and the north western boundary of the site. These will be a shallow and a deep well targeting the upper alluvial aquifer and the residual soil profile. • installing a level gauge at South Creek. Continuous loggers will be installed to monitor water levels. Results will be used to establish baseline conditions, verify the existing surface water and groundwater connectivity and assist in developing a risk-based approach to managing groundwater impacts at the site.	Appendix F.
GW03	Develop a risk-based approach to managing drawdowns and impacts to South Creek during construction at the AWRC. This approach should include: • Monitoring the difference in elevation between South Creek and groundwater levels. • Identify trigger values and associated management measures to take should groundwater levels fall below the water level in South Creek. Management measures should be commensurate with the potential risk of impact to South Creek and nearby GDEs.	Appendix A and Appendix F.
GW06	Adopt a staged approach to dewatering by dewatering in discrete, smaller areas that align with the construction schedule.	Table 7-1 and Appendix F.
GW07	Construct adjacent recharge trenches to maintain saturation in high-risk areas. If the extent of the drawdown is likely to include an area with existing contamination, consider constructing recharge trenches to limit the cone of depression and create a hydraulic barrier that could prevent the migration of contaminants.	Table 7-1.

Ref	Management Measure	Reference
GW08	Develop and implement a dewatering procedure that identifies how extracted groundwater and contaminated runoff will be managed. Including requirements for storage, transport, testing and disposal. Disposal options to be considered include: • discharge to land • discharge to stormwater or waterway in accordance with Sydney Water's Water Quality Management During Operational Activities (D0001667) and any relevant conditions of the project's Environment Protection Licence • discharge to the wastewater system in accordance with Sydney Water discharge criteria • tanker by a licensed waste contractor and dispose off-site to an appropriately licensed facility.	Section 7.3
GW10	Develop a Drilling Fluid Management procedure to avoid impacts, including: • potential risk for 'frac-outs' at tunnelled crossings • approach to identify and manage frac-outs • contain and monitor drilling fluid at entry/exit points until it can be transported to a licensed waste facility • reuse and/or disposal of drilling fluids by appropriately qualified personnel to a licensed facility • prioritising the use of fluids that reduce the risk of seepage into groundwater from boreholes.	Section 7.4
GW14	Ensure the approach to managing dewatering is consistent with the requirements set out in the NSW Government guideline 'Minimum requirements for building site groundwater investigations and reporting' (DPIE, 2021)	Section 7.3 Section 1.2 of Appendix A

3.5 Licences, Permits and Exemptions

3.5.1 Environmental Protection Licence

- The Project's Environmental Protection Licence (EPL) number 21800, sought as the project works constitute scheduled development works under the *Protection of the Environment Operations Act 1997* (NSW), includes specific construction-phase erosion and sediment control requirements and water quality monitoring and protection requirements. The project will be constructed to meet the requirements documented in the project EPL 21800. Table 3.5-1 below provides a summary of the relevant EPL conditions relevant to surface water and groundwater and how and where these items are addressed in this and/or other plans.

Table 3.5-1 EPL requirements related to surface and groundwater

P1.1	The following points referred to in the table are identified in this licence for the purposes of the monitoring and/or the setting of limits for discharges of pollutants to water from the point. **EPA Identification no.** / **Type of Monitoring Point** / **Type of Discharge Point** / **Location Description** 1 / Surface water discharge / Surface water discharge / The outlet to sediment basins and construction discharge register referred to in condition P1.3 2 / Surface water discharge / Surface water discharge / Discharge register for hydrostatic testing of the brine and treated water pipelines referred to in condition P1.3	Section 2 and 3 of Appendix A Section 5 of Appendix E Section 7.9 of this SWGCSP
P1.2	The licensed monitoring and discharge points referred to in condition P1.1 and all sediment basins, must be identified in the map(s) most recently submitted and approved in writing by the EPA.	Section 7.9 of this SWGCSP
P1.3	All sediment basins on the premises, discharge points on the construction discharge register and discharge points associated with hydrostatic testing of the brine and treated water pipes must be identified in a schedule submitted to the EPA. The schedule, including any proposed updates, must: a) be submitted to the EPA in electronic format no less than 10 business days prior to the planned commissioning or decommissioning of a sediment basin or hydrostatic testing discharge point; b) include the following information: i. unique identifiers consistent with the map(s) required by condition P1.2; ii. size, type, and discharge criteria, if permitted under condition L2.1, for each sediment basin or discharge point; iii the design rainfall depth value, water storage capacity and sediment storage capacity for each sediment basin; iv. criteria for desilting and dewatering that maintains the design storage capacity for each sediment basin; v. the catchment details and receiving waters of each sediment basin or hydrostatic testing discharge point; and vi. easting and northing coordinates for each sediment basin.	Section 7.9 of this SWGCSP
L1.1	Except as may be expressly provided in any other condition of this licence, the licensee must comply with section 120 of the Protection of the Environment Operations Act 1997.	Section 7.16 of this SWGCSP
L2.1	For each monitoring/discharge point or utilisation area specified in the table/s below (by a point number), the concentration of a pollutant discharged at that point, or applied to that area, must not exceed the concentration limits specified for that pollutant in the table.	Section 7 of this SWGCSP Section 3 of Appendix A
L2.2	Where a pH quality limit is specified in the table, the specified percentage of samples must be within the specified ranges.	Section 7 of this SWGCSP Section 3 of Appendix A

<table>
<tr><td>L2.3</td><td>To avoid any doubt, this condition does not authorise the pollution of waters by any pollutant other than those specified in the table\s</td><td>Section 7.16 of this SWGCSP</td></tr>
<tr><td>L2.4</td><td>Water and/or Land Concentration Limits

POINT 1,2
<table><tr><th>Pollutant</th><th>Units of Measure</th><th>50 Percentile concentration limit</th><th>90 Percentile concentration limit</th><th>3DGM concentration limit</th><th>100 percentile concentration limit</th></tr><tr><td>Oil and Grease</td><td>Visible</td><td></td><td></td><td></td><td>Not Visible</td></tr><tr><td>pH</td><td>pH</td><td></td><td></td><td></td><td>6.5-8.5</td></tr><tr><td>Turbidity</td><td>nephelometric turbidity units</td><td></td><td></td><td></td><td>36.45</td></tr></table>POINT 2
<table><tr><th>Pollutant</th><th>Units of Measure</th><th>50 Percentile concentration limit</th><th>90 Percentile concentration limit</th><th>3DGM concentration limit</th><th>100 percentile concentration limit</th></tr><tr><td>Chlorine (total residual)</td><td>milligrams per litre</td><td></td><td></td><td></td><td>0.5</td></tr></table></td><td>Section 7 of this SWGCSP

Section 3 of Appendix A</td></tr>
<tr><td>O4.3</td><td>The licensee must:
a) ensure the design storage capacity of any sediment basin installed on the premises is reinstated within the design management period following the cessation of a rainfall event that causes runoff to occur on or from the premises; and
b) keep records of the available water and sediment storage capacities in each sediment basin and provide to an authorised officer upon request.</td><td>Section 7.9 of thjs SWGCSP</td></tr>
<tr><td>O4.4</td><td>The licensee must ensure that sampling point(s) for water discharged from the sediment basin(s) are provided and maintained in an appropriate condition to permit:
a) the clear identification of each sediment basin and discharge point;
b) the collection of representative samples of the water discharged from the sediment basin(s); and
c) access to the sampling point(s) at all times by an authorised officer of the EPA</td><td>Section 7.9 of thjs SWGCSP</td></tr>
<tr><td>M2.1</td><td>For each monitoring/discharge point or utilisation area specified below (by a point number), the licensee must monitor (by sampling and obtaining results by analysis) the concentration of each pollutant specified in Column 1. The licensee must use the sampling method, units of measure, and sample at the frequency, specified opposite in the other columns:</td><td>Section 5 of Appendix E</td></tr>
<tr><td>M2.2</td><td>Water and/ or Land Monitoring Requirements

POINT 1
<table><tr><th>Pollutant</th><th>Units of measure</th><th>Frequency</th><th>Sampling Method</th></tr><tr><td>Oil and Grease</td><td>Visible</td><td>Special Frequency 1</td><td>Visual Inspection</td></tr><tr><td>pH</td><td>pH</td><td>Special Frequency 1</td><td>Probe</td></tr><tr><td>Turbidity</td><td>nephelometric turbidity units</td><td>Special Frequency 1</td><td>Probe</td></tr></table>POINT 2
<table><tr><th>Pollutant</th><th>Units of measure</th><th>Frequency</th><th>Sampling Method</th></tr><tr><td>Chlorine (total residual)</td><td>milligrams per litre</td><td>Daily for any discharge >2 hrs</td><td>Grab sample</td></tr><tr><td>Oil and Grease</td><td>Visible</td><td>Daily for any discharge >2 hrs</td><td>Visual Inspection</td></tr><tr><td>pH</td><td>pH</td><td>Daily for any discharge >2 hrs</td><td>Probe</td></tr><tr><td>Turbidity</td><td>nephelometric turbidity units</td><td>Daily for any discharge >2 hrs</td><td>Probe</td></tr></table></td><td>Section 3 of Appendix A</td></tr>
<tr><td>M2.3</td><td>For the purposes of Condition M2.2 and the Table thereto, ‘Special Frequency 1’ means:
a) less than 24 hours prior to a controlled discharge and daily for any continued controlled discharge, when it is safe to do so; and
b) when rainfall causes a discharge from a sediment basin which has not been emptied within the design management period following cessation of a rainfall event, when it is safe to do so.</td><td>Section 3 of Appendix A</td></tr>
</table>

M2.4	For the purposes of Condition M2.2 and the table thereto, 'daily' means prior to any discharge on days when hydrostatic testing is undertaken.	Section 3 of Appendix A
M3.1	Subject to any express provision to the contrary in this licence, monitoring for the concentration of a pollutant discharged to waters or applied to a utilisation area must be done in accordance with the Approved Methods Publication unless another method has been approved by the EPA in writing before any tests are conducted.	Section 3 of Appendix A

3.5.2 Water Access Licence/s or Exemptions

Should the project require use of surface water and / or groundwater during construction, no water will be taken from waterways or from groundwater sources without obtaining all required approvals, Water Access Licence/s, and/or written acknowledgement of public authority exemptions from the regulator, specifically the NSW Natural Resources Access Regulator (NRAR). A Water Access Licence (WAL) has been obtained by Sydney Water for the purpose of the USC Project, including the security of relevant shares as detailed in WAL 45184 (may be subject to further consolidation with other licences held by Sydney Water). Groundwater extraction volumes will be reported annually to Sydney Water.

Should John Holland or the Sydney Water require regulator acknowledgement of a public authority exemption, it will likely only be for the following specific scenarios and only if it can be demonstrated that legislative requirements of the public authority exemption under the *Water Management (General) Regulation 2018* (NSW) have been met, as summarised in Table 3.5-2.

Table 3.5-2 Public authority water access licence exemptions (NSW)

Public Authority Water Access Licence	Exemption Requirement	Regulation Reference
Dust suppression by public authorities	• This exemption applies to public authorities that are lawfully engaged in dust suppression activities. • The taking of water must be required for dust suppression.	Clause 21(1) of the Water Management Regulation 2018 Clause 5 of Schedule 4 of the Water Management Regulation 2018

4 Consultation

Consultation requirements raised in the Infrastructure Approval are explored in detail in Section 2 of the CEMP. Specifically, the SWGCSP and associated SWQ-CMP and GW-CMP, have been provided to the following agencies in accordance with CoA C4 and C13, with their outcomes summarised in Appendix C and applicable comments received from the consultation process incorporated in relevant sections of this Plan.

- NSW Environment Protection Authority (EPA)
- NSW Department of Planning & Environment, Environment & Heritage Group (EHG)
- NSW Department of Planning & Environment, Water Group (DPE Water)
- NSW Department of Primary Industries, Fisheries (DPI Fisheries)
- WaterNSW
- Relevant Councils, including:
    - Wollondilly Shire Council
    - Penrith City Council
    - Liverpool City Council
    - Fairfield City Council
    - Canterbury-Bankstown Council
- Certified Professional in Erosion and Sediment Control (CPESC)

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

When dewatering of temporary in-stream structures, the project will notify NSW DPI seven days prior to any dewatering activities in order to organise potential fish rescue activities.

The project hasengaged with WaterNSW during the development and review of the Drilling Fluid Management Procedure (Appendix B), which was developed by the project in consultation with its specialist pipeline subcontractors.

The SWGCSP and associated construction monitoring programs must be reviewed and approved by Sydney Water and endorsed by the Environmental Representative (ER). Following ER endorsement, the documents will be submitted to the Planning Secretary no later than one month prior to commencement of construction. Construction will not commence until the SWGCSP, and associated construction monitoring programs have been approved by the Planning Secretary.

The SWGCSP and associated construction monitoring programs as approved, including any minor amendments approved by the ER, will be implemented for the duration of construction and for any longer period set out in the monitoring program or specified by the Planning Secretary, whichever is the greater.

5 Existing Environment

The following Sections summarise the surface water and groundwater conditions within and immediately adjacent to the project site based on information documented in the EIS and Amendment Report.

5.1 Climate

A summary of the climate records documented in the project EIS Appendix N is provided in Table 5.1-1 below. A detailed summary on the relevant climate risks and associated mitigations identified over the life of the project are included in the Climate Change Risk Assessment (CCRA) in Appendix Y of the EIS. The mean annual evaporation (1,456 mm) exceeds annual rainfall (746 mm) by a factor of two and is greater than rainfall on average for all months of the year. However, the upper quartile for rainfall in May, June and July exceeds the upper quartile value for evaporation in the same winter months. This indicates that large wet seasons do occur periodically at the site, and when they occur such events produce rainfall that exceeds the evaporation rate and this generally occurs during the cold winter months.

It is expected that groundwater recharge and water levels will increase during wetter months with lower evaporation rates (e.g. May, June and July). During drier months with higher evaporation rates (e.g. January to April and August to December), groundwater recharge and water levels are expected to decrease. Annual rainfall at the site is highly variable with historical rainfall ranging from 314 mm to 1,725 mm.

Table 5.1-1 Annual rainfall and evaporation statistics

Statistics	Annual Rainfall (mm)	Annual Pan Evaporation (mm)	FAO-56 Potential Evaporation (mm)
Mean	746	1456	1227
Minimum	314	1257	N/A
Median	725	1445	N/A
Maximum	1725.5	1881	N/A

(Source: Table 4-1 of Appendix H of the Updated Groundwater Report by Aurecon Arup, March 2022)

5.2 Topography and Soil characteristics

5.2.1 Topography

The following points summarise the topography in the project areas:

- The AWRC is located within a regional alluvial plain associated with Badgery's Creek, South Creek and Kemps Creek watercourses. The topography in this area is predominately flat, with a gentle slope towards the north. Elevations across the AWRC generally range between about 35 to 40 mAHD.
- The treated water pipeline follows gently sloping topographies, with elevations generally ranging from 30 m to 90 mAHD, from the low-lying areas around South Creek/Kemps Creek (35-40 mAHD) through to the Nepean River valley (35 mAHD), traversing a small ridge in the vicinity of The Northern Road, Luddenham (90 mAHD).
- The brine pipeline alignment, heads out east from the AWRC site at 40 mAHD elevation, follows gently sloping topographies, rising from 40 mAHD, rising to a high point at Cecil Hills (80 mAHD) before sloping down again towards Prospect Creek in Fairfield at 10 mAHD.

5.2.2 Geology

The project is located within the Permo-Triassic Sydney basin. The underlying geology is mapped in EIS Appendix N Part 1 in Figures 4-5 to 4-7 and comprises areas of:

- Anthropogenic Fill – comprising highly variable fill materials (includes topsoil, embankments, road pavements, landscaped areas etc.);
- Alluvial Sediments/Deposits, described as: loose, unconsolidated fine to medium grained sand, silt and clay.
- Bringelly Shale – variable sedimentary rock types. Black and grey shales and sandstones with small scale bedding.
- Minchinbury Sandstone – fine to medium grained quartz sandstone with calcite and volcanic lenses.
- Ashfield Shale – black mudstones and grey shales with small scale bedding.
- Hawkesbury Sandstone – medium to coarse-grained quartz sandstone with minor shale and 31aminate lenses. Sandstones are either massive or cross-bedded sheet facies with vertical or sub-vertical joint sets. The combination of bedding planes and widely spaced joints gives sandstone outcrops a distinctive blocky appearance.

Triassic sediments in the Sydney basin are highly fractured and faulted due to transpressional tectonic stresses. Major faults and shear zones affecting the Triassic units are principally aligned along a NW-SE direction because of the prevailing tectonic stresses which formed them. They include high angle displacement faults, low angle thrusts and bedding shear zones. The mapped surface outcrop of the geological units and associated intrusions and structural are shown in EIS Appendix M in Figure 4-13, Figure 4-14 and Figure 4-15 and include the Luddenham Dyke; Narellan Lineament in alignment with South Creek; and the Rossmore Anticline which forms a structural high point of the Wianamatta Group.

5.2.3 Soil Landscapes

The project area encompasses seven (7) soil landscapes as defined by the Sydney 1:100,000 Soil Landscape series map sheet (DPIE; 2005), as provided in Table 5.2-1 below with a summary of the soil landscape erodibility.

Table 5.2-1 Summary of soil landscape areas

Soil Landscape	Erosion Hazard	Area	Project Sites
Berkshire Park	Susceptible to wind erosion hazard on cleared land. Gully, sheet and rill erosion may occur on dissected areas	A small area to the south of the Kemps Creek Hi-Quality Group.	Brine Pipeline
Blacktown	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.	Across the majority of the site to the east of Wallacia.	Treated water Brine pipeline AWRC
Disturbed Terrain	Variable based on site specific conditions.	On the Brandown Quarry, site and multiple areas to the south within the Liverpool area	Brine pipeline
Luddenham	Disturbed land can suffer sheet erosion	Sections of Wallacia, Luddenham, Cecil Park and Cecil Hills	Treated water Brine pipeline
Picton	Susceptible to slumps and sheet erosion due to the steep hills	Within vegetated lots along the M7, surrounded by Luddenham soil landscapes	Brine pipeline
Richmond	Can suffer water erosion on localised terrace edges	Low lying areas near the Nepean River and Prospect Creek	Treated water Brine pipeline
South Creek	Highly susceptible to water erosion due to the active floodplain nature of the landscape. Streambank and gully erosion are common results of concentrated flow	Along the banks of South Creek and its tributaries including Kemps Creek, Badgerys Creek and Cosgrove Creek. Covers the majority of the AWRC.	Treated water Brine pipeline AWRC

5.2.4 Acid Sulfate Soils

The EIS Appendix N Part 1 documents the majority of the project area is not located within an area of potential ASS including the AWRC site and surrounds. Some potential ASS risk areas are present around Prospect Creek including:

- A high potential for occurrence of ASS along the brine pipeline for creek bed sediments and surrounding embankments where Hume Hwy 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 sides of the Georges River
- Areas surrounding the Georges River in Chipping Norton and Millperra, 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 within the desktop assessment area 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 pipelines.

Potential ASS associated with the project are addressed in detail in the USC Soils and Contamination CEMP Sub-plan (SCCSP). A summary of the project's existing environment is provided in Section 4.1.3 of the SCCSP and management measures provided in Section 6.3 of the SCCSP.

5.2.5 Contaminated Land

Contaminated lands associated with the project are addressed in detail in the SCCSP. The results of previous site investigations documented in the EIS identified eleven (11) Areas of Environmental Concern (AECs). Locations are depicted in EIS Appendix N Part 2 in Figures 6-2a – Figure 6-2d and a summary is provided in Section 4.2 of the SCCSP.

5.3 Hydrology

The hydrology of the site is described in detail in the Surface Water Specialist Study EIS Appendix K (Aurecon Arup, 2021c) and summarised below.

- The majority of the project area, including the AWRC, treated water pipelines and the western portion of the brine pipeline are located in the Hawkesbury-Nepean catchment.
- The eastern portion of the brine pipelines is within the boundaries of the Georges River catchment, which has an area of 960 km^2 and is one of the most highly urbanised catchments in Australia.

The majority of the project area lies within the Lower Nepean River Management Zone of the Hawkesbury-Nepean Catchment.

The AWRC lies within the Badgerys Creek, South Creek and Kemps Creek sub-catchments which have been extensively modified and disturbed due to increasing urbanisation and associated land clearing.

Several rivers and streams intersect the proposed pipeline alignments: from west to east the pipelines are intersected by the Nepean River, Jerrys Creek, Mulgoa Creek, Cosgroves Creek, Oaky Creek, Badgerys Creek, South Creek, Kemps Creek, Hinchinbrook Creek, Clear Paddock Creek, Green Valley Creek and Prospect Creek. The Hawkesbury River is the ultimate downstream receiving environment and is located about 29 km from the project at its closest point.

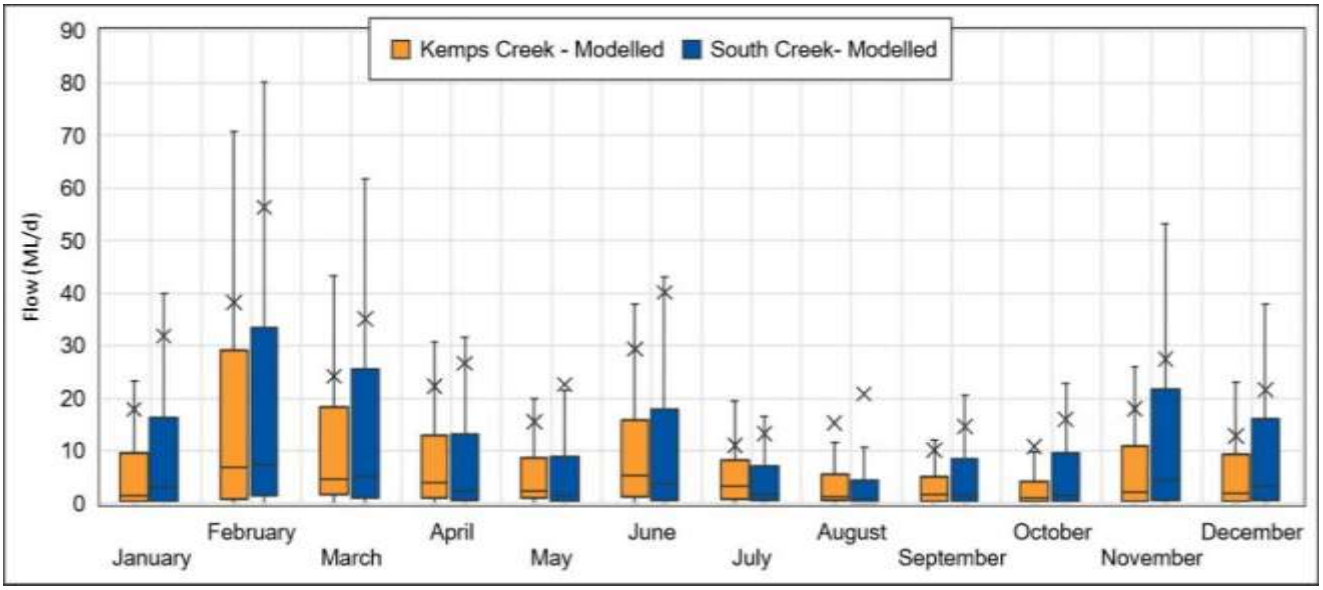
The AWRC is located within a floodplain bordered by Kemps Creek to the northeast and South Creek to the southwest. Surface water flow would be consistent with the topography, being outward toward both creeks. Some local drainage features (e.g. existing natural depressions) also exist within the AWRC, most prominently observed in a generally straight line from northeast to southwest. Figure 5-2 and figure 1-1 depict the waterways surrounding the AWRC site.

5.3.1 Stream Flow

Stream flow gauging and modelling results are provided in EIS Appendix K for South Creek and Kemps Creek and are summarised in Figure 5.3-1 below. The data provides for assessments of flow variability which may be used to support planning and scheduling for works at South Creek and Kemps Creek.

In addition, analysis of flow gauging information may be required to support communications with the regulator around Water Access Licences (refer to Section 3.5.2).

Figure 5.3-1 Flow distribution across calendar months for South Creek & Kemps Creek



Source: EIS Appendix K Figure 5-17.

5.3.2 Existing Surface Water Users

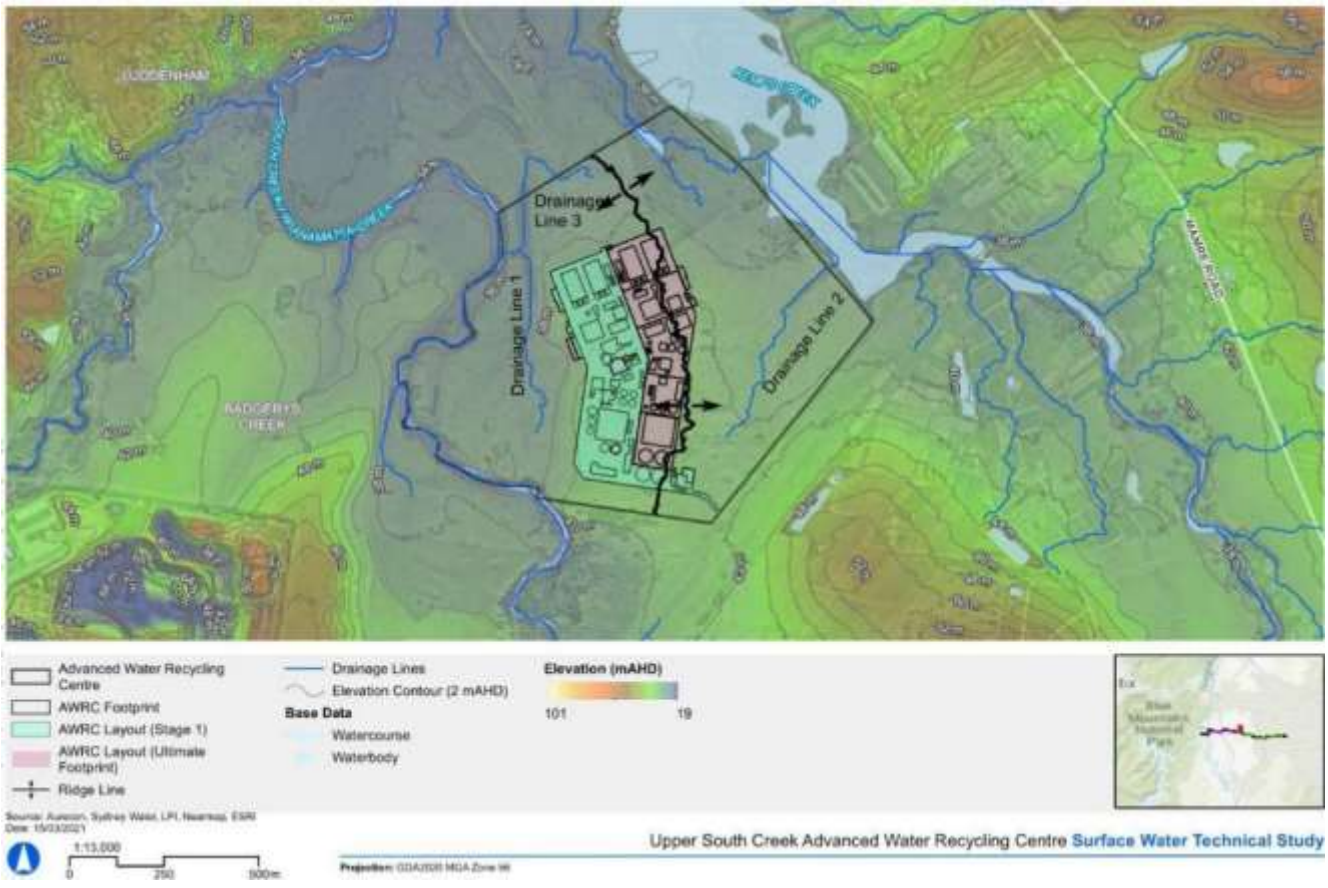
Both the AWRC site and the pipeline alignments are located within an area of the Western Sydney Aerotropolis that are currently undergoing a significant amount of rezoning on a regional scale. Where existing surface water land users have historically been semi-rural and focused on primary production, rezoning will see much of the land within the Kemps Creek Precinct surrounding the pipelines and the AWRC site adjusted to commercial and industrial land uses.

The AWRC site in its entirety will be rezoned, whereas the majority of the pipeline corridors following completion of construction activities will be unchanged.

5.3.3 Site Drainage

The existing topography indicates a minor ridge line dividing the South Creek and Kemps Creek catchments, as depicted in Figure 5.3-2. The infrastructure footprint indicated in the reference design is primarily located west of this divide. Runoff from this area naturally drains towards Drainage Line 1, where it ponds within a billabong and any excess spills over to South Creek via the connecting spillway channel (see EIS Appendix K Figure 5-19 and Figure 5-20). Runoff generated east of the ridge naturally flows towards Drainage Line 2 and discharges to Kemps Creek upstream of the farm dam.

Figure 5.3-2 Site Drainage (Note that the reference design is depicted and is currently subject to detailed design refinements).



5.3.4 Water Quality

Baseline water quality has been established by the Sydney Water monitoring program as detailed in the Hydrodynamic and Water Quality Impact Assessment report (EIS Appendix F). Baseline water quality results covering the period July 2017 to January 2023 from the sites depicted in Figure 5.3-3 below are summarised based on the results documented in EIS Appendix K in Table 5.3-1 and Table 5.3-2.

Figure 5.3-3 Water quality monitoring sites for AWRC baseline monitoring program *Source: EIS Appendix K*

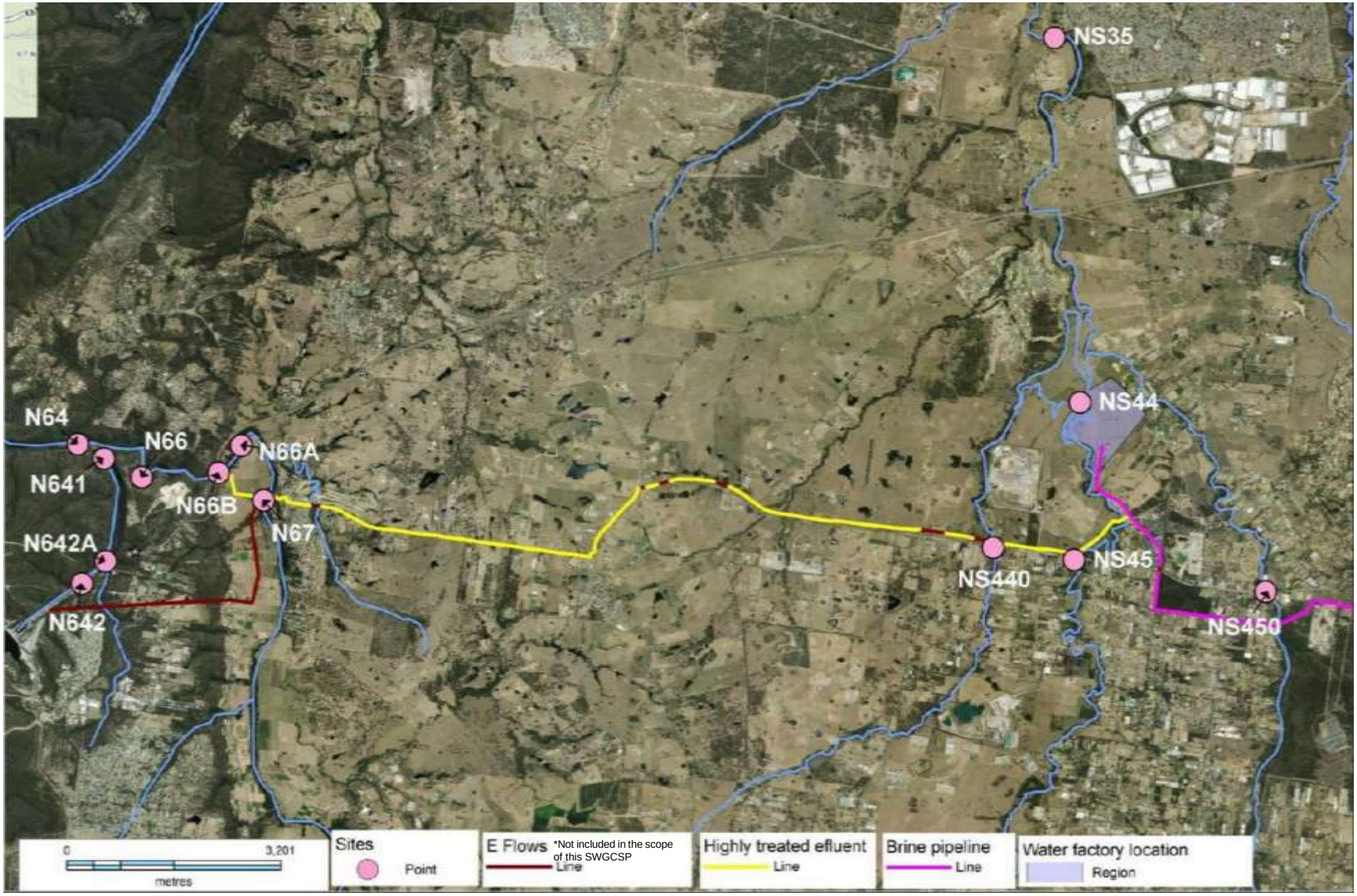


Table 5.3-1 Baseline water quality monitoring program data summary (Median values)

Location	DO (% satn)	EC (µS/cm)	pH (pH units)	Turbidity (NTU)	TN (mg/l)	TP (mg/l)
South Creek						
NS45 (upstream)	73	1023	7.4	41	1.67	0.21
NS44 (immediately downstream)	88	931	7.5	82	1.69	0.18
NS35 (further downstream)	80	928	7.5	68	1.73	0.14
Kemps Creek						
NS450 (upstream)	77	1,341	7.5	24	2.27	0.61
Badgery's Creek						
NS440 (upstream)	60	904	7.2	11	1.48	0.16
Relevant performance criteria*	***43 - 75***	***1,103***	***6.2 - 7.6***	***50***	***1.72***	***0.14***
Nepean River						
N67 (upstream 1)	94	379	7.5	7.2	0.98	0.02
N66A (upstream 2)	97	347	7.5	6.2	nd	nd
N66B (downstream)	98	348	7.6	6.2	nd	nd
N66 (further downstream)	99	328	7.6	6.8	1.33	0.02
N64 (d/s Warragamba)	96	336	7.6	6.0	1.27	0.02
Location	**DO (% satn)**	**EC (µS/cm)**	**pH (pH units)**	**Turbidity (NTU)**	**TN (mg/l)**	**TP (mg/l)**
Warragamba River						
N642 (upstream)	86	245	7.0	4.9	0.18	0.01
N642A (downstream)	98	208	7.5	7.2	0.66	0.01
N641 (further downstream)	100	248	7.5	2.8	0.41	0.01
ANZECC default trigger value**	***85 - 110***	***125 - 2,200***	***6.5 – 8.0***	***6 - 50***	***0.35***	***0.025***

Cell colouring: Red indicates value outside the guideline value range; Green indicates all measured values within the guideline value range; Grey indicates no data (nd) or no guideline value
*Represents laboratory reporting limit
**Draft Wianamatta-South Creek Waterway Health Objectives (DPIE, 2020)
***Guideline values for lowland rivers in south-east Australia with slightly disturbed ecosystems (ANZG, 2018)

Source: EIS Appendix K Table 5-10

Table 5.3-2 Baseline monitoring program water quality data (95th percentile values)

Location	DO (% satn)	EC (µS/cm)	pH (pH units)	Turbidity (NTU)	TN (mg/l)	TP (mg/l)
South Creek						
NS45 (upstream)	98	1,268	7.6	130	2.58	0.36
NS44 (immediately downstream)	119	1,203	8.2	131	2.31	0.29
NS35 (further downstream)	91	1,171	7.6	225	2.53	0.24
Kemps Creek						
NS450 (upstream)	94	2,660	7.7	114	6.99	0.85
Badgery's Creek						
NS440 (upstream)	72	1,086	7.3	54	2.49	0.29
Relevant performance criteria*	***43 - 75***	***1,103***	***6.2 - 7.6***	***50***	***1.72***	***0.14***
Nepean River						
N67 (upstream 1)	110	492	8.1	13	1.91	0.05
N66A (upstream 2)	99	450	7.7	14	nd	nd
N66B (downstream)	100	448	7.7	13	nd	nd
N66 (further downstream)	102	449	7.8	11	1.75	0.04
N64 (d/s Warragamba)	108	420	7.6	12	1.57	0.03
Warragamba River						
N642 (upstream)	109	317	7.5	12	0.69	0.01
N642A (downstream)	108	226	7.7	13	0.90	0.01
N641 (further downstream)	113	296	7.9	15	0.80	0.02
ANZECC default trigger value**	***85 - 110***	***125 - 2,200***	***6.5 – 8.0***	***6 - 50***	***0.35***	***0.025***

Cell colouring: Red indicates value outside the guideline value range; Green indicates all measured values within the guideline value range; Grey indicates no data (nd)
*Represents laboratory reporting limit
** Draft Wianamatta-South Creek Waterway Health Objectives (DPIE, 2020)***Guideline values for lowland rivers in south-east Australia with slightly disturbed ecosystems (ANZG, 2018)

Source: EIS Appendix K Table 5-10

5.3.4.1 South Creek

The following points summarise the monitoring results for South Creek:

- Localised exceedances of Dissolved Oxygen (DO), turbidity, Total Nitrogen (TN) and Total Phosphorus (TP) (median values)
- 95th Percentile values indicate exceedances have been observed across all indicators and sites, except pH values at NS45 and NS35 that have maintained acceptable levels throughout the monitoring period assessed.

5.3.4.2 Kemps Creek

The water sampled in Kemps Creek indicates a similar profile to the South Creek water, with elevated nutrient concentrations, however slightly lower turbidity observed. The available historic samples support this observation, but also indicate lower DO values at the time, while still exceeding the current relevant performance criteria.

5.3.4.1 Badgerys Creek

Badgerys Creek results indicate a significantly closer alignment to the set performance criteria compared to Wianamatta-South Creek and Kemps Creek. When considering the median values minor exceedances in TP are noted and the 95th percentile values indicate turbidity and nutrient level exceedances. Evidence of algal blooms at the Elizabeth Drive crossing in April 2020 are also noted in the stagnant water observed within the creek drainage line, which could be indicative of the large variation in DO levels noted at this location.

5.3.4.2 Nepean River

The monitoring results available for the Nepean River show median values all within the acceptable ranges, except for TN, which is elevated throughout the reach monitored. The 95th percentile values mostly meet the required criteria, however the upper limit TP values observed all exceed the adopted trigger value. The water quality profile throughout the reach is relatively stable, with only conductivity clearly showing a slight decreasing trend as one progresses downstream.

5.3.4.1 Water Quality Summary

The creeks located in the project area are characterised by overall poor water quality with low DO, elevated EC and nutrient concentrations associated with run off from saline soils and agricultural land use within the catchment. The levels of pH and turbidity were generally within the guideline ranges, with some exceedances of upper limit turbidity presumably during low flow algal bloom events or rainfall events with high suspended matter captured from storm runoff. The historical representativeness of this data has not been evaluated and it has not been established if they represent a full range of hydrological conditions (i.e. zero, low, intermediate and high flow events).

Water quality in the Nepean River is generally good, with the median and 95th percentile values for most criteria within the acceptable ranges. Exceedances associated with nutrient levels are more common, however it should be noted that the numerical criteria applied within these rivers are significantly lower than those applied for the Wianamatta-South Creek catchment.

By exception, the water quality monitoring results for the local creeks indicate exceedances of the Draft Wianamatta-South Creek Waterway Health Objectives (DPIE, 2020) across all indicators.

Low order ephemeral creeks in this area often form disconnected 'chain-of-ponds' which do not flow for a large proportion of time. Low frequency-high magnitude rainfall events trigger flow due to initiation of overland flow pathways in the sub-catchments to the channels. These tend to occur in a short-wet season between November and March. Furthermore, there is a sampling bias towards easy to access sampling locations at bridge crossings where pools have been widened to improve flood flow conveyance – even when these pools contain water, the majority of the creek channel may be dry and the resulting stagnation and evaporation processes have the potential to significantly alter water chemistry.

5.4 Groundwater

Based on the regional geology and EIS reports, groundwater resources in the project area are expected to comprise of two main aquifer systems, including:

- Unconfined to semi-confined (Alluvial) groundwater systems associated with Quaternary alluvial deposits, most prevalent in areas surrounding the rivers and streams that intersect the project; and
- Unconfined to semi-confined (Bedrock) groundwater systems within the bedrock formations comprising dual porosity (fractured and porous rock) aquifers (Wianamatta Group formations overlying Hawkesbury Sandstone).

5.4.1 Alluvial Groundwater Systems

These areas are associated with infilled incisions in the underlying bedrock formed by river/stream erosion. Alluvial deposits comprise fine-grained sand, silt and clay and are expected to be relatively thin (i.e. between 2.5 to 7.0 m in vertical thickness).

The width of the alluvium deposits around the rivers/streams are approximately 900 m for the Nepean River, 600 m for Badgerys Creek, 850 m for South Creek, 450 m for Kemps Creek and 1,500 m for Cabramatta Creek. A larger area of alluvial deposition is present at the intersection between Kemps Creek, South Creek and Badgerys Creek, with a width of approximately 1,600 m. Larger vertical thicknesses of the alluvial deposits are expected to occur in these areas.

These deposits form predominately unconfined aquifers that are likely connected to the associated rivers/streams and responsive to rainfall. The presence of clays in the alluvial deposits may form localised aquitards leading to semi-confined groundwater conditions in some areas.

5.4.2 Bedrock Groundwater Systems

The hydrostratigraphic units present within the bedrock groundwater systems are detailed in Table 5.4-1 and are summarised as:

- Residual / regolith soils associated with weathered Bringelly Shale. Comprising floodplain alluvial soils, weathered shale and saprolite.
- Upper aquifer within the Wianamatta Group, weathered/fractured Bringelly Shale, with typical vertical thicknesses ranging between 3 to 10 m. Fractures formed by weathering of the Bringelly Shale are typically filled with clays and silty clays of medium to high plasticity and low permeability where this is encountered.
- Lower aquifer within the Wianamatta Group, occurring at the base of weathering, comprising fine-grained mudstone/shale. Some degree of widely spaced fracturing may be present allowing some groundwater flow, however in unfractured areas the shale will be effectively impermeable.
- Hawkesbury Sandstone aquifer, strongly influenced by secondary porosity, with groundwater flow occurring mostly through fractures along joints and/or shear zones. Rock defect characteristics within this hydrostratigraphic unit are influenced by depth and in-situ stress conditions, in addition to regional structural features.

Table 5.4-1 Summary of hydrostratigraphic units

Hydrostratigraphic Unit	Approximate thickness (m)	Porosity (%)	Hydraulic Conductivity (m/day)	Storage Properties (unitless)
Quaternary alluvial aquifer	2.5 – 9.0	26% – 57%	0.017 – 1.287	Specific Yield (S_y) = 0.06 (clays) to 0.33 (fine-grained sand)
Residual / regolith soils associated with weathered Bringelly Shale	1 - 5	26% - 45%	0.05 – 0.484	Specific Yield (S_y) = 0.06 (clays) to 0.33 (fine-grained sand)
Upper Wianamatta Group (Bringelly Shale), weathered zone with fractures	10	1% - 45%	$0.01 – 1 \times 10^{-5}$	Storativity (S) = 0.00005 (shales) to 0.001 (sandstone)
Lower Wianamatta Group (Bringelly Shale, Minchinbury Sandstone and Ashfield Shale), widely spaced fractures.	120	1% – 10%	$0.001 – 1 \times 10^{-8}$	Storativity (S) = 0.00005 (shales)
Hawkesbury Sandstone	250	14% - 49%	0.01 – 0.5	Storativity (S) = 0.00005 (shales) to 0.001 (sandstone)

Source – USC AWRC EIS Appendix M Groundwater Impact Assessment (Table 4-6)

5.4.3 Groundwater Chemistry

Previous groundwater investigations in the region indicate the dominant groundwater chemistry type is sodium chloride. These investigations reported Total Dissolved Solids (TDS) in groundwater of between 2,650 to 19,500 mg/L. These results correspond with the brackish to saline groundwater expected across the majority of the desktop assessment area. Electrical conductivity ranges for Mulgoa, Greendale, Upper South Creek and Upper South Creek Variant A hydrogeological landscape (HGL) groups, have maximum values that exceed the project waterway objectives criteria of 125 – 2200 µS/m.

Groundwater is expected to be brackish to saline across a significant portion of project area (e.g. Upper South Creek HGL), with some small areas of fresh water (e.g. in the Hawkesbury and Mid-Nepean HGLs).

The groundwater across the majority of the desktop assessment area is of relatively poor quality and has low potential for beneficial use for agricultural and potable purposes. Salinity, metals and nutrients in the groundwater may require management during construction and operation, particularly in relation to the potential impacts to surface water bodies and groundwater dependant ecosystems present in the impact assessment area.

5.4.4 Groundwater Contamination

Groundwater toxicants may be present in the project area, associated with anthropogenic influences such as widespread agricultural land use, areas of disturbed terrain, landfilling etc. Exceedances of the adopted project waterway objectives have been reported for heavy metals (copper, arsenic, nickel and zinc), speciated nitrogen (nitrogen and ammonia), sodium and TDS have been identified in previous investigations in the region (RMS, 2019). Project specific measures for management of contamination, including groundwater contamination, are detailed in the SCCSP.

5.4.5 Groundwater Levels and Flow

The alluvial groundwater systems are expected to be characterised by a shallow water table and local scale flows with the direction controlled by the proximity to local surface water bodies and areas of higher permeability soils. Shallow groundwater through unconsolidated and surface material flows (i.e. alluvial groundwater systems) tend to be much faster relative to consolidated rocks in the Wianamatta Group (Stammers, 2012; Bradd et al., 2012).

The underlying bedrock aquifers (Wianamatta Group formations and Hawkesbury Sandstone) are expected to present intermediate and regional scale flows with directions generally consistent with topography. The following points summarise the groundwater contours for the area, as depicted in Figure 5.4-1:

- From west to east, groundwater elevations range from 90 mAHD in Luddenham to 35 mAHD in the vicinity of the AWRC site, indicating intermediate/regional groundwater flow is in an easterly direction between these areas.
- Continuing from west to east, groundwater elevations range from 35 mAHD in the vicinity of the AWRC to 112 mAHD in Cecil Park, indicating intermediate/regional groundwater flow is in a westerly direction between these areas.
- Therefore, groundwater levels and flow appear to converge towards the low-lying areas in the vicinity of Badgerys Creek, South Creek, Kemps Creek and the AWRC site, which is consistent with local topographical observations. Hydraulic gradients in this central area are relatively low, in comparison to surrounding gradients from the east and west.

In addition to the groundwater investigations undertaken as part of the development of the EIS, additional site investigations for the purpose of furthering the design of both the AWRC and the treated water and brine pipelines has been undertaken by the project following contract award. The following observations have been made regarding groundwater levels relative to the design of the AWRC site and proposed depths of both the treated water and brine pipelines:

AWRC Site

3 additional geotechnical boreholes were established at the AWRC site, at key locations relative to significant structures on site, including the bioreactor and inlet structure. In consideration of the results from these boreholes and historical information obtained during the development of the EIS and subsequent preliminary groundwater monitoring events undertaken by Sydney Water (USC AWRC Pre-construction Groundwater Monitoring Event Report, Aurecon Arup, April 2022), groundwater at the AWRC site ranges from 0.5 – 1.0m below ground level (mbgl) at monitoring wells in close proximity to South and Kemps Creek; and high variability in monitoring well readings from the south to the north of the site, ranging between 1.3 - 2.4mbgl, respectively.

Brine Pipeline

41 additional geotechnical boreholes were established along the proposed alignment, including at key waterway crossings, roadways and intersections, railway corridors and existing critical utilities. Groundwater was encountered in 17 of the boreholes with the average depth of groundwater being 2.85mbgl. The average excavation depth for the BP is 1.8m, indicating that interaction with groundwater during pipe installation will likely be minimal.

Treated Water (TW) Pipeline:

28 additional geotechnical boreholes were established along the proposed alignment, including at key waterway crossings, roadways and intersections. Groundwater was encountered in 21 of the boreholes with the average depth of groundwater being 3.74mbgl. The average excavation depth for the TW is 2.5m, indicating that interaction with groundwater during pipe installation will likely be minimal.

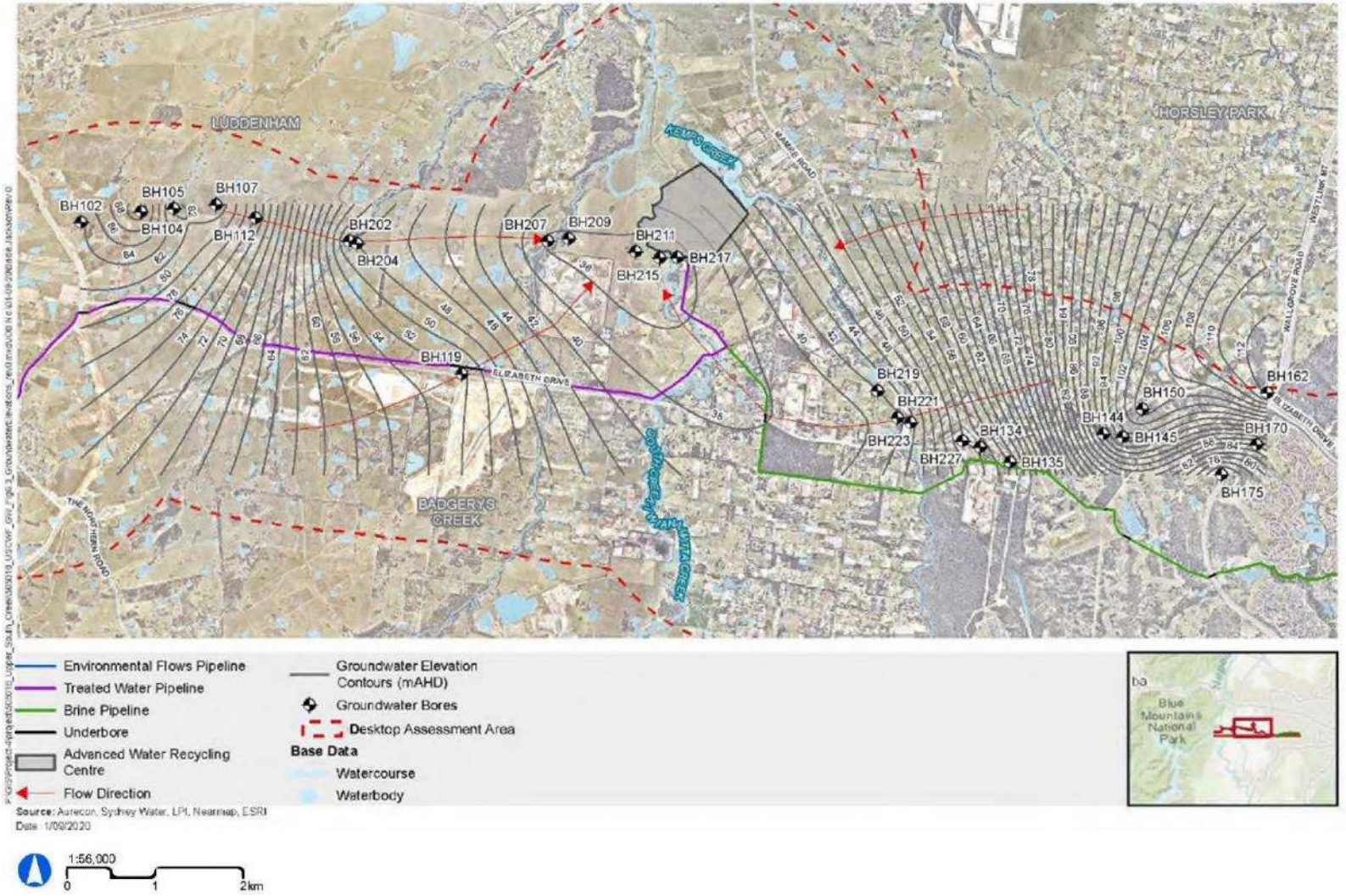
5.4.6 Groundwater Dependent Ecosystems (GDEs)

Groundwater Dependent Ecosystems (GDEs) are ecological communities that rely upon groundwater, either entirely or in part, for their health or survival. A review of the Water Sharing Plan for the Greater Metropolitan Region Groundwater Sources 2011 Schedule 4 indicated that there are no high priority GDEs within the project area. Further assessment of GDEs is provided in the EIS Appendix H Aquatic Ecosystem Assessment report.

5.4.7 Existing Groundwater Users

The project is covered under the Water Sharing Plan (WSP) for the Greater Metropolitan Region Groundwater Sources 2011. Within the Sydney Basin Central groundwater sources, there are currently 171 aquifer access licenses, with a total licensed extraction volume of 3,629.5 ML/year. The long-term average annual extraction limit for the Sydney Basin Central groundwater source is 45,915 ML/year, which approximates to 20% of the total estimated annual aquifer recharge rate of 229,223 ML/year for the area (NSW Office of Water, 2011). Therefore, there are currently large volumes of unallocated groundwater in the project area. Both alluvial and porous/fractured rock aquifers intersected by the project are within a “less productive groundwater source” category as defined by the NSW Aquifer Interference Policy criteria based on the relatively low number of registered supply bores, expected low yields and poor water quality (high salinity).

Figure 5.4-1 Groundwater Elevations – Intermediate/Regional Groundwater Flow



Source: EIS Appendix M Figure 4-27 adapted from M12 EIS, Aug.2018.

6 Environmental Aspects & Construction Impacts

6.1 Construction Activities

Key aspects of the project that could result in adverse impacts to surface water and groundwater include:

6.1.1 AWRC Site

- Site establishment and the installation of site runoff controls;
- Clearing of vegetation and mulching at the proposed treatment plant site;
- Demolition of existing buildings;
- Bulk earthworks. Typical tasks include:
  - Grubbing;
  - Removal and stockpiling of topsoil for re-use later (following chemical and geotechnical testing for suitability);
  - Cut and fill to bench levels with import of quality engineered fill as required and removal of any excess / poor quality material if it cannot be re-used on site elsewhere for landscaping purposes; and
  - Fill placement in layers, which is compacted before the next layer is added. The fill depth on this site would generally increase from southeast to northwest.
- Excavation for construction of below surface infrastructure, including targeted dewatering of surficial local aquifer systems to required depths (if encountered);
- Installation of subfloor drainage, foundations and underground infrastructure;
- Installation of aboveground civil works, mechanical and electrical plant and equipment;
- General landscaping, in accordance with project's approved urban design and landscaping strategy;
- Commissioning and testing.

Water would be used during construction for a range of purposes including excavation, dust suppression, compaction, drilling, hydrostatic testing, materials preparation and use, and amenities for the construction workforce. Construction areas and access tracks would be watered to supress dust, with the frequency of watering dependent on wind, temperature and rainfall conditions.

6.1.2 Pipeline Sites

- Establishment of construction compounds / ancillary facilities;
- Progressive clearing of vegetation along the routes:
  - Stormwater and runoff management (e.g. installation of appropriate erosion and sediment controls);
  - Grubbing; and
  - Removal and stockpiling of topsoil (where encountered) for re-use later (following chemical and geotechnical testing for suitability).
- Targeted dewatering of surficial local aquifer systems to required depths (if required).
- Excavation for construction of below surface infrastructure including:
  - Temporary pipe jacking works;
  - Open trench excavation, including open trenches in creek lines (if not suitable for trenchless crossings);
  - Discharge outlets at waterway;
- Installation of foundations, pipelines and underground infrastructure;
- Installation of aboveground civil (access roads, discharge headwalls), mechanical and electrical plant and equipment; and
- Commissioning, hydrostatic testing and discharge of water.

Different construction methods are proposed along the pipeline routes. Trenchless methodologies, including Horizontal Directional Drilling (HDD) and micro-tunneling, will be used at most watercourses or where infrastructure intersections with the pipeline occur. Trenchless sections completed using HDD generally involve the activities listed above, in addition to the following:

- Mobilising the drill equipment and installing measures to manage groundwater if required.
- Excavating launch / retrieval pits, as required.

- Injecting a bentonite-based drilling fluid to lubricate the drill head and flush the drilled hole. Removed drill cuttings to be contained, collected and recycled/disposed.
- As the HDD bore and drill head advances, a casing pipe and the pipeline is inserted while grouting the annulus.

Trenchless sections completed using micro-tunneling / pipe-jacking generally involve the activities listed above, in addition to the following:

- Establish launch and reception shafts, install jacking frame and headwalls.
- Mobilising the drill equipment and installing within the launch pit, including measures to manage groundwater if required.
- Remove drilling fluids and cuttings via vacuum extraction.
- Once the jacking pipe reaches the reception shaft, the pipeline is inserted, and annulus is grouted.

6.2 Surface Water Impacts

Potential impacts on surface water during construction of the project are summarised in Table 6.2-1.

Relevant aspects and the potential for related impacts to this SWGCSP have also been considered in the risk assessment presented in Appendix A4 of the CEMP and are summarised below.

Table 6.2-1 Summary of potential surface water impacts during construction activities.

Item	Construction Activity	Location	Potential Impact
1.	Clearance of vegetation, earthworks, and stockpiling	AWRC site; pipeline corridors; and access roads.	• Discharges of sediment-laden stormwater from stockpiled sites and cleared areas to receiving waterways resulting in sedimentation within adjoining or downstream watercourses • Increased loading of nutrients (dissolved and particulate-bound) from exposed surfaces and stockpiled materials into adjacent watercourses from site runoff. This process has the potential to simulate the growth of nuisance plants, algae and cyanobacteria • Tannin leachate from clearing and mulching discharging to near site drainage pathways resulting in eutrophication, altered water pH, reduced available oxygen and visual aesthetic issues • Mobilisation of contaminants, resulting in impacts to surface waters offsite. Indicators of contamination may include odour, discolouration, sheen, free phase liquids, foaming, stressed or dead flora and / fauna (for example, fish kills).
2.	Disturbance and/or demolition of existing structures	AWRC site; and pipelines.	Any ground disturbing activity and waste materials such as concrete, plasterboard, timber, asbestos and contaminated soil spreading via surface run-off to near site drainage pathways
3.	Excavation, dewatering and installation of underground infrastructure and discharge structures	AWRC site; and pipelines:	Runoff or unintended dewatering and discharge of contaminated (including sediment-laden) water from excavations or stockpiles, altering pH and water quality and causing potential soil contamination incidents and possible downstream ecological impacts.
4.	Sediment discharges during construction and discharges from the sediment basin or basin dewatering activities	AWRC site:	Discharges from sediment basins or any required dewatering activities (where water quality is proven acceptable for discharge) may mobilise sediments at the discharge point and increase the turbidity of the receiving waters.
5.	Construction of pipelines and pipeline discharge structures within waterways	Pipelines:	River flow events overtopping cofferdams, sending water into the construction works site of pipeline discharge structures may mobilise sediments and increase the turbidity of the receiving waters. Discharging construction water and water from hydrostatic testing into waterways

Item	Construction Activity	Location	Potential Impact
6.	Compaction, concreting and installation of impervious surfaces and pavements	AWRC site; pipelines; and access roads:	• Release of alkaline concrete wash water, which may cause localised soil, surface water or groundwater contamination and possible downstream ecological impacts due to altered water pH. • Changes in volumes and rates of flow to the receiving creeks. • Worsening flood conditions (flow rates) downstream of the site. • Increased risk to the WaterNSW Pipeline (known as the Warragamba Pipeline) crossing South Creek approximately 2.7 km downstream of the site (AWRC site only)
7.	Leaks/spills: Spills of chemicals, heavy metals, oils, and petroleum hydrocarbons during the use and operation of machinery Storage, transport, use and handling of chemicals	AWRC site; and pipelines:	• Potential to introduce surface contaminants to surface water runoff and impact the quality of surrounding surface waters through contaminated stormwater discharges and plant wash down routines. • Acute impacts to ecosystems receiving surface water run-off; in particular, the discharge location to South Creek. • Leakage from construction worker ablution and toilet facilities or wastewater collection points with subsequent runoff into receiving watercourses.
8.	Water demand and sourcing	AWRC site:	Impact on regional and and/or local water resources.
9.	Trenching / Direct disturbance of watercourse bed and / or banks	Pipelines:	• Temporary obstruction and interference with normal drainage channels and subsequent ponding or damming of water upstream. • Obstruction of surface drainage from the contributory sub-catchments leading to unnatural dried channels downstream, if conducting works during periods when surface flow would usually be occurring. • Increases in sedimentation directly upstream from in-channel works as a result of ponding and associated decreases in flow velocity. • Removal of riparian vegetation and topsoil during construction causing creek bank instability, increasing the risk of erosion and sedimentation of waterways. • Deterioration in visual water quality due to trapping of coarse litter upstream from crossings.
10.	HDD and micro tunnelling	Pipelines:	• Fluid loss during any HDD (uncontrolled release of drilling fluid escaping from the borehole through fissures or weakness in the substrate (frac-outs) resulting in increased sedimentation, turbidity and/or contamination in watercourses). • Discharge of contaminated hydrostatic test water.
11.	Horizonal directional drilling under a watercourse	Pipelines:	Disruption of surface water and groundwater connectivity

6.3 Groundwater Impacts

Potential impacts on groundwater during construction of the project are summarised in Table 6.3-1.

Relevant aspects and the potential for related impacts to this SWGCSP have also been considered in the risk assessment presented in Appendix A4 of the CEMP.

Table 6.3-1 Summary of potential groundwater impacts during construction activities.

Item	Construction Activity	Location	Potential Impact
1.	Excavation, dewatering and installation of underground infrastructures	AWRC site and pipelines	• Induced drawdowns from required dewatering activities, reducing the availability of groundwater for GDEs and surrounding groundwater users.
2.	HDD and micro tunnelling	Pipelines	• Groundwater seepage and/or unintentional return of drilling fluid to the surface or waterways via preferential pathways (e.g. fault lines, fractures or loose materials) during HDD construction (frac-outs). • Discharge of contaminated hydrostatic test water
3.	Excavation, dewatering and installation of underground infrastructures. ASS risk areas are present around Georges River and Prospect Creek in the eastern portion of the desktop assessment area	AWRC site and pipelines	Mobilisation and migration of saline or contaminated groundwater or acid sulfate soils, altering pH and water quality and causing potential soil contamination and possible downstream ecological impacts. Indicators of contamination may include odour, discolouration, sheen, free phase liquids, foaming, stressed or dead flora and / fauna (for example, fish kills) in downstream habitats.
4.	Discharges from dewatering activities	AWRC site and pipelines	Discharges of wastewater from any required dewatering activities may mobilise sediments and contaminants and increase the turbidity and reduce the water quality in receiving waters
5.	Compaction, concreting, and installation of impervious surfaces and pavements	AWRC site, pipelines and access roads	• Release of alkaline concrete wash water, which may cause localised soil, surface water or groundwater contamination and possible downstream ecological impacts. • Change the volumes and rates of groundwater recharge.
6.	Excavation, dewatering and installation of underground infrastructures	AWRC site and pipelines	Interception of aquifers during excavation, leading to increased hydraulic connection between otherwise disconnected aquifers and/or lateral migration of groundwater along pipeline backfill material. Affecting water quality, hydraulic gradients, and flow regimes in the groundwater systems.
7.	Horizonal directional drilling (HDD) under a watercourse	AWRC site and pipelines	Disruption of surface water and groundwater connectivity

7 Environmental Controls and Management Measures

A range of environmental requirements and control measures are identified in the EIS, Submissions Reports and Amendment Report, in addition to the project conditions of approval (CoA), licences and permits. Based on these requirements, the *Technical Guidance for achieving Wianamatta-South Creek stormwater management targets* and additional best practice surface water and groundwater management measures, a summary of the specific surface water and groundwater management measures to be applied during the construction phase of the project are provided in Table 7.16-1 below.

The management measures of this SWGCSP will be implemented to avoid, minimise or manage impacts to surface water and groundwater. Further details are provided in Sections 7.1 to 7.15 below and in the appendices to this SWGCSP. Section 8.3 of this plan provides further details regarding monitoring and inspections.

The Technical Guidance for achieving Wianamatta-South Creek stormwater management targets sets construction phase targets that the project will comply with, these are listed in Table 7- 1 below and in Appendix A – Dewatering procedure.

Table 7- 1 Construction water quality targets

Parameter	The Technical Guidance for achieving Wianamatta-South Creek stormwater management targets (reduction in mean annual load from unmitigated development) & DWSADCP 2021 (Section 9.6.2 PO1-PO5)	Draft Western Sydney Aerotropolis Development Control Plan 2021 (Section 4.3.2 PO1)
Total suspended solids (TSS), pH and chlorine	All exposed areas greater than 2500 m2 are to be provided with sediment controls which are designed, implemented and maintained to a standard that would achieve at least 80% of the average annual runoff volume of the contributing catchment (i.e. 80% hydrological effectiveness) to 50mg/L Total Suspended Solids (TSS) or less, and pH in the range (6.5–8.5) No release of coarse sediment is permitted for any construction or building site. Sites less than 2,500m2 are required to comply with the requirements of Managing Urban Stormwater – Soils and Construction (The Blue Book). It's noted that a TSS/NTU correlation has been completed which determined that 50mg/L TSS is equivalent to an NTU of 36.45. The discharge criteria for pH is between 6.8 and 8.5. The discharge criteria for hydrostatic testing for chlorine is 0.5mg/L. This discharge criteria has been provided in EPL 21800 and in Appendix A – Dewatering procedure.	90% reduction (minimum) in mean annual load from unmitigated development.
Oil, litter and waste contaminants	No release of oil, litter or waste contaminants.	No release of oil, litter or waste contaminants.
Stabilisation	Prior to completion of works for the development, and prior to removal of sediment controls, all site surfaces are to be effectively stabilised including all drainage systems. An effectively stabilised surface is defined as one that does not or is not likely to result in visible evidence of soil loss caused by sheet, rill or gully erosion or lead to sedimentation water contamination.	Prior to completion of works for the development, and prior to removal of sediment controls, all site surfaces must be effectively stabilised including all drainage systems. An effectively stabilised surface is defined as one that does not,or is not likely to, result in visible evidence of soil loss caused by sheet, rill or gully erosion or lead to sedimentation water contamination.

7.1 Acid Sulfate Soils

Measures to manage potential (PASS) and actual acid sulfate soils (ASS) are documented in the Soils and Contamination CEMP Sub-Plan (Section 6.3 of the SCCSP).

7.2 Contaminated Land

Measures for the handling, treatment and management of hazardous and contaminated soils and materials, including measure to manage asbestos finds, are documented in the Soils and Contamination CEMP Sub-Plan (Section 6.5 of the SCCSP).

7.3 Dewatering Procedure

Measures for dewatering are documented in the Dewatering Procedure, included as Appendix A. The procedure describes how John Holland proposes to manage the dewatering of sediment basins, hydrostatic testing dewatering and other areas of captured site water, including requirements for the storage, transport, treatment, testing and disposal of this water.

Site water must be treated to an acceptable standard before it is discharged from the site to the environment. As detailed further in the Dewatering Procedure, a John Holland water discharge permit must be obtained prior to any discharge of site water and must be approved by the Environment Manager prior to each discharge event. Refer to Appendix A for further details, including a copy of the discharge permit performance.

Where groundwater requires management during construction, work methods should identify appropriate trench/shaft support systems (for example sheet piling) in areas with higher hydraulic conductivity and storage properties to minimise groundwater drawdown. This includes all areas mapped as Quaternary alluvial sediments/deposits (Mid-Nepean HGL, Mulgoa HGL, Upper South Creek HGL, Upper South Creek (Variant A) HGL and Moorebank HGL).

7.4 Drilling Fluid Management Procedure

Measures for managing drilling fluids are documented in the Drilling Fluid Management Procedure, included in Appendix B. This includes procedures to:

- identify and manage frac-outs, including at tunnelled crossings;
- contain and monitor drilling fluid at entry/exit points until they can be transported to a licensed waste facility;
- reuse and/or disposal of drilling fluids by appropriately qualified personnel to a licensed facility; and
- prioritising the use of fluids that reduce the risk of seepage into groundwater from boreholes.

Activities in which drilling fluid management is required are reserved for the pipelines portion of the project. The structure and content of the procedure will be dependent on the type of pipeline construction employed by each specialist contractor, for example, horizontal directional drilling (HDD), pipe-jacking or micro-tunnelling. Further details are provided in the Drilling Fluid Management Procedure in Appendix B.

7.5 Erosion and Sediment Control

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 must also be in accordance with 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).

The project has engaged a Certified Professional in Erosion and Sediment Control (CPESC) for the purpose of overseeing all construction and sediment controls required for the project. 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 Erosion and Sediment Control (ESC) Procedure has been established for the project and is detailed in Appendix G. The ESC Procedure includes a detailed flow chart of all erosion and sediment control management and mitigation measures to be implemented.

Site-specific Erosion and Sediment Control Plans (ESCP) will be developed to describe how erosion and sediment impacts, including those affecting receiving catchments intersected by the project, will be controlled and managed during delivery of

the project. ESCPs will be developed with consideration of the staging, chainage and/or work front occupied by the project at any given time, and as such will consider the type, location and sizing of erosion and sediment controls.

ESCPs will be developed, progressively updated and reviewed where necessary by the CPESC and provided to SWC for information. ESCPs will be developed and managed progressively for each work site prior to the commencement of ground disturbance, and as site conditions change. The ESCPs will outline appropriate erosion and sediment controls to minimise soil disturbance (where possible), prevent water pollution and maintain the existing water quality of surrounding surface watercourses. In addition, the ESCPs will consider the construction phase stormwater quality targets in the draft Western Sydney Aerotropolis Development Control Plan – Phase 2 (October 2021) and the guidance provided in the Appendix K – Surface Water Impact Assessment (Aurecon, Arup, 2021d) of the EIS and the Technical Guidance for Achieving Wianamatta South Creek Stormwater Management Targets (DPE, 2022).

The ESCPs will detail the:

- Required erosion and sediment control measures for the site, including construction-phase stormwater management basins (further discussed in Section 7.6)
- Staging of works to minimise disturbed catchment footprints
- An overview of construction activities and their locations if they have the potential to impact on soil disturbance, stormwater flows and groundwater
- Soil and stormwater management controls and site water capture/ filter points
- Details of temporary stockpiles, location and management
- Identification and targeted coordination of activities to ensure undisturbed areas in proximity to those activities remain significantly stable/ protected.
- Details regarding water quality monitoring during sediment basin discharge and event triggered sampling (as detailed in the specific ESCPs), including Design Rainfall Depth (R_2) and details of how samples of discharges from the site will be captured while discharge is occurring.

The Environmental Manager (or delegated representative) will undertake site inspections (Section 8.3), including a review of erosion and sediment controls on-site, ensuring all controls are undamaged, functional, adequate, and installed as per the relevant ESCP for that location. At the direction of the Environmental Manager, the project CPESC will provide advice on erosion and sediment control matters for the duration of construction of the project. The CPESC will also undertake periodic inspections.

All reviews and amendments to ESCPs will be initiated by the Environmental Manager and will be subsequently undertaken in consultation with the Site Supervisor and the project CPESC. The ESCPs are site-level, live documents managed and tracked via Project Pack Web (PPW) and will be reviewed and updated on an ongoing basis by the project team to reflect the current site conditions as required. An initial ESCP has been prepared and is included in Appendix H.

EPL 21800 is in place for the project and John Holland is the licensee. Process and management conditions (O4.1 – O4.5) specify requirements that the project must adhere to regarding erosion management and sediment control. An application to vary EPL 21800 has been approved by the EPA (24 November 2023) for the purpose of enabling construction phase stormwater discharges from site in accordance with the relevant conditions in the license. ESCPs are a key tool in ensuring the implementation of conditions included in the project's EPL. All ESCPs will be progressively updated as required, including with relevant information regarding licenced discharge limits and other requirements accordingly.

7.6 Offsite Stormwater Flows

Offsite stormwater flows from the AWRC during the construction phase have been assessed and documented in:

- the EIS Appendix K Surface Water Assessment;
- the EIS Appendix H Aquatic and Riparian Ecosystem Assessment;
- and the Submissions Report Appendix K Surface Water Assessment.

These documents provide validation that the USC AWRC EIS MUSIC modelling of the reference design complies with the DPE EES Wianamatta-South Creek Stormwater Management Targets for construction and operation.

Section 7.1.1 of EIS Appendix K concludes the flow patterns from the site would not be significantly altered due to the flat nature of the existing site (0.4 to 0.6%) and the proposed reference design grades (0.8%). Impacts to flood flows downstream would not be significant during the bulk earthworks phase and flood detention would not be required until hard surfaces are established. Similarly, EIS Appendix H Section 6.1.3 concluded that the overall, potential impacts to aquatic ecology during construction in the Study Area 1 are considered to be minor, and manageable through mitigation measures included in Section 7.16. As the detailed design has progressed from the EIS reference design to the final design, revised MUSIC modelling has been undertaken by the project and has confirmed that the final design continues to be compliant with the Wianamatta-South Creek Stormwater Management targets for construction and operation. The water balance for the site under pre- and post-construction conditions is detailed in Figure 7.6-1.

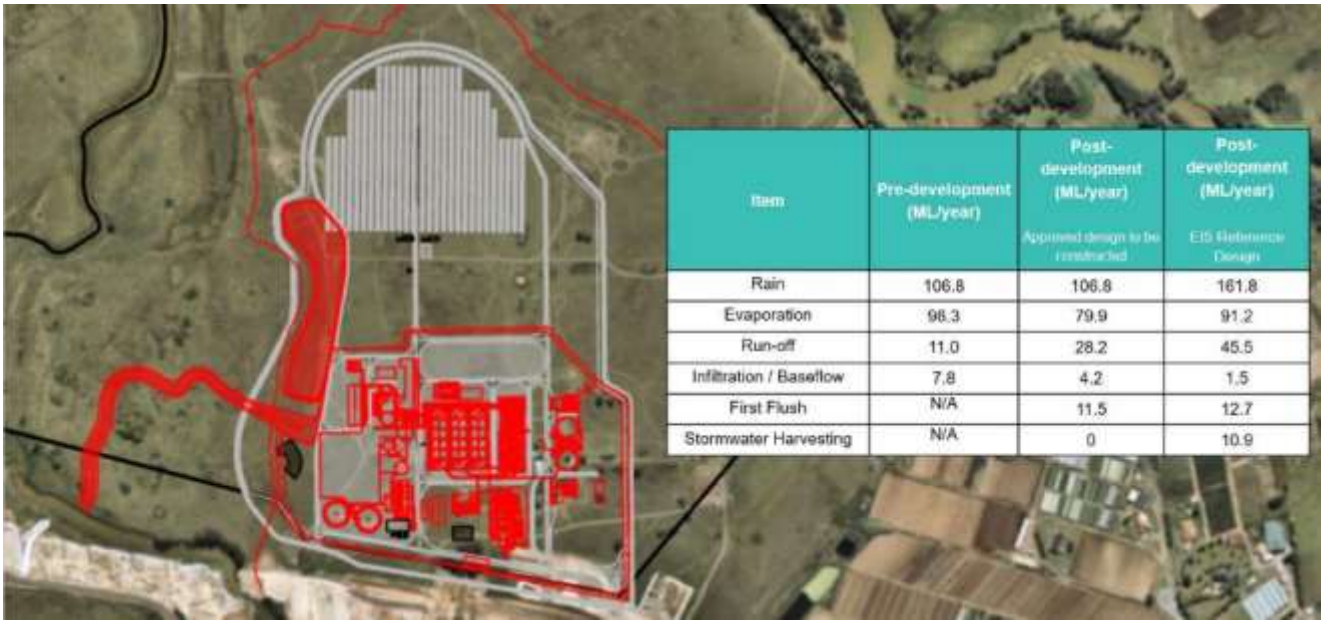
During the construction phase, stormwater management basins will be utilised as sedimentation basins to capture and contain runoff and facilitate sediment removal. The areas associated with the proposed future on-site detention (OSD) basins (Figure 7.6-1), provides a suitable area away from waterways and flooding to be utilised for these basins. The capacity to function as sediment basins was confirmed in accordance with the Blue Book (Soils and Construction Guide Volume [1,] 4th Edition for managing urban stormwater by the NSW government (Landcom, 2004)).

For Blue Book-compliant sediment basin sizing, the disturbed area is approximately 10 ha, with a number of sub-catchments proposed to be established and sub-basins, excavations and sumps utilised to detain water, prior to being transferred to the main OSD basin. The calculations indicate a required storage volume of approximately 1,420m^3. This is significantly less than the current proposed OSD volume of 9,680m^3 and thus the initial use of these areas for sedimentation purposes is expected to be adequate. Construction of the photovoltaic cells, site compounds and landscaping work outside of the catchments mentioned above present a lesser risk of sediment pollution given the smaller extent of ground disturbance. Sediment controls would be installed as necessary and in accordance with the Blue Book and other relevant best practice soil and water management guidelines. An initial ESCP has been prepared and is included in Appendix H and includes a summary of these calculations.

Water supply during the construction phase, including water for bulk earthworks would be provided from a combination of harvested stormwater runoff from within the construction sediment basins and potable water. It is proposed that across the construction site(s), additional temporary basins would be constructed, and existing on-site dams would be repurposed, where possible, to catch and store any runoff for reuse in the bulk earthworks. Mains water supply would be connected to the AWRC site before construction to top up harvested stormwater as required. The re-use of local runoff is expected to reduce the external demand significantly.

Wastewater services would likely be provided via temporary portable ablutions blocks or a temporary septic system as sewer will not be connected prior to or within the early stages of construction. Selection of the preferred wastewater service will be determined by the project team as construction planning continues, including site establishment.

Figure 7.6-1 Water balance pre- and post-development

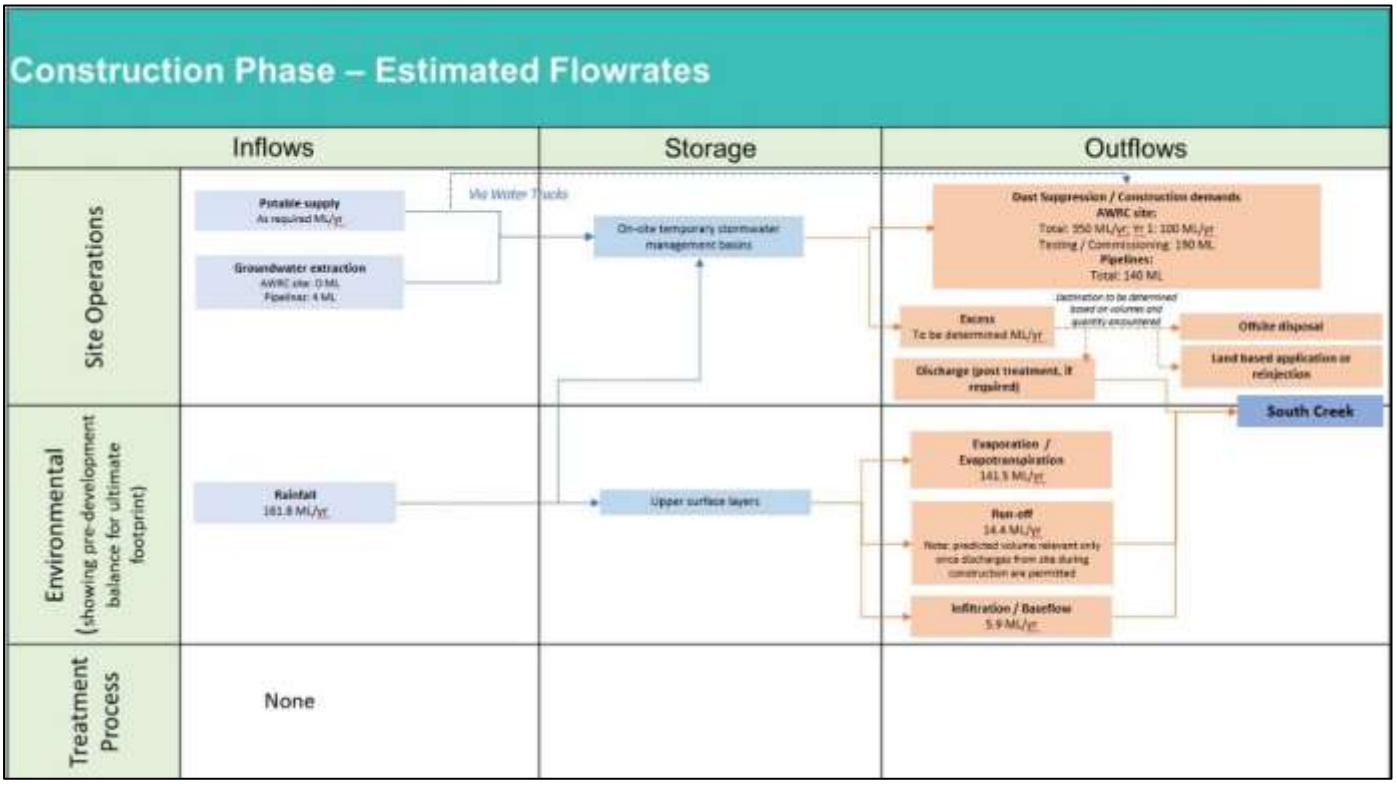


In addition to the information presented above for Blue Book compliant sediment basins, the calculation provided in Appendix H confirms that the flood detention basin to be constructed as part of the operational design, also provide sufficient volume for sediment controls during construction, should the project choose to implement high efficiency sediment basins (HES). These flood detention basin volumes provide the required 196 m^3/ha of storage to achieve the site sediment management approach, if operated as HES.

Either management approach, whereby the flood detention storages are used as traditional construction sediment basins or HES, will be able to meet the construction phase stormwater targets related to Total Suspended Solids (TSS) (50 mg/L or less) prior to each planned discharge following stormwater and runoff events from the construction areas. The AWRC design provides a treatment train with sufficient footprints, volumes and allowance to achieve the construction and operation stormwater quality targets established in the Wianamatta-South Creek Stormwater Management Targets, detailed in Figure 7.6-2.

Requirements regarding construction phase stormwater discharges from EPL 21800, including discharge criteria, are provided in Section 3.5.1 and in the Dewatering Procedure (Appendix A).

Figure 7.6-2 Construction phase estimated flow rates



7.7 Refuelling, Maintenance and Chemical Storage

The storage, handling and use of dangerous goods and hazardous substances will be in accordance with the Work Health and Safety Act 2011; the Storage and Handling of Dangerous Goods Code of Practice (WorkCover NSW, 2005); the EPA "Bunding and Spill Management Guidelines" contained within EPA Environmental Protection Manual for Authorised Officers; the TfNSW "Code of Practice for Water Management" and all relevant legislation and Australian standards.

The Safety Manager (or delegate) will obtain Safety Data Sheets (SDS) for dangerous goods and hazardous substances prior to their arrival on site. All hazardous substances will be transported in accordance with relevant legislation and codes, including the Road and Rail Transport (Dangerous Goods) (Road) Regulation 1998 and the 'Australian Code for the Transport of Dangerous Goods by Road and Rail' (National Transport Commission, 2008).

All fuels, chemicals, and liquids will be stored in bunded areas on relatively flat land, at least 50 metres away from waterways (including existing stormwater drainage systems) and flood prone areas.

The refuelling and maintenance of plant and equipment, and any other activity which may result in spillage of a chemical fuel or lubricant will be undertaken in a designated sealed bunded area (including spill trays and plant nappies where spill kits are available). Refuelling will not be undertaken within 50 m of any waterway. Refuelling activities will be supervised at all times. Where applicable for refuelling activities a Safe Work Method Statement including refuelling requirements, will be completed prior to any work occurring.

Designated impervious bunded washdown facilities for concrete trucks and other vehicles will be provided at least 100 metres from areas prone to flash flooding or 50 metres away from other natural and built drainage lines. Plant and vehicle maintenance, including washdown, if undertaken onsite will be within designated areas to minimise the potential for offsite discharge and mud tracking.

7.8 Saline Soils Management

Management measures and requirements to minimise the impacts of saline soils on the project, are documented in the Soils and Contamination CEMP Sub-Plan (Section 6.4 of the SCCSP).

7.9 Sediment Basin Management

The following section outlines the general measures for sediment basin management. Detailed procedures for sediment basin construction and management are outlined in the Erosion Sediment Control Procedure discussed in Section 7.5 and contained in Appendix G of this plan. Detailed and progressive ESCP's are required to be prepared and updated throughout the project in consultation with the project's CPESC.

The number, location, type and size of sediment basins will be further refined progressively during construction with consideration of the:

- Guidelines in Managing Urban Stormwater: Soils and Construction (Landcom, 2004) (the Blue Book);
- NSW EPA relevant EPL 21800 requirements; and
- Environmental values of the downstream receiving waterway.

Temporary sediment basins will be cleaned out whenever the accumulated sediment exceeds 60% of the sediment storage zone. Accumulated sediment from sediment basins and traps will be removed in such a manner as not to damage the structures. Sediment removed from sediment basins will be appropriately managed to reduce erosion and waste impacts. If sediment is disposed offsite, it must be classified and disposed of to a facility licensed by the EPA to accept the designated waste category.

In accordance with Condition 04.3(a) of EPL 21800, JH will ensure the design storage capacity of any sediment basin installed on the premises is reinstated within the design management period following the cessation of a rainfall event that causes runoff to occur on or from the premises. Design management periods will be detailed in PESCP's which contain sediment basins. This may involve reuse of the water for dust suppression, irrigation within the project boundary or discharging it after appropriate treatment of the water so that it meets EPL-compliant discharge water quality requirements (refer to the Dewatering Procedure in Section 7.3). Captured stormwater should be re-used for construction activities, whenever possible.

Temporary sediment basins will remain in place until upstream areas have been vegetated or otherwise stabilised in accordance with the Blue Book (Landcom, 2004).

In accordance with condition 04.3(b) of EPL 21800, records of the available water and sediment storage capacities in each sediment basin will be kept and provided to an authorised officer upon request.

All sediment basins on the premises must be identified in a schedule submitted to the EPA. The schedule, including any proposed updates, will:

a) be submitted to the EPA in electronic format no less than 10 business days prior to the planned commissioning or decommissioning of a sediment basin;

b) include the following information:

i. unique identifiers consistent with the map(s) required by condition P1.2 of EPL21800;

ii. size, type, and discharge criteria, if permitted under condition L2.1 of EPL 21800, for each sediment basin;

iii the design rainfall depth value, water storage capacity and sediment storage capacity for each sediment basin;

iv. criteria for desilting and dewatering that maintains the design storage capacity for each sediment basin;

v. the catchment details and receiving waters of each sediment basin; and vi. easting and northing coordinates for each sediment basin.

7.10 Spill Prevention and Emergency Response

A Spill Prevention and Emergency Response Plan (SPERP) for the project is documented in Appendix B of the SCCSP.

7.11 Stockpile Management

The management of stockpiles on the project, are documented in the Soils and Contamination CEMP Sub-Plan (Section 6.2 of the SCCSP). A Stockpile Management Protocol is included in the CEMP as Appendix A9.

7.12 Tannin Management

Tannins are naturally occurring plant compounds that can leach out of stored or mulched vegetation stockpiled in areas that are subject to inundation or saturation. Tannin impacts may result in dark coloured water discharge from construction sites. This impact can be obvious and may raise the concern of the community and other stakeholders including regulatory authorities. Once discharged to the environment, tannins may reduce visibility and light penetration, increase the biological oxygen demand (BOD) and change the pH of receiving waters. These impacts may affect aquatic ecosystems in receiving environments.

A Tannin Management Plan (TMP) for the project is documented in Appendix D of this Plan and will be implemented if tannin management is required onsite.

7.13 Water Abstraction Management

7.13.1 Water Access Licence

Water will not be extracted from waterways or from groundwater without a sufficient water entitlement held by a Water Access Licence (s) (WAL) to account for the maximum predicted take for each water source prior to the take occurring, and/or written acknowledgement of public authority exemptions from the regulator, specifically the NSW Natural Resources Access Regulator (NRAR). Refer to section 3.5.2 of this plan for further detail.

As detailed in Section 3.5.2, a WAL has been obtained by Sydney Water for the purpose of the USC project, including the security of relevant shares as detailed in WAL 45184, including Miscellaneous Work Order 10MW119341 which links the project to the WAL.

7.13.2 Water re-use

The project aims to minimise the use of potable water during construction and meet targets for use of non-potable water by maximising re-use of reclaimed water. Refer to Section 1.9.3 of the Sustainability Management Plan for water re-use targets. Measures for water re-use including extraction, storage, treatment, suitability testing and application are documented in the Dewatering Procedure contained in Appendix A of this Plan.

7.14 Wet Weather Preparation and Review

Where a wet weather event is predicted, a review of site erosion and sediment controls must be undertaken. Wet weather events may be defined as more than a 50% chance of 10 mm of rainfall or greater triggering the requirement to prepare the site for wet weather. Wet weather sampling in accordance with the Surface Water Quality Construction Monitoring Program will occur when >20 mm rainfall occurs in a 24-hour period.

The erosion and sediment control review will be confirmed by the Environment Manager (or delegate), and include:

- Inspection of the site to ensure that all erosion/sedimentation and stabilisation controls are in place and in effective working order;
- Actions to be taken to prevent any environmental incidents such as potential pollution incidents;
- Measures to be implemented to protect disturbed ground from erosion.

Pre-flood response actions, outlined in the Flood Emergency Response CEMP Sub-Plan (USCP-MPL-G-0028) (FERCSP), will begin on receipt of BOM advice, or when other evidence leads to an expectation of flooding potentially impacting project sites.

Following a wet weather event, a post wet weather inspection will be undertaken to review site performance and repair controls as required. Details regarding the timing and responsibilities of all inspections relevant to this Plan are outlined in Section 8.3.

7.15 Work in Waterways and Waterfront Lands

The relevant requirements have been incorporated into specific management measures in Section 7.16. Works on waterfront land and within water courses for works including outlets and watercourse crossings will be carried out in general accordance with the following guidelines. Further, in-stream works will be being undertaken in accordance with the In-stream Works Procedure provided in Appendix I.

- DPI Fisheries (2013). Policy and Guidelines for Fish Habitat Conservation and Management;
- NRAR (2018). Guidelines for controlled activities on waterfront land – Riparian Corridors;
- NSW Office of Water (2013). Controlled activities on waterfront land – Guidelines for watercourse crossings on waterfront land;
- Landcom (March 2004). Managing Urban Stormwater: Soils and Construction (4th Edition) (reprinted 2006), Volume 1 (the “Blue Book”); and
- IECA (2008). Best Practice Erosion and Sediment Control: Books 1 – 3.
- Technical Guidance for Achieving Wianamatta South Creek Stormwater Management Targets (DPE, 2022)

Where work is required within a waterway, an EWMS for the work(s) will be prepared in consultation with relevant state and or local authorities (including DPE Water, EHG and DPI Fisheries), the project CPESC, and suitably qualified geomorphologist. The EWMS for work in waterways will detail the control measures to avoid or minimise erosion and any adverse impact on water quality and riparian fauna and flora, and include provisions to:

- Plan work to avoid, where practicable, any activities in aquatic habitats and riparian zones;
- Properly protect and signpost as environmentally sensitive areas all waterways in or adjacent to the site which are excluded from the work areas;
- Minimise riparian vegetation removal where practicable, and restrict access to the waterways to the minimum amount of bank length required for the activity;
- Retain stumps in riparian zones and aquatic habitats, where practicable, to reduce the potential for bank erosion;
- Carry out any refuelling of plant and equipment, chemical storage and decanting at least 50 metres away from aquatic habitats unless otherwise approved;
- Consider flood risks and impacts on surrounding properties;
- Provision of innovative all-weather haulage crossings methods that address the above requirements and minimise ongoing maintenance requirements during service;
- Launch and retrieval pits will not be directly on waterfront land and at all trenchless crossings will be a minimum of 75 meters from any waterway.

The following measures will also be carried out to manage activities within watercourses or on waterfront land:

- Work in waterways will be scheduled during periods of predicted low flow wherever possible;
- Implement practices to minimise disturbance of banks and creek beds;
- Where possible, reclaim existing creek/riverbed material and utilise the material in the reconstruction of the creek/river (where it does not present a dispersible soils and subsequent water quality risk);
- Undertake bank stabilisation and install instream structures to contain / manage erosion and sedimentation;
- Progressively stabilise disturbed creeks/ rivers to avoid potential scouring and sedimentation and implement permanent stabilisation measures as soon as practicable;
- Maintain minimum flows to assist in maintaining the viability of aquatic communities and prevent barriers to fish passage;
- Construct instream crossings during low flows and design so that drainage off the crossing does not contribute to the sediment load of the stream;
- All pipeline drainage feature crossings (permanent and temporary watercourse crossings and stream diversions), shallow aquifers, drainage swales and depressions will be designed by a suitably qualified and experienced stormwater professional and will be designed and constructed in accordance with relevant guidelines. Prior to commencement of construction of pipelines across waterways and through shallow aquifers, the project will consult with relevant state and/or local authorities..
- Riparian corridors and banks of watercourses that have been impacted during stage 1 of the project must be rehabilitated and revegetated within three months of the completion of work within a watercourse or any work within the riparian corridor.
- Site-specific geomorphic conditions in each waterway will be managed with inputs from a suitably qualified geomorphologist where required.

7.16 Summary of Management Measures

A summary of the specific surface water and groundwater management measures to be applied during the construction phase of the project are provided in the table below.

Table 7.16-1 Surface water and groundwater management measures

Ref.	Requirement	Responsibility	Timing	Evidence	Reference
	Pre-construction				
SWG01	Planning Secretary approval issued for the SWGCSP (**Hold Point**)	SWC Environment Lead (SWC EL) / JH Environment Manager (JH EM)	Prior to construction	Formal approval letter from DPHI (CoA C11)	CoA C11
SWG02	Develop Site Environmental Plans (SEPs) including identification of surface water and groundwater risk areas / sensitive areas and relevant management measures.	JH EM	Prior to construction	SEPs	Section 3.2.4 of the CEMP
SWG03	Site-specific ESCPs will be developed by a CPESC for each work site prior to the commencement of ground disturbance and will be updated and managed progressively as site conditions change. The ESCPs will outline appropriate erosion and sediment controls to minimise soil disturbance (where possible), prevent water pollution and maintain the existing water quality of surrounding surface watercourses.	JH EM / JH Construction Manager (CM) / CPESC	Prior to construction	ESCP	UMM SW05
SWG04	All reviews and amendments to the ESCP will be conducted by the Environmental Manager in consultation with the Site Supervisor and the project CPESC. The ESCP is a site-level, live document managed and tracked via Project Pack Web (PPW) and will be reviewed and updated on an ongoing basis by the project team to reflect the current site conditions as required.	JH EM / JH Superintendent (SI) / CPESC	Prior to construction	ESCP	UMM SW05
SWG05	Staff induction to include information about the specific surface water and groundwater risks of the project works and measures to mitigate impacts, including but not limited to: • Awareness of potential impacts to surface water and groundwater; • Protocols relating to stormwater and construction water management, including the requirement for water quality validation prior to recycling or re-use and prior to discharge from site to the environment (where permitted); • Description of the mechanisms by which erosion and sedimentation occur, and the associated environmental impacts; • The use of erosion and sediment control devices to mitigate impacts, and ideal operation of these devices; and • The requirement for erosion and sediment control devices to be implemented and maintained in accordance with approved plans.	JH EM	Prior to construction During construction	Induction and training records	CoA C2

Ref.	Requirement	Responsibility	Timing	Evidence	Reference
SWG06	All personnel involved in the management of water on site will be appropriately trained including in monitoring, treatment and discharge requirements (where permitted).	JH EM	Prior to construction	Training records	CoA C2
SWG07	Surface water, erosion & sediment control and groundwater toolbox talks will be implemented as relevant and required to reinforce information provided during site inductions.	JH EM	Prior to construction During construction	Training records	CoA C2
	Surface Water & Groundwater Management				
SWG08	A CPESC will be engaged by the project for the duration of construction of the project to provide advice regarding erosion and sediment control, including review of ESCPs. ESCPs will also be provided to SWC for information.	JH EM	Detailed design During construction	CPESC correspondence	CoA E73
SWG09	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'.	JH EM / JH CM / CPESC	Prior to construction	ESCP	CoA E72
SWG10	In the South Creek catchment, controls will also be implemented to meet with 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). These will be detailed on ESCPs developed for the area.	JH EM / JH CM / CPESC	Prior to construction During Construction	ESCP	CoA E72
	Site Preparation (including prior to clearing)				
SWG11	When clearing adjacent waterways, a vegetation buffer of 10m will be retained on both banks for the longest duration possible prior to final clearing.	JH SI / JH EM	Prior to construction During construction	Relevant EWMS ESCP	UMM SW05
SWG12	Clearing will be planned in accordance with approved design documentation and further minimised – retaining grass and other vegetation to the fullest extent practicable.	JH Project Engineer (JH PE) / JH EM	Prior to construction During construction	Relevant EWMS ESCP	UMM SW05
SWG13	Stabilised construction access/egress points will be installed and indicated on the SEP and ESCP.	JH CM / JH SI	Prior to construction	Relevant EWMS SEP ESCP	CoA E72 and UMM SW05
SWG14	The planning and staging of any clearing of vegetation will be implemented so as to reduce the potential for erosion and sediment movement, reducing dependency on erosion and sediment controls.	JH CM / JH SI	Prior to construction	Relevant EWMS SEP ESCP	CoA E72 and UMM SW05
SWG15	Where practicable, clearing will occur immediately prior to construction activities to minimise the potential for erosion.	JH CM / JH SI	Prior to construction	Relevant EWMS SEP ESCP	CoA E72 and UMM SW05

Ref.	Requirement	Responsibility	Timing	Evidence	Reference
	Plant Movement and Access				
SWG16	Mobile plant and vehicles, including deliveries must use designated travel routes, site access routes, site access tracks and lay down areas.	All personnel	During construction	Relevant EWMS SEP ESCP	CoA E72 and UMM SW05
SWG17	Mobile plant and vehicles must be clean of any mud or organic material prior to arriving or departing from site to prevent the spread of weeds and disease.	JH SI / all relevant subcontractors	Prior to construction During construction	Relevant EWMS SEP	CoA E72 and UMM SW05
SWG18	Access roads to be clearly marked using star pickets, wire tape or flagging. Location of access roads to be marked on SEP.	JH EM / JH SI	During construction	Relevant EWMS SEP ESCP	CoA E72 and UMM SW05
SWG19	Whilst on site, vehicles to remain on the designated roadways and observe the site speed limits.	All personnel	During construction	Relevant EWMS SEP ESCP	CoA E72 and UMM SW05
SWG20	No plant or machinery is to work in flowing waterways unless authorised by relevant government waterway or fisheries authority.	JH SI / all relevant subcontractors / JH EM	During construction	Relevant EWMS SEP ESCP	CoA E72 and UMM SW05
SWG21	Vehicle and plant to park in designated hard stand zones when not in use.	JH SI / all relevant subcontractors	During construction	Relevant EWMS SEP ESCP	CoA E72 and UMM SW05
SWG22	During periods of wet or hot and dry conditions, suitable construction activities and plant movements to be considered such as to minimise the movement of vehicles on site during these periods.	JH SI / all relevant subcontractors	During construction	Relevant EWMS SEP ESCP	CoA E72 and UMM SW05
SWG23	Spoil, mud or the like spilt onto sealed roads to be removed within a reasonable timeframe through use of a street sweeper or other means.	JH SI	During construction	Relevant EWMS SEP ESCP	CoA E72 and UMM SW05
	General Requirements				
SWG24	Except as expressly provided for in any project approval, including EPL 21800, project activities will be managed to comply with Section 120 of the Protection of the Environment Operations Act 1997.	All personnel	At all times	This plan	Section 120 of the POEO Act
SWG25	Opportunities to minimise the use of potable water will be continually sought and adopted as appropriate.	JH CM / JH SI / JH EM	During construction	Relevant EWMS SEP ESCP	CoA E72 and UMM SW01

Ref.	Requirement	Responsibility	Timing	Evidence	Reference
SWG26	The construction team will progressively construct operational stormwater management measures for potential use and contribution to stormwater management during construction, if practical.	JH CM / JH Superintendent (SI)	Detailed design During construction	Program / Sequencing workflows Relevant EWMS	UMM SW03
SWG27	The construction team will undertake refuelling, maintenance and chemical storage in accordance with the requirements set out in Section 7.7 of this SWGCSP.	JH EM / JH CM / JH SI	During construction	Section 7.7of this SWGCSP	UMM SW07
SWG28	When working in or over water, within flood affected areas or intersecting groundwater, controls must be in place and maintained to prevent pollution, in accordance with the SWGCSP and the FERCSP.	JH CM / JH Superintendent (SI)	During construction	Relevant EWMS SEP ESCP	CoA E72 and UMM SW05
SWG29	Erosion and sediment control decisions will be made to encompass reasonable and practical prevention, and will consider the receiving environment, water quality objectives, quality and quantity of water, location and accessibility, and other requirements.	JH CM / JH Superintendent (SI)	During construction	Relevant EWMS SEP ESCP	CoA E72 and UMM SW05
SWG30	Washout facilities must be in place and used for cleaning plant and equipment, concrete, paint or other environmentally hazardous substances. The location of these facilities will be identified on the SEP.	JH CM / JH Superintendent (SI)	During construction	Relevant EWMS SEP ESCP	CoA E72 and UMM SW05
SWG31	Clean water diversion controls must be in place to prevent water entering the work area to minimise erosion and prevent pollution.	JH CM / JH Superintendent (SI)	During construction	Relevant EWMS SEP ESCP	CoA E72 and UMM SW05
SWG32	Erosion and sediment controls, including temporary construction basins, will be cleaned or replaced prior to accumulated sediments and obstructions reducing their effective operating capacity by 60%.	JH CM / JH Superintendent (SI)	During construction	Relevant EWMS SEP ESCP	CoA E72 and UMM SW05
SWG33	Removed sediment to be added to existing stockpiles, redistributed to land outside of overland flow paths or appropriately disposed from site in accordance with the SEP and ESCP.	JH CM / JH Superintendent (SI)	During construction	Relevant EWMS SEP ESCP	CoA E72 and UMM SW05
SWG34	Sediment controls that are damaged or otherwise rendered ineffective will be immediately replaced.	JH CM / JH Superintendent (SI)	During construction	Relevant EWMS SEP ESCP	CoA E72 and UMM SW05
SWG35	Existing catchments and sub-catchment boundaries will be maintained as far as practicable.	JH CM / JH Superintendent (SI)	During construction	Relevant EWMS SEP ESCP	CoA E72 and UMM SW05
SWG36	Prolonged open excavations will have berms and/or diversion drains on their perimeter to divert overland storm water runoff away from the excavation. Where appropriate, utilise sandbags and/or geofabric to reduce flow velocity and minimise erosion within a drainage channel.	JH CM / JH Superintendent (SI)	During construction	Relevant EWMS SEP ESCP	CoA E72 and UMM SW05

Ref.	Requirement	Responsibility	Timing	Evidence	Reference
SWG37	Temporary erosion and sediment controls will be identified and implemented in anticipation of an extreme wet weather event, in consultation with the project CPESC.	JH CM / JH Superintendent (SI)	During construction	Relevant EWMS SEP ESCP	CoA E72 and UMM SW05
SWG38	All temporary works, flow diversion barriers and in-stream sediment control barriers will be removed as soon as practicable and in a manner that does not promote additional erosion.	JH CM / JH Superintendent (SI)	During construction	Relevant EWMS SEP ESCP	CoA E72 and UMM SW05
SWG39	The JH environment team, in consultation with the project CPESC, will provide direction for the location, installation, maintenance and removal of erosion and sediment control devices in accordance with this SWGCSP and other associated ECPs. Control devices shall remain in place until approval is given for their removal by the JH environment team, in consultation with the project CPESC.	JH CM / JH Superintendent (SI)	During construction	Relevant EWMS SEP ESCP	CoA E72 and UMM SW05
	Impacts to Upper Canal				
SWG40	There should be no impact on water quality within the open waters of the Upper Canal at any stage of the development.	JH CM / JH Superintendent (SI)	During construction	Relevant EWMS SEP ESCP	CoA E72 and UMM G13, U07
SWG41	No damage should occur to the water supply infrastructure at any stage of the development, including the stormwater structures currently serving the Upper Canal.	JH CM / JH Superintendent (SI)	During construction	Relevant EWMS SEP	UMM G13, U07
SWG42	24-hour all-weather access to the Upper Canal corridor must be retained or provided for WaterNSW staff and contractors.	JH CM / JH Superintendent (SI)	During construction	Relevant EWMS SEP	UMM G13, U07
SWG43	For security and safety purposes, there is to be no public access into the Upper Canal corridor at any time. If access is required by the proponent and/or their contractors for any purpose during the development process, a written access consent will be required from WaterNSW.	JH CM / JH Superintendent (SI)	During construction	Relevant EWMS SEP	UMM G13, U07
SWG44	The heritage values of the State Heritage listed Upper Canal must be taken into consideration and protected at all stages of the development.	JH CM / JH Superintendent (SI) / JH EM	During construction	Relevant EWMS SEP Heritage CEMP sub-plan	UMM G13, U07, NAH02, NAH05, NV07
	Stockpiling, Stabilisation, Rehabilitation and Demobilisation				
SWG45	No temporary construction stockpiles to be located within drainage lines, flood zones or any area otherwise likely to be inundated with water.	JH CM / JH SI	During construction	Relevant EWMS SEP ESCP	CEMP Appendix A9 CoA E72 and UMM SW05
SWG46	Suppress earthworks, batters, access tracks and other exposed areas with a bonding agent or water on dry windy days to minimise soil erosion and dust.	JH CM / JH SI	During construction	Relevant EWMS SEP	CEMP Appendix A9

Ref.	Requirement	Responsibility	Timing	Evidence	Reference
				ESCP	CoA E72 and UMM SW05
SWG47	Long term (> 10 days) stockpiles, batters and other erosion sensitive areas shall be adequately stabilised through velocity reduction covering, grassing, vegetation, soil binding, water diversion or other as appropriate.	JH CM / JH SI	During construction	Relevant EWMS SEP ESCP	CEMP Appendix A9 CoA E72 and UMM SW05
SWG48	Where suitable, silt fencing or equivalent measures shall be installed around the perimeter of exposed/disturbed soil stockpiles and at the toe of exposed batters.	JH CM / JH SI	During construction	Relevant EWMS SEP ESCP	CEMP Appendix A9 CoA E72 and UMM SW05
SWG49	Vegetation to be progressively re-established as soon as practicable to prevent erosion and slope degradation during construction.	JH CM / JH SI	During construction	Relevant EWMS SEP ESCP	CEMP Appendix A9 CoA E72 and UMM SW05
SWG50	Erosion and sediment controls shall remain in place until 70 % or more of natural ground cover has recovered	JH CM / JH SI	During construction	Relevant EWMS SEP ESCP	CEMP Appendix A9 CoA E72 and UMM SW05
SWG51	All cleared areas to be stabilised/restored as soon as practicable following completion.	JH CM / JH SI	During construction	Relevant EWMS SEP ESCP	CEMP Appendix A9 CoA E72 and UMM SW05
	Materials Handling and Storage				
SWG52	When planning the location of facilities, plant laydown areas, refuelling areas, stockpiles or chemical storage, areas that drain towards surface water or stormwater systems must be avoided in order to minimise risk of pollution.	JH EM / JH CM / JH SI	During construction	Relevant EWMS SEP ESCP	Section 7.7 of this SWGCSP UMM SW07
SWG53	Store, handle, use and dispose of waste and hazardous substances in a manner that minimises environmental impact.	JH EM / JH CM / JH SI	During construction	Relevant EWMS SEP ESCP	Section 7.7 of this SWGCSP UMM SW07
SWG54	Spill kits and fire response equipment must be located where chemicals and fuelled plant or equipment is being stored, operated or maintained.	JH EM / JH CM / JH SI	During construction	Relevant EWMS SEP ESCP	Section 7.7 of this SWGCSP UMM SW07
SWG55	Refuelling shall wherever practicable occur in designated hardstand areas or over appropriate bunds	JH EM / JH CM / JH SI	During construction	Relevant EWMS SEP ESCP	Section 7.7 of this SWGCSP UMM SW07
SWG56	Where refuelling of mobile plant in the field is required, it shall take place on level ground, an appropriate distance from watercourses and shall be accompanied by a spotter and suitable spill kit. Measures shall be taken to contain fuel drip during transfer.	JH EM / JH CM / JH SI	During construction	Relevant EWMS SEP ESCP	Section 7.7 of this SWGCSP UMM SW07

Ref.	Requirement	Responsibility	Timing	Evidence	Reference
	Management of Water (including dewatering and discharge)				
SWG57	Do not discharge water from site without authorisation to do so from the JH environment team.	All personnel	During construction	Relevant EWMS SEP ESCP	Section 7.6 and Appendix A, E and F of this SWGCSP CoA E72 and UMM SW05
SWG58	All dewatering activities must be done in accordance with Appendix A – Dewatering Procedure of this plan and the Project's EPL (21800). This includes the movement of water around the site (for example from excavation to excavation or temporary construction basin) or for reuse opportunities onsite (for example dust suppression or irrigation).	JH CM / JH SI / JH EM	Prior to and during dewatering activities	Relevant EWMS Permit system SEP ESCP	Section 7.6 and Appendix A, E and F of this SWGCSP CoA E72 and UMM SW05
SWG59	All dewatering systems must be planned and monitored to avoid spills, overflows and pollution.	JH CM / JH SI / JH EM	During construction	Relevant EWMS Permit system SEP ESCP	Section 7.6 and Appendix A, E and F of this SWGCSP CoA E72 and UMM SW05
SWG60	All runoff emanating from the site must be effectively filtered or otherwise treated so that the water quality meets water discharge limits specified in the relevant construction monitoring programs (Appendix E – surface water quality and Appendix F – groundwater).	JH CM / JH SI	During construction	Relevant EWMS SEP ESCP	Section 7.6 and Appendix A, E and F of this SWGCSP CoA E72 and UMM SW05
SWG61	All stormwater lines and/or drainage inlets where there is potential for sedimentation to occur as a result of construction activity shall be protected by geofabric, sandbags or other effective means as appropriate.	JH CM / JH SI	During construction	Relevant EWMS SEP ESCP	Section 7.6 and Appendix A, E and F of this SWGCSP CoA E72 and UMM SW05
SWG62	Adopt a staged approach to dewatering by dewatering in discrete, smaller areas that align with the construction schedule.	JH CM	During construction	Program / Sequencing workflows Relevant EWMS	UMM GW06
SWG63	The management of sediment basins, including design, maintenance, discharges, monitoring etc. is to be undertaken in accordance with Section 7.9 of this SWGCSP and Appendix A – Dewatering Procedure.	JH CM / JH SI / JH EM	During construction	Relevant EWMS Permit system SEP ESCP	Section 7.9 of this SWGCSP Appendix A EPL 21800

Ref.	Requirement	Responsibility	Timing	Evidence	Reference
	In-stream Works (including In-stream Structures) – Also refer to the Instream Works Procedure for further detail (Appendix I)				
SWG64	All instream works are to be managed in accordance with Section 7.15, this table and the Instream Works Procedure (Appendix I)	All personnel	Prior to construction During construction	Relevant EWMS SEP ESCP	Section 7.15, this table and the Instream Works Procedure (Appendix I)
SWG65	Where work is required to be undertaken in waterways, the construction team will design and implement the work in consultation with a suitably qualified geomorphologist. Management of work in each waterway will consider site-specific geomorphic conditions in each waterway (for example dispersive soils in South Creek). Works in waterways will be detailed in EWMSs to document measures to reduce and/ or control impacts, including any specific requirements regarding the geomorphic conditions of the area. The project geomorphologist will provide direct review/input into relevant project documentation, including EWMS to be developed for working in waterways.	JH EM / JH CM	Detailed design During construction	Design Review Workshops Consultant / Subcontractor Agreement – Schedule 1 '*scope of work*' Qualified geomorphologist Relevant EWMS	UMM WW01 Appendix I of SWGCSP
SWG66	The duration and extent of instream work and trenched crossings will be minimised where practical, including prioritising undertaking instream works during periods of low flow and minimising the wet area impacted during these activities. EWMS developed for instream works will include measures about how high flow events will be managed to limit erosion of the structures and associated sedimentation of downstream waterways. Measures will be reviewed by a Geomorphologist / CPESC.	JH CM / JH SI	During construction	Program / Sequencing workflows Evidence of Geomorphologist / CPESC review Relevant EWMS	UMM WW02 UMM WW15 Appendix I of SWGCSP
SWG67	Where practical, open trenching of waterways, particularly Kemps Creek and South Creek will be avoided between late April and early June, and late October to late December, to minimise disruption of downstream and upstream Australian Bass migration.	JH CM / JH SI	During construction	Program / Sequencing workflows Relevant EWMS	UMM WW17 Appendix I of SWGCSP
SWG68	During planning for instream works, the construction team will consider construction methodology and/or plant and equipment selection, whenever possible, including: • operating equipment on land or from a floating barge to minimise disturbance to the banks and bed of the water body • the use of temporary crossing structures or other practices to cross watercourses with steep and/or highly erodible banks and beds. • the limiting of machinery fording of the watercourse to a one-time event (i.e. over and back).	JH CM / JH SI	During construction	Relevant EWMS	UMM WW03 Appendix I of SWGCSP
SWG69	Booms, silt curtains and/or similar will be used by the construction team to contain and capture suspended sediment, during instream works.	JH CM / JH SI	During construction	Relevant EWMS and ESCP	UMM WW04 Appendix I of SWGCSP

Ref.	Requirement	Responsibility	Timing	Evidence	Reference
SWG70	The construction team will incorporate the following measures during the instream works (including coffer dams) or trenched crossings: • Material excavated from the trench will be stored above the top of the bank until the materials can be backfilled into the trench. • The top 10 to 50 cm of channel substrate will be stored separately and replaced during backfilling, where practical or material of the same quality will be used. • The bed and banks of the watercourse or water body will be restored to their original contour and gradient and if the original gradient cannot be restored due to instability, a stable gradient should be restored. • Consideration to the principles of relevant policy and guidelines including Fish Habitat Conservation and Management (DPI, 2013a) and Why do fish need to cross the road? (Fairfull and Witheridge, 2003) will be included.	JH CM / JH SI	During construction	Program / Sequencing workflows Qualified geomorphologist (including evidence of relevant qualifications/ experience) Relevant EWMS	UMM WW05 UMM WW14 Appendix I of SWGCSP
SWG71	When using an isolated construction method such as a coffer dam, the isolation method will not be removed until all works, including backfilling, contouring and stabilisation have taken place.	JH CM / JH SI	During construction	Program / Sequencing workflows Relevant EWMS	UMM WW06 Appendix I of SWGCSP
SWG72	Where replacement rock reinforcement or armouring is required to stabilise eroding or exposed areas, appropriately sized, clean rock will be used; and this is to be installed at a similar slope to maintain a uniform bank and natural stream alignment. Input from CPESC or a Geomorphologist will be undertaken for this control.	JH CM / JH SI	Detailed design During construction	Program / Sequencing workflows CPESC/Geomorphologist Relevant EWMS and ESCP	UMM WW07 Appendix I of SWGCSP
SWG73	At the treated water release location, erosion control and armouring will extend sufficiently into the waterways. The following requirements will be considered / incorporated: • Confirmation of the existing substrate prior to construction to determine the likelihood of erosion • Confirmation of the scale of time over which erosion can be expected to occur • If non-cohesive substrate or easily eroded substrate is identified, the project team will assess the need for instream works for protection of the riverbed	JH CM / JH SI / JH EM / Geomorphologist / CPESC	During construction	CPESC/Geomorphologist Relevant EWMS and ESCP Design and constructability review	UMM WW12 Appendix I of SWGCSP
SWG74	The design team will ensure the pipeline is designed to sufficient depth to avoid streambed slumping, incision and erosion.	JH DM	Detailed design During construction	Design review Workshops Construction methodology	UMM WW08 Appendix I of SWGCSP

Ref.	Requirement	Responsibility	Timing	Evidence	Reference
		JH CM / JH SI / Specialist Pipeline Contractors		workshops (specialist contractor involvement) Relevant EWMS	
SWG75	As a minimum, the following failure threshold criteria have been identified and will be implemented by the design and construction teams, respectively: • an in-water frac-out that cannot be contained or mitigated • streambed slumping • schedule delays resulting from unexpected equipment failure or weather. The failure threshold criteria will be further developed in consultation with the Specialist Pipeline Contractors engaged and will be subject to detailed design refinements.	JH DM JH CM / JH SI / Specialist Pipeline Contractors	Detailed design During construction	Design review Workshops Construction methodology workshops (specialist contractor involvement) Relevant EWMS	UMM WW08 Appendix I of SWGCSP
SWG76	Alternative crossing methods (eg contingency crossing plan) will be identified in the event that the preferred trenchless crossing method is not successful.	JH CM / JH SI / Specialist Pipeline Contractors	Detailed design During construction	Construction methodology workshops (specialist contractor involvement) Relevant EWMS	UMM WW09 Appendix I of SWGCSP
SWG77	For trenchless crossings, the construction team will ensure entry and exit points are located beyond the top of the bank from where the waterway works are occurring. This is to ensure adequate containment of any sediment or other substances above the top of bank. Entry and exit points will be restored to pre-construction conditions.	JH CM / JH SI / Specialist Pipeline Contractors / JH EM	During construction	Construction methodology workshops (specialist contractor involvement) Relevant EWMS And ESCP	UMM WW10 Appendix I of SWGCSP
SWG78	Where appropriate, the construction team will implement subsurface drainage controls to maintain stability, groundwater and surface water interactions, and to maintain the stability of any reclaimed land. The type and location of subsurface drainage controls will be determined through onsite investigation with considerations for: subsurface flow potential, erodibility of backfill materials, and degree of slope.	JH CM / JH SI / Specialist Pipeline Contractors	Detailed design During construction	Construction methodology workshops (specialist contractor involvement) Relevant EWMS	UMM WW16 UMM WW13 Appendix I of SWGCSP
SWG79	The design and construction teams will consider the design and implementation of adjacent recharge trenches to maintain saturation in key areas.	JH CM / JH DM	During construction	Construction methodology workshops (specialist contractor involvement) Relevant EWMS Dewatering Procedure	UMM GW07 Appendix I of SWGCSP
SWG80	When dewatering of temporary in-stream structures, the project will notify NSW DPI seven days prior to any dewatering activities in order to organise potential fish rescue activities. A separate s.37 permit may be required from NSW DPI to relocate fish and will be confirmed with NSW DPI within the required timeframe.	JH EM / JH CM / JH SI	During construction	Program / Sequencing workflows DPI – Fisheries consultation	UMM WW16 Appendix I of SWGCSP

Ref.	Requirement	Responsibility	Timing	Evidence	Reference
				Relevant EWMS	
SWG81	Water pumped from an in-stream structure will be pumped a minimum of 30m away from the waterway so that it does not preferentially re-enter the waterway. Where the water re-enters the waterway, the ANZG (or Wianamatta-South Creek Water Quality Objectives) will be adhered to, as specified in Section 3.2 in the Surface Water Quality Construction Monitoring Program.	JH EM / JH CM / JH SI	During construction	Program / Sequencing workflows Relevant EWMS SW-CMP (Section 3.2)	UMM WW16 Appendix I of SWGCSP
SWG82	Where reasonable and practical, recommendations in the 'Guidelines for controlled activities on waterfront land' (DPI 2012) and 'Guidelines for controlled activities on waterfront land – Riparian corridors' (NRAR 2018) will be incorporated.	JH CM / JH EM	Detailed design During construction	Design review workshops Program / Sequencing workflows Construction methodology workshops (specialist contractor involvement) Relevant EWMS	UMM WW21A Appendix I of SWGCSP
SWG83	Appropriate trench/shaft support systems (for example sheet piling) will be identified in areas with higher hydraulic conductivity and storage properties to minimise groundwater drawdown. This includes all areas mapped as Quaternary alluvial sediments/deposits (Mid-Nepean hydrogeological landscape (HGL), Mulgoa HGL, Upper South Creek HGL, Upper South Creek (Variant A) HGL and Moorebank HGL).	JH CM / JH DM	Detailed design During construction	Design review workshops Program / Sequencing workflows Construction methodology workshops (specialist contractor involvement)	UMM GW01 Appendix I of SWGCSP

8 Compliance, Review and Continuous Improvement

8.1 Resources

Roles and responsibilities related to the environment discipline are outlined in Section 3.3 of the CEMP. The USC Project's organisational structure is also included in the CEMP. Section 7 of this plan includes responsibilities around specific surface water and groundwater matters. In addition to this, the Project will engage the following qualified professionals to support the work:

- a CPESC with minimum 5 years' experience to oversee all construction and sediment control required for the AWRC
- a suitably qualified geomorphologist to assist with identifying and managing potential impacts from trenched and trenchless crossings of waterways.

8.2 Training and Awareness

All staff and subcontractors will undergo project-specific induction training that includes relevant surface water and groundwater matters and associated management measures that must be implemented and taken into account when planning and delivering the work.

Additional daily and task-specific training and awareness material may be delivered to relevant staff and workforce, in the form of toolbox talks and pre-start meetings, to ensure that where detailed information is required, it is accessible to all involved with the project.

Refer to Section 3.5.2 of the CEMP for further detail.

8.3 Monitoring and Inspections

Daily informal observations will be undertaken of the construction work and will be recorded in site diaries in Project Pack Web, 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. Prior to/ after works occurring within waterways and within the riparian corridor an inspection will be carried out to determine any adverse impacts and the extent of rehabilitation and revegetation that will be required.

Specific monitoring requirements related to surface water and groundwater, including monitoring triggers, frequency, and reporting of monitoring outcomes, are detailed in respective construction monitoring programs included as appendices to this plan (Appendix E – SWQ-CMP and Appendix F – GW-CMP). Monitoring and inspection of general surface water and groundwater aspects of the site works, separate to those specified in the SWQ-CMP or the GW-CMP, are summarised in Table 8.3-1 below. Details on the nature and frequency of these inspections and monitoring activities, including any resulting actions arising are also detailed in Section 3.9 of the CEMP.

All inspection and monitoring records will be store on either JH Project Pack Web, Sharepoint or Soteria systems.

Table 8.3-1 Monitoring and inspections relevant to surface water and groundwater.

Inspection / Monitoring	Frequency	Responsibility	Document Reference
Review BoM forecast for heavy rainfall events and flood warnings	Daily	Superintendent / Foreman / Site Supervisor / Environmental Site Representative	Section 8.3 Table 7-1.
Weekly environmental inspection The effectiveness of environmental controls will be evaluated using an inspection checklist. The inspection will also note the status and management of soils and water across the site, erosion and sedimentation risks and actions required to be closed out from these inspection activities.	Weekly	Superintendent / Foreman / Site Supervisor / Environmental Site Representative	CEMP
Pre-rainfall inspection Wet weather events may be defined as more than 50% chance of 10mm of rainfall or greater in a 24-hour period and triggering the requirements for the site to prepare for wet weather. Inspections will occur to ensure that all erosion/sedimentation and stabilisation controls are in place and in working effectively in accordance with the relevant ESCP.	Prior to >80% change of 10mm of rainfall or greater	Superintendent / Foreman / Site Supervisor / Environmental Site Representative	Section 7.14
Post-rainfall inspection Following a rainfall event of greater than 10mm in a 24 hour period, conduct a post-rainfall inspection to ensure erosion and sediment controls remain functional and any required maintenance (e.g. repairs to devices and removal of accumulated sediment) is identified and undertaken.	Following rainfall event	Superintendent / Foreman / Site Supervisor / Safety Representative	Section 8.3
Inspections involving the Project CPESC Frequency at the direction of the CPESC, pending location and stage of the work, and other factors including the receiving environment and adjacent stakeholders.	At the direction of the Project CPESC	Environmental Site Representative / Superintendent / Foreman / Site Supervisor	Section 6.1

Rainfall data will be taken from the following BOM stations:

- Horsley Park (ID: 94760) (for the AWRC site and TW pipeline)
- Badgerys Creek (ID: 94752) (for the BP)
- Onsite rain gauges (if installed)

Daily data is available from this location for all relevant parameters. This information will be downloaded on an approximate monthly basis and records maintained on SharePoint.

John Holland will continually monitor weather conditions, and if there is an 50% likelihood of greater then 10mm or more of rain in a 24-hour period, the inspection requirements included in Table 8.3-1will apply. The weather will be monitored by a site supervisor, engineers or the EM.

Monitoring requirements included in this SWGCSP (including the SWQ-CMP and GW-CMP), as approved by the Planning Secretary including any minor amendments approved by the ER will be implemented for the duration of construction or as specified by the Planning Secretary, whichever is the greater.

Monitoring requirements associated with this SWGCSP and EPL 21800 will 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. The licence will only be surrendered with the written approval of the EPA.

8.4 Auditing and Reporting

Auditing and reporting requirements are documented in Section 3.9 of the CEMP.

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.

Any environmental incidents related to surface water and groundwater matters 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.

A summary of project-specific surface water and groundwater matters, including incident management, will be provided in the project monthly report issued to Sydney Water and available to the ER.

Groundwater extraction volumes will be reported annually to Sydney Water.

For detail on the reporting requirements for monitoring programs view Appendix E and Appendix F.

8.5 Continuous Improvement

Continuous improvement of this plan 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 is 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; and
- Make comparisons with objectives and targets.

8.6 SWGCSP Update and Change Management

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

Appendix A: Dewatering Procedure

Upper South Creek

Advanced Water Recycling Centre and Pipelines

Surface Water & Groundwater CEMP Sub-Plan

Appendix A: Dewatering Procedure

Recommend Documents to be Read in Conjunction

This document is to be read in conjunction with the Construction Environmental Management Plan (USCP-JHG-MPL-ENV-0008), Soils & Contamination CEMP Sub-plan (USCP-JHG-MPL-ENV-0003) and Biodiversity CEMP Sub-plan (USCP-JHG-MPL-ENV-0004).

Table of Contents

Glossary & Abbreviations **3**

1 Introduction **4**

1.1 Context and Purpose 4
1.2 Process 4

2 Preparation **5**

2.1 Assess Opportunities for Site Water Reuse 5
2.2 Identify Equipment And Materials Required 5
2.3 Identify Discharge or Disposal Location 6
2.4 Select Competent Dewatering Crew 6

3 Site Water Re-Use or Treatment and Discharge **7**

3.1 Re-use Water on Site (where possible) 7
3.2 Test Water Quality 7
3.3 Treat Water 8
3.4 Re-Test, Inspect System and Discharge Water 8
3.5 Record Keeping for Dewatering Activities 9

4 Training **10**

Attachment A: Water Discharge Permit Proforma **11**

Glossary & Abbreviations

Abbreviations	Meaning
DW	Dewatering Procedure
EPL	Environment Protection Licence
ErSed	Erosion and Sediment
ESCP	Erosion and Sediment Control Plan
SDS	Safety data sheet
SWMP	Surface Water Monitoring Program
SWQ-CMP	Surface Water Quality Construction Monitoring Program

1 Introduction

1.1 Context and Purpose

In accordance with the *Protection of the Environment Operations Act (1997)* (POEO Act), there is a legal responsibility to ensure that water leaving the site has met an "acceptable" water quality standard. The purpose of this Dewatering Procedure (DP) is to describe how John Holland proposes to manage the dewatering of sediment basins and other areas of captured site water, including requirements for the storage, transport, treatment, testing and disposal of this water. This procedure will be regularly tool-boxed to all site workers involved in dewatering activities. Successful water management is critical to demonstrating capability to manage environmental impacts and John Holland's overall commitment to the environment.

Monitoring to identify any receiving water quality impacts attributable to Project dewatering will be carried out in accordance with the Surface Water Quality Construction Monitoring Program (SWQ-CMP).

1.2 Process

Water can accumulate in sediment basins and traps, excavations and other low-lying areas of site after rainfall or from groundwater inflows. Water can also accumulate from piling work and associated stockpile treatment and the management of saturated material. The water can be or become impacted by a range of pollutants including sediment, trace metals, oil, grease, hydrocarbons, chemicals, and concrete wastewater depending on the nature of the construction activities on the site. The water also has the potential to become acidic or basic depending on the presence of acid sulphate materials or cement.

Site water must be treated to an acceptable standard before it is discharged from the site to the environment in accordance with the following where applicable:

- Sydney Water Policy (D0001667), Water Quality Management During Operational Activities;
- Environmental Protection License (EPL) number 21800 and subsequent licence variations
- ANZECC (2000) water quality guidelines;
- DPE (2022) Technical guidance for achieving Wianamatta South Creek stormwater management targets; and
- DPE (2021) Minimum requirements for building site groundwater investigations and reporting, and specifically, the applicability of the guideline in the preparation of a dewatering management plan (dewatering procedure in the case of this project) (Section 1.3 of the guideline).

A John Holland water discharge permit (proforma provided in Attachment A) is required to discharge site water and must be approved by the Environment Manager prior to each discharge event.

2 Preparation

2.1 Assess Opportunities for Site Water Reuse

Responsibility: Project Engineer, Supervisor and Environmental Team

Onsite reuse of stormwater, water from hydrostatic testing or detained groundwater of suitable quality should be considered as a priority for all dewatering activities. Onsite reuse may include applications such as dust suppression, earthworks compaction, vegetation establishment/rehabilitation, and plant/vehicle wash-down.

Note that only water with a suitable quality can be reused on site. For example, concrete wastewater or water contaminated by activities such as surface washing, grit blasting, saw cutting, drilling, washing vehicles and plant is not suitable for reuse on site. Discharges of such contaminated site water will be strictly controlled and usually involve removal from site or evaporation and removal of settled particles to a licenced waste facility.

Reuse of water on the construction site may reduce the need for imported, extracted or potable water and provide a lower risk to the environment than direct discharge to the receiving environment. Common minimum requirements for any reuse activity are that the reuse should not cause the ponding or runoff of water, which may generate concentrated runoff and unauthorised discharge offsite.

2.2 Identify Equipment and Materials Required

Responsibility: Project Engineer, Supervisor and Environmental Team

Obtain and set up all equipment and materials to facilitate the efficient and effective treatment and disposal of water, as well as necessary water quality monitoring equipment.

Equipment and materials may include, but are not limited to:

- Flocculation materials (e.g. gypsum);
- pH adjustment chemicals (e.g. lime or acid);
- Oil water separator;
- Mobile water treatment facility;
- Pumps and buckets for priming;
- Floating pump intakes;
- Ropes;
- Water quality meter or appropriate field test kits;
- Dechlorination apparatus;
- Laboratory sampling jars and bottles.

Ensure the safety data sheet (SDS) for the storage and handling of the flocculant and other chemicals is strictly followed (as required). Flocculant type and use is to be in accordance with the SDS and is to be pre-approved by Sydney Water. All dewatering equipment including pumps and other water treatment systems must be commissioned prior to first usage to ensure they are fit for operation.

2.3 Identify Discharge or Disposal Location

Responsibility: Project Engineer, Supervisor and Environmental Team

Options for disposal include:

- discharge to land;
- discharge to water; in accordance with concentration limits in the project EPL 21800 (Section 3.2);_
- Offsite disposal as waste to a facility licenced by the EPA to accept the designated category of waste, supported by waste classification certificate and EPA waste tracking requirements.

Discharge locations are detailed in the project Erosion and Sediment Control Plan (ESCP) and EPL 21800 and is subject to relevant approved discharge treatment and testing criteria (Section 3.2).

Onsite discharge locations will be selected to avoid the potential for scouring and to avoid sensitive areas (where possible).

Discharge locations will be selected as close to sediment basins and waterways (e.g. storm water and/or natural water courses) as is practical to manage the potential for issues such as scouring. Measures will be in place to re-use water wherever possible and where practicable (see **Section 3.1**). Water of a suitable quality from sediment basins can be re-used onsite for dust suppression without any treatment.

A discharge location register will be maintained in accordance with EPL 21800 which details exact discharge locations. Where additional discharge locations are to be used, the discharge location register will be issued to the EPA 10 days prior to the planned discharge.

2.4 Select Competent Dewatering Crew

Responsibility: Project Engineer and Supervisor

Select personnel to be involved with the project's de-watering activities who have the required competencies, training and experience to perform dewatering duties in a sensitive receiving environment. Where flocculants and other water treatment chemicals are to be used, ensure that dewatering personnel are trained in the handling and application of the chemical in accordance with the product SDS and best practice (ie Blue Book).

3 Site Water Re-Use or Treatment and Discharge

3.1 Re-use Water on Site (where possible)

Responsibility: Project Engineer, Supervisor and Environmental Team

Based on the assessment carried out at the planning stage (see Section 2.1) the site objective should be to reduce the amount of water requiring treatment and offsite discharge for the project wherever possible. As such, when dewatering is required, crews should ensure that measures are in place so that site water is reused, wherever practical, for:

- compaction of materials;
- dust suppression (ensure water quality is suitable for equipment, ie nozzles/jets do not become blocked);
- watering of preserved or planted vegetation onsite and ground covers (e.g. hydromulch / seed mixes).

When reusing untreated site water from various sources across the project site, ensure that all relevant erosion and sediment (ErSed) controls are in place as per the relevant Site Environment Plan (SEP) and/or PESCP, and that the timeframes by which capacity in the sediment basin/s or trap / sump needs to be returned is met. Reuse should not cause the ponding or runoff of water, which may generate concentrated runoff, waterlogged soil or unauthorised discharge offsite.

Note that only detained water with a suitable quality can be reused on site. For example, concrete wastewater or water contaminated by activities such as surface washing, grit blasting, saw cutting, drilling, washing vehicles and plant is not suitable for reuse on site. Discharges of such contaminated site water will be strictly controlled and usually involve removal from site or evaporation and removal of settled particles to a licenced waste facility.

3.2 Test Water Quality

Responsibility: Environmental Team

Before site water can be discharged to discharge locations (as per the EPL) it must be compliant with the water quality criteria set out in the EPL 21800. The Project EPL discharge water quality criteria are provided below in Table 3-1.

Table 3-1 EPL 21800 water quality standards for site dewatering

Parameter	Criteria for re-use on site during construction	Discharge criteria during construction
Turbidity	N/A	36.45 (nephelometric turbidity units)
pH	6.5 to 8.5	6.5 to 8.5
Oils and greases	None visible	None visible
Chlorine	N/A	0.5mg/L – for hydrostatic testing activities only

For each monitoring/discharge point specified in condition P1.1 of EPL21800, JH will monitor (by sampling and obtaining results by analysis) the concentration of each pollutant specified in Table 3-2. JH will use the sampling method, units of measure, and sample at the frequency, specified opposite in the other columns.

Table 3-2 EPL 21800 water monitoring requirements for water discharges

Parameter	Units of measure	Frequency	Sampling Method
Sediment basin and construction stormwater discharges			
Oils and greases	Visible	Special frequency 1*	Visual inspection
pH	pH	Special frequency 1*	Probe
Turbidity	NTU	Special frequency 1*	Grab sample
Hydrostatic testing discharges			
Oils and greases	Visible	Daily **	Visual inspection
pH	pH	Daily **	Probe
Turbidity	NTU	Daily **	Probe

Chlorine	mg/L	Daily **	Grab sample

* Special frequency 1 refers to :

a) less than 24 hours prior to a controlled discharge and daily for any continued controlled discharge, when it is safe to do so; and

b) when rainfall causes a discharge from a sediment basin which has not been emptied within the design management period following cessation of a rainfall event, when it is safe to do so.

** Daily means prior to any discharge on days when hydrostatic testing is being undertaken.

Subject to any express provision to the contrary in EPL 21800, monitoring for the concentration of a pollutant discharged to waters or applied to a utilisation area must be done in accordance with the Approved Methods Publication unless another method has been approved by the EPA in writing before any tests are conducted.

3.3 Treat Water

Responsibility: Project Engineer and Supervisor

If water treatment is required based on water quality testing, determine the treatment methods and materials to be applied to the water to be discharged, for example:

- flocculate sediment basins and/or traps to settle out sediment, with either gypsum or other Sydney Water/ EPA approved flocculant
- use pH buffering (lime to increase pH, acid to lower pH) to adjust pH levels to acceptable range where required
- Dechlorination to reduce total chlorine levels to an acceptable range post hydrostatic testing
- remove any oil, grease and hydrocarbons with oil absorbent materials (from spill kits) or oil/water separator.

When treating water, it should be noted that water which has undergone treatment can also be re-used onsite.

3.4 Re-Test, Inspect System and Discharge Water

Responsibility: Project Engineer, Supervisor and Environmental Team

Once the water has been treated, re-test to ensure that it is compliant with the discharge water quality criteria set out in the EPL and Sydney Water systems. Inspect the entire system, including intakes and outlets, pumps and discharge locations. Complete a Water Discharge Permit and ensure that all required sign offs have been received before dewatering commences. Confirm the characteristics of the location of the water (e.g. elevated sediment basin or deep excavation) and determine a suitable method for discharge. Options which are subject to space and resources available include:

- pumping
- decanting
- siphoning.

A floating siphon device would be used where possible and practical, to avoid drawing in accumulated settled sediment at the base of the basin or excavation. Where the site presents flat terrain siphons may not be able to be used. Also, where it is required to discharge water from basins within five days of a rainfall event it may not be practical to use a siphon due to the slow discharge speed and therefore a pump may be suitable.

Ensure that all site water discharge activities, whether offsite or onsite, are monitored to prevent unacceptable environmental impacts such as:

- intake suction placed within the deposited sediments resulting in discharge of sediment laden waters
- scour and erosion at discharge locations and downstream areas
- inadvertent or intentional controlled discharge of untreated waters.

During site water discharges visual monitoring, involving observations for sediment plumes, will be undertaken during the operation to identify potential impacts to water quality. The monitoring regime and frequency is to be specified in the site-specific discharge permit prior to commencement. Observation of a sediment plume within the waterway during dewatering will result in cessation of discharge and reporting of the issue to the Environment Manager. Upon completion of dewatering operations all plant and equipment will be demobilised (if not permanently required in that area) and the Water Discharge Permit signed back in, closed out by all required personnel and kept on file.

Mandatory requirements for discharging water are as follows:

- ensure the pump is manned at all times during dewatering

- float the foot valve/pump head to ensure it does not sit in the accumulated sediment at the base of the sediment basin
- ensure that the discharge point is stabilised (e.g. with geofabric, plastic or rock) so that it will not cause scour, erosion or re-suspension of sediment
- check the discharge point regularly to ensure it remains clear of visible sediment and appears clean. The person issuing the permit must test the receiving water on an hourly basis
- cease dewatering immediately if water quality in the receiving water is adversely affected or if a turbidity plume is visible.

3.5 Record Keeping for Dewatering Activities

Records of all dewatering activities will be kept. Information will include:

- a copy of the water discharge permit;
- date, time and estimated volume of water released for each discharge location;
- water quality test results for each discharge;
- records indicating who provided approval for each dewatering activity;
- evidence of discharge monitoring or risk assessment; and
- any additional EPL requirements including making monitoring records required under the EPL publicly available within 14 days of obtaining the data.

4 Training

All employees and sub-contractors involved in dewatering would be trained in the Dewatering Procedure in accordance with the requirements of the Surface Water and Groundwater CEMP Sub-plan.

Attachment A: Water Discharge Permit Proforma

Water Discharge Permit

Upper South Creek AWRC and pipelines project

Section 1: Permit Details	Permit Number:
External Permit Required? Yes / No	If yes, specify external permit number:
Location (Sediment Basin No. / Chainage / GPS Coordinates):	Site Environmental Plan (SEP) number:
Proposed Start Date / Time: _____	Proposed Completion Date / Time: _____
Receiving Water Body:	

Section 2: Water Quality Record (to be completed by authorised water quality monitoring personnel only)		
Parameter	Water to be Discharged	Receiving Water
NTU:		
pH:		
Oil/Grease		
Chlorine		
Other (add as required)		
Comments:		

Section 3: Permit Conditions / Approval
Mandatory Permit Conditions: • Float the foot valve to ensure it does not sit in mud at the base of the sediment basin. • Ensure that the water discharge point is located so that it will not cause erosion and re-suspension of sediment. • Check the discharge regularly to ensure it remains clear of visible sediment and appears clean. The person issuing this permit must test water quality in the receiving water on an hourly basis

Page 1 Of 2

- Cease dewatering immediately if water quality in the receiving waterway is adversely affected or if a turbidity plume is visible.

(Hand write any additional conditions / instructions below)

I understand and accept the permit conditions detailed above.
Supervisor / Engineer / Subcontractor

Name: ..... Signature: .....

Permit Issuer / Project Environment Representative:	Issue Date: ___/___/___
Name: ..... Signature:	Expiry Date: ___/___/___ *Note: This permit is no longer valid after a rain event following the issue date and time.*

Section 4: Permit Closure

I confirm all work for which this permit was issued has been completed.

Supervisor / Engineer / Subcontractor:

Name: ..... Signature: ..... Date: .....

I confirm all work for which this permit was issued has been completed and verified.

Permit Issuer / Project Environment Representative:

Name: ..... Signature: ..... Date: .....

Appendix B: Drilling Fluid Management Procedure

Drilling Fluid Management Plan

1 Purpose

The purpose of this Drilling Fluid Management Plan (DFMP) is to describe the framework for the management of drilling fluids for use in the trenchless crossings for the Upper South Creek project. This plan describes:

- The scope of the DFMP
- Roles and responsibilities of drilling fluid management
- Legislative and guideline requirements related to drilling fluid management
- Managing drilling fluid resources
- HDD design consideration
- Drilling fluid environmental compliance and management
- Installation and operation of mud-return lines

2 Scope

The scope of this plan applies to the trenchless crossings to be undertaken along the treated water (TW) and brine (B) pipelines on the Upper South Creek project, including the following types:

- Road corridors
- Railway corridors
- Critical utility assets
- Waterways (including rivers, creeks, drainage lines and farm dams)

This plan does not apply to trenched crossings. The crossings listed in Table B - 1 will be subject to the application of this DFMP:

Table B - 1 Identified crossings

I.D	Description	Crossing Type	Chainage (m)		Crossing Distance (m)	Pipe Installation
			Start	End		
Treated Water						
HDD-01	Badgerys Creek	Waterway HDD	3425	3909	484	OD 900 PE100 PN20
HDD-02	Farm Dam (Elizabeth Drive)	Waterway HDD	7925	8246	321	OD 900 PE100 PN20
HDD-03	The Northern Road	Road corridor (Micro-tunnel)	9238	9336	98	OD 900 PE100 PN20 Pipe in 1200 RC jacking pipes
HDD-04	Jerrys Creek (Park Road)	Waterway HDD	14775	15084	309	OD 900 PE100 PN20
HDD-05	Nepean River	Waterway HDD	15715	16118	403	OD 900 PE100 PN20
Brine						
HDD-06	Elizabeth Drive	Road corridor HDD	2098	2404	306	OD 900 PE100 PN20
HDD-07	Upper Canal	Waterway HDD	7750	8000	250	OD 900 PE100 PN20
HDD-08	M7	Road corridor HDD	8819	9107	288	OD 900 PE100 PN20
HDD-09	Cowpasture Road	Road corridor HDD	10946	11444	498	OD 900 PE100 PN20
HDD-10	Monash Place / Montgomery Road (Elizabeth Drive No. 2)	Road corridor HDD	14298	14527	229	OD 900 PE100 PN20
HDD-11	Joseph Street (Cumberland Highway)	Road corridor HDD	18179	18329	150	OD 900 PE100 PN20
HDD-12	Cabramatta Rail	Railway corridor HDD	20303	20574	271	OD 900 PE100 PN20
HDD-13	Lennox Reserve (along Willowbank Crescent)	Road corridor HDD	22925	23103	178	OD 900 PE100 PN20
HDD-14	Hume Highway to NGRS	Waterway HDD	23297	24033	736	OD 900 PE100 PN20
HDD-15	Electrical Supply Conduit (Edith Street to NGRS)	Utility corridor HDD	n/a	n/a	200	OD 900 PE100 PN20

HDD-16	Cabramatta Road – box culvert crossing (at Green Valley Creek)	Road corridor HDD	15661	15897	236	OD 900 PE100 PN20
HDD-17	Jemena Gas Crossing	Utility corridor HDD	7370	7510	140	DN450 PE100 PN20 Pipe in DN600 RC jacking pipes

3 Legislative and Guidance Requirements

All relevant legislation and associated requirements, including approvals, licences and permits are tabulated and discussed in Appendix A3 of the USC Construction Environmental Management Plan.

3.1 Project Specifications and Plans

The project specifications and plans relevant to the management of drilling fluid include:

- Sydney Water Management Specification (1041412)
- Sydney Water Guidance Standard 9.8 waste generation and management (ENV-GS-008)
- Sydney Water Guidance Standard 9.6 erosion and sediment control (ENV-GS-006)
- Sydney Water Guidance Standard 9.7 chemical storage and management (ENV-GS-007)
- USC Construction Environmental Management Plan (USCP-JHG-MPL-ENV-0008)
- USC Surface water & Groundwater CEMP Sub-plan (USCP-JHG-MPL-ENV-0001)

3.2 Guidelines and Standards

List to be confirmed following engagement with the specialist pipeline contractors.

3.3 Minister's Conditions of Approval (CoA) and EIS Updated Management Measures (UMMs)

Table B - 2 below provides a summary of the project's CoA and EIS UMMs (Appendix B of the Amendment Report) relevant to drilling fluid management and how and where these items are addressed in this plan.

Table B - 2 Relevant project requirements

Reference	Requirement Description	How Addressed
CoA C6 (d)	The Surface Water and Groundwater CEMP Sub-Plan must be prepared by a suitably qualified expert and include, but not limited to: (d) the Dewatering Procedure and **Drilling Fluid Management Procedure** as committed to in the documents listed in Condition A1	This plan
UMM GW10	Develop a Drilling Fluid Management procedure to avoid impacts, including: • potential risk for 'frac-outs' at tunnelled crossings • approach to identify and manage frac-outs • contain and monitor drilling fluid at entry/exit points until it can be transported to a licensed waste facility • reuse and/or disposal of drilling fluids by appropriately qualified personnel to a licensed facility • prioritising the use of fluids that reduce the risk of seepage into groundwater from boreholes.	This procedure Section 6 Section 5 Section 5 Section 5 and Section 7.6 Section 4

4 Drilling Fluid Design

, Detail around drilling fluid design, including the drilling fluid process and properties, will be made specific to each crossing and documented in methodology documents which may include Activity Method Statements, Environmental Work Method Statements or any other documents/risk assessments prepared by the subcontractor..

Considerations to be made include prioritising the use of fluids that reduce the risk of seepage into groundwater from boreholes.

5 Drilling Fluid Management

Drilling fluid is managed with consideration to a number of factors, including:

- Drilling fluid system loop – drilling fluid is managed within a closed loop system
- Separation of system – a series of mixing and recycling units, transport and storage tanks, and pathways and pipework to enable the drilling fluid to be managed within the closed loop.
- Disposal of cuttings and displaced material – the system is designed to enable recycling of drilling fluid and removal of the excavated soil (cuttings) for disposal. The cuttings are collected in a separated bin / tank within the system transported to its required disposal location that is licensed to accept it.
- Drilling fluid monitoring – drilling fluid use to complete HDD drillings moves through the downhole and returns to the surface via the annular space between the drill pipe and the borehole wall. As the HDD construction technique is a closed loop system, monitoring of drilling fluid and in particularly drilling fluid losses can be an important indicator in preventing unforeseen / uncontrolled losses. Key monitoring indicators include:
    - Drilling fluid (mud) returns – provides verification that the downhole is open and functioning, includes:
        - Visual monitoring
        - Volume monitoring
        - Borehole swab
    - Maximum annular pressure – monitoring of this information is providing HDD operators real-time understanding of the relevant pressure levels in the annulus and where further response actions are required.
    - Visual identification of surface conditions - Pre-emptive monitoring for surface fractures can mitigate the size and volume of an unplanned drilling fluid release by providing operators with notice to turn off the mud pump and attempt to de-pressurise the ground conditions.
- Reporting of drilling fluid operations – to confirm that drilling fluid operations are being undertaken with optimum efficiency and effectiveness and that project-specific targets are being met.

6 Drilling Fluid Contingencies

A number of contingencies have been taken into consideration in an effort to pre-emptively avoid a fluid loss occurrence and are summarised below:

- Known ground conditions – extensive geotechnical investigations have been undertaken by the project to provide the design and construction team with adequate geological information to inform drilling activities and potential drilling fluid loss scenarios that have the potential to eventuate.

- Borehole design profile - risk mitigations have been built into the bore designs of each crossing where relevant. Of the geotechnical investigations undertaken by the project, all major crossings with major bores are designed to be within rock to mitigate the risk of frac-outs.
- Refer to historical investigations / studies – geological information from historical geotechnical investigations and borehole drilling has been considered in the HDD design.

7 Drilling Fluid Loss Response

Drilling fluid loss, hydro-fracture or 'frac out' is defined as the loss of drilling fluids from the borehole to the terrestrial and/or aquatic environment. A loss is identified using different types of indicators, including:

- By visual assessment
- Drilling fluid loss indicators monitored by HDD operators (as discussed in Section 5)

Key aspects related to drilling fluid loss response are described below.

7.1 Responsibilities

Table B - 3 summarises the roles and responsibilities that have been identified for the purpose of drilling fluid management.

Table B - 3 Summary of roles and responsibilities

Role	Responsibility
Project / Construction Manager (USC)	Stakeholder Communication and Engagement
Project Manager (specialist pipeline contractor)	Coordination of Bore Profile Design Communication of Fluid Loss
HDD Superintendent	Supervision and Assessment of Drilling Fluid Communication of Fluid Loss Documentation of Fluid Loss Occurrence
Driller	Supervision and Assessment of Drilling Fluid Drilling Fluid Monitoring
Mud Engineer	Documentation of Mud Program Supply of Mud Product SDSs
Mud Hand	Preparation and Mixing of Drilling Fluid Drilling Fluid Monitoring Response and Remediation of Fluid Loss
Rig Hand(s)	Response and Remediation of Fluid Loss

7.2 Fluid Loss Prevention

During drilling operations, continuous monitoring of drilling fluid will be undertaken, including consideration of the following additional variables:

- Experienced and well-trained personnel
- Use of Pressure Sub
- Consistent monitoring

7.3 Potential Fluid Loss Indicators

When fluid loss has occurred, indicators that are referred to and monitored by the HDD operators (as discussed in Section 5), can mean that a partial or total loss of drilling fluid loss has occurred. Potential fluid loss indicators will depend on the type of HDD being undertaken which will be documented in activity specific procedures (as detailed in Section 4) but will typically include:

- Drilling fluid (mud) returns – provides verification that the downhole is open and functioning, includes:
  - Visual monitoring
  - Volume monitoring
  - Borehole swab
- Maximum annular pressure – monitoring of this information is providing HDD operators real-time understanding of the relevant pressure levels in the annulus and where further response actions are required.
- Visual identification of surface conditions - Pre-emptive monitoring for surface fractures can mitigate the size and volume of an unplanned drilling fluid release by providing operators with notice to turn off the mud pump and attempt to de-pressurise the ground conditions.

7.4 Fluid Loss Response & Remediation

In the event of drilling fluid loss, HDD operations are suspended immediately, and relevant project team members are notified immediately. HDD teams are equipped and trained in effective fluid loss control and remediation measures, including but not limited to the items specified in Table B - 4 below. All HDD locations will be fully equipped with fluid loss response stations consisting of any of the following control measures, depending on the local environment and drilling activity. The information provided below is indicative only and subject to confirmation from specialist pipeline contractor (and subsequent finalisation of this plan).

Table B - 4 Fluid loss response and remediation measures

Item	Detail	
Silt fencing with timber stakes		Immediate response tool Qty – TBC
Lay flat hose and flex drive		Immediate response tool Short-term fluid transfer Qty – TBC
Silt socks		Bunding of frac area short term Qty – TBC
Sandbags		Bunding of frac area long term Qty – TBC
Sykes pumps		Long term transfer of fluid Qty – TBC

Vacuum trucks		Immediate response tool and disposal tool for long/short term Qty – TBC

7.5 Fluid Loss Procedure

The following procedure will be implemented in the event of the loss of drilling fluid.

General fluid loss procedure

1. The drill string will be pulled back off face to relieve pressure on the fluid loss area (critical requirement).
2. All HDD operations are suspended immediately, and drill and equipment will remain on standby while fluid loss is assessed.
3. USC Construction Manager informed immediately of the fluid loss occurrence.
4. Determine the location and extent of fluid loss.
5. Transport of additional personnel and response equipment to the fluid loss location.
6. Allocation of the HDD support team to assist with fluid control and remediation.
7. Assessment by the UDD operating team for best control and remediation method; deploy specific equipment and materials as described in Section 7.5).

8 Terrestrial fluid loss procedure

a. Containment of the area with bunding to surround the drilling fluid for sweeping and pumping.

b. If available and access allows, deploy mobile vacuum truck to pump the drilling fluid from the containment area and to the return pit or for direct disposal offsite.

c. If unavailable or access is limited, flex drive/pumps will be used to pump the drilling fluid from the contained area and to the return pit by way of the mud return line cut-in or lay flat pipe.

d. Upon review, drilling fluid additives would be utilised to help seal the fluid loss fracture before the commencement of full HDD works and operations.

9 Aquatic fluid loss procedure

a. Identify the exact aquatic location for accurate deployment of the HDD support team.

b. If access allows containment of the area with silt fencing at the low tide points and the potential deployment of appropriate pumps to remove drilling fluid from the aquatic containment area.

c. If not applicable or access is limited, immediate review of Drilling Fluid Plan to include sealing additives to seal the fluid loss fracture.

10. Review and document drilling fluid loss occurrence, including reference to the USC environmental incident response requirements specified in Section 3.7 of the CEMP.

7.6 Response Closeout

When the release has been contained, and fluid loss measures have been initiated, the USC construction team and the HDD operator will commence closeout activities, including the disposal of the recovered drilling fluid to a licensed waste facility; and all containment measures will be removed unless otherwise directed by the USC project team.

7.7 HDD Operations Restart

In the event of a release, construction activities will not restart without approval from the USC JH Construction Manager and the JH Environment Manager. Once suitable containment measures are in place and approval has been received to re-commence work, the following steps will be undertaken:

Note – restart yet to be confirmed with specialist pipeline subcontractor to be engaged.

8 Communication and Reporting

Reporting of any incidents, including any fluid loss or frac-outs will be undertaken in accordance with the CEMP.

Appendix C: CoA A9 Consultation Summary Report

Upper South Creek

Advanced Water Recycling Centre and Pipelines

CoA A9 Consultation Summary Report – Surface Water & Groundwater CEMP Sub-plan

Document Number: USCP-JHG-RPT-ENV-0002
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: Date:	Richard Ioffrida (Project Director)

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
26-05-2023	01	Summary of consultation from SWGCSP	All	Mira Segaran	Alyce Harrington
13-06-2023	02	Response to ER comments	All	Mira Segaran	Alyce Harrington
11-07-2023	03	Update following DPE and EHG comments	All	Mira Segaran	Alyce Harrington
24-07-2023	04	Updated to include correspondence with agencies	All	Mira Segaran	Alyce Harrington
25-07-2023	05	Updated to include DPE Water comments	All	Mira Segaran	Alyce Harrington
03-08-2023	06	Updated to include EHG comments	All	Mira Segaran	Alyce Harrington
23-08-2023	A	Issued for construction	All	Mira Segaran	Darragh O'Brien

Table of Contents

1 Introduction 4
1.1 Background 4
1.2 Purpose of this Consultation Summary Report 5
1.3 CoA Compliance 5
1.4 Consultation Process 6
2 Stakeholder and Agency Consultation 7
2.1 SWGCSP – EPA 7
2.2 SWGCSP – EHG 10
2.3 SWGCSP – DPE Water 16
2.4 SWGCSP – DPI Fisheries. 19
2.5 SWGCSP – WaterNSW 21
2.6 SWGCSP – Relevant Council 23
Appendix 1 - EPA – Evidence of Consultation 26
Appendix 2 – EHG – Evidence of Consultation 27
Appendix 3 – DPE Water – Evidence of Consultation 28
Appendix 4 – DPI Fisheries – Evidence of Consultation 29
Appendix 5 – WaterNSW – Evidence of Consultation 30
Appendix 6 - Wollondilly City Council – Evidence of Consultation 31
Appendix 7 – Penrith City Council – Evidence of Consultation 32
Appendix 8 – Liverpool City Council – Evidence of Consultation 33
Appendix 9 – Fairfield City Council – Evidence of Consultation 34
Appendix 10 – Canterbury Bankstown City Council – Evidence of Consultation 35
Appendix 11 – Consultation Summary Register 36

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(a): Surface and Groundwater Sub-plan
- CoA C13(a): Surface Water Construction Monitoring Program
- CoA C13(b): Groundwater Construction Monitoring Program

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(a)	Surface Water and Groundwater CEMP Sub-plan	• EPA • EHG • DPE Water • DPI fisheries • WaterNSW • Relevant Councils
CoA C13 (a)	Construction Monitoring Programs: Surface Water quality	• EPA • EHG • DPE Water • DPI Fisheries • WaterNSW • Relevant Councils
CoA C13 (b)	Construction Monitoring Programs: Groundwater	• EPA • DPE Water • 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 SWGCSP.

Table 1-2 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 o 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.	Consultation Summary Report

	a. Surface Water and Groundwater CEMP Sub-plan – EPA, EHG, DPE Water, DPI fisheries, WaterNSW, Relevant Councils	
C13	The following Construction Monitoring Programs must be prepared in consultation with the relevant government agencies identified for each to compare actual performance of construction of Stage 1 of the CSSI against the performance predicted in the documents listed in Condition A1 or in the CEMP. a. Surface water quality – EPA, EHG, DPE Water, DPI Fisheries, WaterNSW and relevant councils b. Groundwater – EPA, DPE Water	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
- Meetings

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 SWGCSP (including surface water quality and groundwater monitoring programs). 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 SWGCSP – EPA

Consultation with EPA commenced on 31 March 2023 and concluded 25 May 2023.

Table 2-1 below includes the details of engagement between EPA and USC regarding the SWGCSP (including surface water quality and groundwater monitoring programs).

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 – SWGCSP - EPA

#	Date	Correspondence		From	Recipient
		Form/Type	Purpose		
1	31-03-2023	Email	Issuing of sub-plan for consultation in accordance with CoA C4.	Alyce Harrington	Daniel Burchmore Trevor Wilson
2	18-04-2023	Email	Respond to consultation. Comments raised.	Daniel Burchmore	Alyce Harrington
3	25-05-2023	Email	Re-issue of updated SWGCSP, SWQ-CMP and GW-CMP in response to EPA comments.	Alyce Harrington	Daniel Burchmore
4	27-06-2023	Email	Follow-up on the status of EPA comments on re-issued SWGCSP. Additionally, EPA provided with an example ESCP for the AWRC site.	Alyce Harrington	Daniel Burchmore
5	10-07-2023	Email	Response from EPA confirming no further comments on the SGCSP.	Daniel Burchmore	Alyce Harrington

Table 2-2 below summarises the consultation comments received from EPA on the SWGCSP (including surface water quality and groundwater monitoring programs).

Table 2-2 Summary of issues – SWGCSP – EPA

Document Section, CoA/REMM	Comment Raised	Date Raised	How Addressed / Justification Why Not Addressed
SW-CMP	It is somewhat unclear the frequency to which the EPA will be provided monitoring reports under this program. Will the EPA be provided with only the six-monthly CMR (as per page 122), or a report for each event listed on page 122 (i.e., routine sampling, event sampling, trigger level exceedances)? It is recommended that the EPA is at the least provided the trigger level/acceptable range exceedance reports	18-04-2023	Reporting requirements in Section 7.3 of SW-CMP is in accordance with CoA C18. Request regarding trigger value exceedance report has been included in Section 7.3
SW-CMP	It is noted that the water quality monitoring locations around the treated/brine pipeline works are still to be determined (SW06 on page 114). The proposed monitoring locations (and trigger point parameters) should be provided to the EPA for consideration prior to any relevant construction works being undertaken at these locations. This is to ensure that water quality impacts for the works at these locations can be adequately characterised.	18-04-2023	The project's pipeline construction methodology where crossing of a waterway / drainage channel is occurring, can be categorised as either trenched or trenchless. Trenched meaning via the use of conventional pipe-laying techniques and the excavation of a trench using machinery to place pipe; and trenchless meaning underground via the method of horizontal directional drilling (HDD). Another trenchless method employed by the project includes micro-tunnelling, however, this is not occurring at any of the project's waterway / drainage channel crossings. Additional monitoring sites have been updated in the SW-CMP relative to the trenched crossing of waterways / drainage channels only. This is due to the trenchless crossings (via HDD) being under-bored at a significant depth below the surface of the ground and at most locations this is greater than 20m. Additionally, trigger values have been included relative to these trenched crossings have also been included as well as an update to the surface water monitoring location figure. An updated SWQ-CMP has been provided in tracked changes for ease of review and identification of changes made.
SW-CMP	As noted in the document, various sections of this CEMP will need to be updated following John Holland's application for a licenced water discharge point in the coming months.	18-04-2023	Noted and acknowledged.
GW-CMP	Same comments as per above surface water monitoring program regarding the frequency of reporting to the EPA.	18-04-2023	Reporting requirements in Section 7.3 of GW-CMP is in accordance with CoA C18. Request regarding trigger value exceedance report has been included in Section 7.3.
GW-CMP	Additional supporting information should be provided as to how the groundwater quality objective values listed in Tables 3-1 and 3-2 were determined to refine the list of analytes for groundwater monitoring and to set trigger values. As an example, the specific guideline in Table 3-1 that is used to calculate the ammonia trigger value (2.3	18-04-2023	The list of analytes proposed for the GW-CMP is as per the recommendations made in the Groundwater Impact Assessment (EIS Appendix H).

	mg/L) is not specified. This is of particular importance as there are instances where the project trigger value is much higher than the acceptable range.		The groundwater trigger values weren't referenced but were sourced from the criteria presented in Appendix C Analytical Results Summary Tables of USC AWRC Groundwater Monitoring Event Report (Aurecon Arup, April 2022) (GME3 Report). The GME3 Report adopts the ANZG Default Value for 80% protection of freshwater species and the Wianamatta-South Creek Waterway Health Objectives (DPIE, 2020).
GW-CMP	The monitoring program does not appear to include consideration of groundwater contamination from pipeline construction works. Table 4-8 of the EIS Groundwater Impact Assessment identified a range of EPA notified contaminated sites within the vicinity of pipeline construction, and specifically identifies the pipeline construction works near Metro Service Station at Bonnyrigg as a moderate risk. Under Conditions of Approval E74 to E83, a site auditor will be engaged to provide oversight in assessing the risk and extent of contamination at these locations. In the event any issues are raised by the auditor regarding contaminated groundwater risks at specific pipeline construction locations, the monitoring program should be updated include relevant additional pipeline construction monitoring locations, and appropriate trigger guidelines/acceptance ranges at these locations should be determined based on baseline data undertaken as a priority.	18-04-2023	Acknowledged. The project has prepared a draft Sampling and Quality Analysis Plan (SAQP) (one separately for the AWRC plant site and one for the pipelines scope of work), as required under CoA E77, with the support qualified contamination consultants Environmental Resource Management (ERM). The SAQP is currently being reviewed internally by the project's delivery team, prior to issuing to the project's EPA Accredited Site Audtor for contamination in accordance with CoA E74(c). The SAQP includes consideration of groundwater contamination from pipeline construction works. Review of existing information provided at the time of the EIS and site investigations undertaken for the purpose of furthering the design has initially suggested that groundwater is unlikely to be intercepted during construction works and as no beneficial uses of groundwater are proposed for the project (i.e. used for dust suppression etc.) the assessment of groundwater is not proposed to be undertaken at this time. Where groundwater is encountered during investigation works at depths that may result in construction groundwater management requirements or where groundwater is proposed for beneficial re-use, consideration to the assessment of groundwater will be made and done so in consultation with the Site Auditor.

2.2 SWGCSP – EHG

Consultation with EHG commenced on 31 March 2023 and concluded 25 May 2023.

Table 2-3 below includes the details of engagement between USC and EHG regarding the SWGCSP (including surface water quality monitoring program). Table 2-4 includes a summary of the issues raised, how those were addressed and closed out. Full evidence of correspondence is in Appendix 2 of this report.

Table 2-3 Engagement log – SWGCSP – EHG

#	Date	Correspondence		From	Recipient
		Form/Type	Purpose		
1	31-03-2023	Email	Issuing of sub-plan for consultation in accordance with CoA C4	Alyce Harrington	Marnie Stewart
2	01-05-2023	Email	Follow up on issuing of sub-plan for consultation	Alyce Harrington	Marnie Stewart
3	01-05-2023	Email	Respond to email	Marnie Stewart	Alyce Harrington
4	25-05-2023	Email	Re-issue of updated SWGCSP, SWQ-CMP and GW-CMP in response to EHG comments.	Alyce Harrington	Marnie Stewart
5	07-06-2023	Email	EHG Round 2 comments via email regarding revised SWGCSP, SWQ-CMP and GW-CMP.	Marnie Stewart, Susan Harrison	Alyce Harrington
6	03-07-2023	Email	EHG provided with an example ESCP for the AWRC site.	Alyce Harrington	Marnie Stewart
7	11-07-2023	Email	EHG provided with a response to address the remaining comments raised	Mira Segaran	Marnie Stewart
8	18-07-2023	Email	Follow up on the progress of the ESCP and if EHG had further comments	Alyce Harrington	Angela Taylor
9	18-07-2023	Email	Response to progress on EHG's review	Angela Taylor	Alyce Harrington
10	18-07-2023	Email	Request on timing on when EHG will have completed their review	Alyce Harrington	Angela Taylor
11	20-07-2023	Email	EHG provided timing on when the project can expect comments back	Angela Taylor	Alyce Harrington
12	27-07-2023	Email	Follow up on status of review of SWGCSP and ESCP	Alyce Harrington	Angela Taylor
13	27-07-2023	Email	EHG provided comments on SWGCSP and ESCP	Shaun Hunt	Alyce Harrington
14	02-08-2023	Meeting	Meeting with JHG, SWC, EHG and DPE	Attendees: Alyce Harrington (JH) Cheryl Cahill (SWC) Marnie Stewart (EHG) Cameron Varricchio (SWC) Jill Berwick (SWC) Ben Bracken (BBEnviro) Richard Ioffrida (JH) Carl Vincent (ErSed) Stephanie Clarke (SWC) Nathan Heath (DPE) Llyod Eley-Smith (DPE) Leon (EHG) Stuart (EHG)	

Table 2-4 below summarises the consultation comments received from EHG on the SWGCSP (including surface water quality monitoring program).

Table 2-4 Summary of issues – SWGCSP – EHG

Document Section, CoA/REMM	Comment Raised	Date Raised	How Addressed / Justification Why Not Addressed
CoA C6(b)	EHG considers that the CEMP sub plan does not meet the requirements of Condition C6(b) as no Erosion and Sediment Control Plans (ESCPs) detailing the actual type, location and sizing of controls has been included.	11-05-23	CoA C6(b) requires that the SWGCSP include detail erosion and sediment controls to be implemented during construction, including as a minimum, measures in accordance with the publication 'Blue Book'. Section 7.5 of the SWGCSP summaries the project's intended approach to management of erosion and sediment control matters via the development of a Primary Erosion and Sediment Control (P-ESCP) to describe how erosion and sediment impacts will be controlled and managed during delivery of the work. Additional explanatory text has been included in the second paragraph of Section 7.5, confirming that this extends to the "type, location and sizing of controls", as raised in EHG's comment. As stated in Section 7.5 of the SWGCSP, the intent of the P-ESCP and the subsequent detailed and site-specific progressive ESCPs are to function as site-level, live documents and will be developed, reviewed and updated on an ongoing basis by the project team to reflect the current site conditions as required, in consultation with the project CPESC as is required under CoA E73. When developed prior to commencement of construction, the project can provide EHG a copy of the P-ESCP for information.
CoA C6(a)	A separate ESCP(s) which outlines how the construction phase stormwater targets are achieved has not been provided, which is a requirement of the Technical guidance for Achieving Wianamatta South Creek Stormwater Management Targets (DPE, 2022) referred to in Condition C6(a). The submitted information does not contain suitable detail or calculations to illustrate how the stormwater targets will be achieved.	11-05-23	Section 7.5 of the SWGCSP includes the following: "...ESCPs will consider the construction phase stormwater quality targets in the draft Western Sydney Aerotropolis Development Control Plan – Phase 2 (October 2021) and the guidance provided in the Appendix K - Surface Water Impact Assessment (Aurecon, Arup, 2021d) of the EIS and the Technical Guidance for Achieving Wianamatta South Creek Stormwater Management Targets (DPE, 2022)." As the the P-ESCP and the subsequent detailed and site-specific progressive ESCPs are to function as site-level, live documents, they will not be contained in the high-level SWGCSP. They will be developed, reviewed and updated on an ongoing basis by the project team to reflect the current site conditions as required, in consultation with the project CPESC as is required under CoA E73. When developed prior to commencement of construction, the project can provide EHG a copy of the P-ESCP for information.

CoA E72 and E73	A revised CEMP sub plan which includes detailed ESCP(s) for each phase and area of works and which addresses the requirements of the Technical guidance for achieving Wianamatta–South Creek stormwater management targets (DPE, 2022). The ESCP(s) should be certified by a Certified Professional in Erosion and Sediment Control (CPESC) and specifically address the following: • Identify the type of sediment basin and provide details for all functional components (e.g. forebay, level spreader, spillway, dosing system, flocculant type). Note that Type-A/B will likely be required to achieve the targets within the South Creek catchment. • Provide details of the proposed flocculant type, dose rate and corresponding settling time, based on jar testing of the soils present within the works areas. • Provide sediment basin calculations demonstrating compliance with the targets. • Provide catchments plans identifying the sub catchments for all major drainage and sediment controls for each phase of works. • Provide calculation tables and sizing/dimensions for all major controls during all phases of works. • Provide a construction sequence identifying the order and timing for both the implementation and decommissioning of all controls, relative to specific site activities/hold points. • Provide details on the timing, methods and performance requirements for stabilisation of each area of site disturbance. • Provide specific advice in relation to sodic/dispersive soil management – particularly in relation to excavated drainage controls. • Provide details on how external catchment flows will be managed around or through the works without becoming contaminated, including details for waterway crossings for the pipelines	11-05-23	Please refer to the project's response to EHG's comment regarding CoA C6(a) and (b).
CoA C13(a) and C14	The focus of the monitoring program is on routine (dry weather) receiving water monitoring and to a lesser extent, wet weather monitoring. The routine (dry weather) monitoring is unlikely to detect any changes from background levels due to the impacts associated with the works being directly linked to rainfall, plus the variability in baseline data masking impacts. To be useful, monitoring needs to be linked to specific activities and times when impacts are likely to occur (i.e. during rainfall). A revised surface water monitoring program which addresses the following: • Include monitoring sites immediately upstream and downstream of all pipeline crossings of waterways/drainage lines and include trigger values based on the absolute change in water quality parameters at these locations relative to one another. • Expand the acceptable values for monitoring sites to state the absolute values that must be achieved from controlled releases from storages such as batch sediment basins, pits and trenches (i.e. TSS 50mg/L, pH 6.5-8.5 etc). • Expand the methodology for event based (wet weather) monitoring and explain how samples	11-05-23	The project's pipeline construction methodology where crossing of a waterway / drainage channel is occurring, can be categorised as either trenched or trenchless. Trenched meaning via the use of conventional pipe-laying techniques and the excavation of a trench using machinery to place pipe; and trenchless meaning underground via the method of horizontal directional drilling (HDD). Another trenchless method employed by the project includes micro-tunnelling, however, this is not occurring at a waterway / drainage channel. Additional monitoring sites have been updated in the SW-CMP relative to the trenched crossing of waterways / drainage channels only. This is due to the trenchless crossings (via HDD) being under-bored at a significant depth below the surface of the ground and at most locations this is greater than 20m.

	will be collect and in-situ measurements undertaken when impacts are likely to occur (i.e. while rainfall is occurring, not post-event). • Expand the monitoring report to include allowance for HES basins which discharge during rainfall events (not as a controlled batch release post-event).		Additionally, trigger values have been included relative to these trenched crossings.
CoA E115	Suitably qualified expert(s) must agree to methods of construction of pipeline across waterways and through shallow aquifers, in consultation with relevant State and/or local authorities. As previously advised in its comments on the Biodiversity CEMP sub-plan, if possible EHG recommends that DPE (as the consent authority) engage an expert to undertake an independent review of the plans and subsequent inspection during construction.	11-05-23	Noted.
EHG Round 2 comments regarding updated SWGCSP, SWQ-CMP and GW-CMP			
CoA C6(a)	<u>EHG's comments on updated CEMP Sub-plan and comments register</u>: EHG notes that only minor wording additions have been provided. There are no ESCP's provided in the document. EHG is of the view that at a minimum, the primary ESCP referred to in the CEMP sub-plan should be produced now and included in the CEMP sub-plan. EHG considers that the response does not meet the requirements of Condition C6, or the Technical guidance for Achieving Wianamatta South Creek Stormwater Management Targets.	08-06-23	The project is currently engaging with DPE and EHG to address the closeout of remaining comments related to the Surface Water & Groundwater CEMP sub-plan (SWGCSP). Amendments to the SWGCSP will be made and provided to EHG, including additional and indicative information related to the project's Erosion and Sediment Control Plans (ESCPs) to ensure comments have been sufficiently addressed.
CoA E72 and E73	<u>EHG's comments on updated CEMP Sub-plan and comments register</u>: None of the above required information has been provided.	08-06-23	
CoA C13(a) and C14	<u>EHG's comments on updated CEMP Sub-plan and comments register:</u> The comments register indicates that some of the crossings will be tunnel-bored while others will be trenched. While the CEMP sub-plan does mention tunnel-boring/horizontal directional drilling, it is unclear about which watercourse crossings will or won't use this trenchless technique. Currently the monitoring detail for trenched waterway crossings is incomplete as there are no 'assessment criteria' stated in the monitoring program even though that term is used as the basis are actions/intervention. It may be intended that these criteria are stated in Table 4-1 but it is unclear. It should be noted that if all waterway crossings are constructed using trenchless techniques, then the monitoring sites at the waterway crossings can be removed.	08-06-23	
CoA C13(a) and C14	<u>EHG's comments on updated CEMP Sub-plan and comments register</u> The comments register indicates that there will be no discharge of any water from the project boundary during construction. EHG raises concern that this is not a resolved strategy and about the practicalities. There is no detail provided on how this could be achieved apart from references to dust suppression and land irrigation. It is also noted that the this claim conflicts directly with Figure 7.6-2 of the CEMP which predicts 14.4ML/yr runoff being discharged to Wianamatta South Creek during construction. EHG's previous comments therefore remain relevant.	08-06-23	
CoA C13(a) and C14	<u>EHG's comments on updated CEMP Sub-plan and comments register</u>	08-06-23	

	The updated information notes daily receiving water quality monitoring during sediment basin discharge but there are no details on whether this is during basin discharge or after it has ceased. 'Event triggered sampling' mentions 'significant rainfall' as a trigger but does not define this term (i.e., provide rainfall depth in mm) or provide any details of how representative samples of discharges from the site will be captured while discharge is actually occurring, given this may be of short duration.		
CoA E115	EHG's comments on updated CEMP sub-plan and comments register EHG advises that this recommendation remains relevant.	08-06-23	
EHG Round 3 comments regarding updated SWGCSP, SWQ-CMP, GW-CMP and ESCP			
CoA C6(b)	The ESCP covers only an initial phase of works and it is unclear how the controls will integrate or transition to later stages of works at the site. At least preliminary ESCPs, showing major sediment and drainage controls are required for all stages of works at the facility and for the pipeline construction (including waterway crossings).	27-07-23	Refer to the copy of presentation provided by JH and SWC on the 02/08/2023. Preparation of ESCP for the AWRC plant site is critical to achieving key testing and commissioning dates and as such, ESCPs are being prioritized for the AWRC plant site. ESCPs developed for pipelines will be consistent with requirements / controls established for AWRC, including compliance with: Managing Urban Stormwater: Soils & Construction (4th edition, Landcom 2004) ('Blue Book'), and (In the South Creek catchment) Technical Guidance for Achieving Wianamatta South Creek Stormwater Management Targets (DPE, 2022). Pipeline ESCPs for waterway crossings to be developed and finalised subject to closeout of trenched pipeline methodology and what controls and management measures best suit project-specific requirements, subject to CPESC and geomorphologist advice. Last week (27.07.2023) key members of the project delivery team from both John Holland and Sydney Water, together with relevant subject matter experts, facilitated the Pipeline Trenching Methodology and Risk Assessment Workshop for upcoming pipe installation activities. The scope included the trenched crossing of waterways (Cosgroves, Oaky and South). In addition to the specialist pipeline contractors attending: Carl Vincent (CPESC) was in attendance Greg Peters (Geomorphologist) was in attendance. ESCP will be developed and finalised subject to closeout of trenched pipeline methodology and what controls and management measures best suit project-specific requirements, subject to CPESC and geomorphologist advice.
CoA C6(b)	The following feedback is provided in relation to the actual ESCP	There are no calculations directly relating how the strategy proposed will meet the construction-phase stormwater targets. As HES basins are not being proposed,	27-07-23	Refer to the copy of presentation provided by JH and SWC on the 02/08/2023.

	which has been submitted for the 'enabling works'. A revised ESCP is requested which addresses these comments:	water balance calculations are required to show how the use of the OSD and other sumps/basins and pumping strategies will achieve the targets. Critical information such as pumping rates, sizes of actual individual basins and dewatering timeframe for the OSD will need to be documented and used as the basis for the calculations.		
		Land irrigation of treated water is proposed. What is the required infiltration rate for this to be successful based on full dewatering of the OSD basin within the required timeframe and how will this be feasible following a significant rain event which fills the OSD and when ground conditions will be already saturated? This appears to be a strategy which will only work intermittently, at best.	27-07-23	Refer to the copy of presentation provided by JH and SWC on the 02/08/2023. The project notes EHG's commentary on practicality of water management on site and the criticality of the EPL variation that is currently being prepared by the project. The remaining items below refelect talking points during the meeting on the 02/08/2023. Ample capacity in the OSD relative to area of disturbance. Preferentially water retained within the site be used for dust suppression and where necessary for construction purposes (e.g. to assist with compaction) EPL variation application to be submitted shortly to license the OSD as a construction sediment basin (with approved discharge point and criteria).
		Furthermore, given the sodic/saline soils in the area, a soil assessment and land capacity assessment is required to be completed by a soil scientist to certify this approach is suitable, will not impact soil/groundwater conditions and the limitations on the approach.	27-07-23	CoA C4(c) - Soils & Contamination CEMP Sub-plan developed and endorsed by the project's EPA Accredited Site Auditor and addresses saline and sodic soils (Section 6.4). Salinity and sodicity potential and preliminary soil testing results undertaken as part of the EIS indicates a range of non-saline and non-sodic to moderately and high-level salinity and sodicity across the pipelines and AWRC site. Management measures include: • Where detailed design indicates soils will be disturbed, the project will engage with a suitably qualified expert to assess excavated soils for salinity and sodicity. The timing and nature of the engagement will take into account the timing of the EPL variation to permit discharge of water from site, preferentially over irrigation to land. Pending outcome of any assessment undertaken, requirements will be incorporated into the CEMP and relevant sub-plans. • Management of 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 where possible. If not possible to avoid excavation, they will not be reused within the project for landscaping or surface rehabilitation. Alternatively,

				potential treatment and on-site reuse will be further investigated.
		Gypsum is a slow-acting and difficult to deliver chemical for large basins. What testing has been conducted to determine likely settling rates and method of application?	27-07-23	Flexibility has been included in the example ESCP provided – "Gypsum at 30-50kg per 100m3 of water or other flocculant…" Gypsum is likely to be used for the smaller sub-basins to be established throughout the construction zone. However, more suitable alternatives (for example Alum) will be investigated to ensure that (given the size of the OSD), HES settling rates can be achieved. Jar testing will be undertaken to confirm the correct setting co-efficient is applied to the site, and by default, a conservative coefficient of 12,000 is proposed to be used.
		No sizing of bunds/drains or basin spillways provided. Internal site catchment areas now shown.	27-07-23	Refer to the copy of presentation provided by JH and SWC on the 02/08/2023.
		'Seeding' is inappropriate as the sole method to stabilise bunds if they are intended to act as immediate flow control devices.	27-07-23	In consultation with the project CPESC, ESCPs will reflect adaptability of controls. Where seeding of bunds may not be appropriate, the project CPESC will advise of alternative stabilization methods to implement (e.g. stabilized with geo-fabric material).
		It is unclear where stockpiles will be placed and whether additional disturbance outside of the blue shaded area will occur – particularly during construction of the OSD.	27-07-23	Pending construction staging, stockpile locations and their stay / duration will vary. Stockpiles will be located within the construction area which includes the blue-shaded area in the example ESCP for Enabling Works provided, and for practicality reasons, will be confirmed onsite. Stockpiles will be managed in accordance with the Stockpile Management Protocol (Appendix A9 of the CEMP) and any other controls and constraints identified by the project CPESC and documented on the ESCP.
		Final contours are not shown. This is required in order to understand how earthworks levels will change and influence controls as earthworks progress. Additional plans should be provided.	27-07-23	Refer to the copy of presentation provided by JH and SWC on the 02/08/2023.

2.3 SWGCSP – DPE Water

Consultation with the DPE Water commenced on 31 March 2023 and concluded 25 May 2023.

Table 2-5 below includes the details of engagement between USC and DPE Water regarding the SWGCSP (including surface water quality and groundwater monitoring program). Table 2-6 includes a summary of the issues raised, how those were addressed and closed out. Full evidence of correspondence is in Appendix 3 of this report.

Table 2-5 Engagement log – SWGCSP – DPE Water

#	Date	Correspondence		From	Recipient
		Form/Type	Purpose		

1	31-03-2023	Email	Issuing of sub-plan for consultation in accordance with CoA C4	Alyce Harrington	Alistair Drew
2	01-05-2023	Email	Respond to consultation	Tim Baker	Alyce Harrington
3	01-05-2023	Email	Respond to consultation. Comments raised	Liz Rogers	Alyce Harrington
4	25-05-2023	Email	Re-issue of updated SWGCSP, SWQ-CMP and GW-CMP in response to DPE Water comments.	Alyce Harrington	Liz Rogers
5	28-06-2023	Email	Follow-up on the status of DPE Water comments on re-issued SWGCSP.	Alyce Harrington	Alistair Drew DPE Water Assessments Team
6	03-07-2023	Email	DPE Water Assessments Team request documents be provided via the Planning Portal	Patricia Borges	Alyce Harrington
7	03-07-2023	Email	Updated SWGCSP (revision dated 25 May) reissued to DPE Water via Planning Portal	Cheryl Cahill Alyce Harrington	DPE Water Assessments Team
8	19-07-2023	Email	Respond to SWGCSP with comments	Simon Francis	Cheryl Cahill
9	24-07-2023	Email	Updated Revision 07 SWGCSP reissued to DPE Water	Mira Segaran	water.assessments@dpie.nsw.gov.au
10	24-07-2023	Email	Query regarding SWGCSP	Patricia Borges	Mira Segaran
11	25-07-2023	Email	Reissue of SWGCSP documents	Mira Segaran	Patricia Borges Simon Francis

Table 2-6 below summarises the consultation comments received from the DPE Water on the SWGCSP (including surface water quality and groundwater monitoring program).

Table 2-6 Summary of issues –SWGCSP– DPE Water

Document Section, CoA/REMM	Comment Raised	Date Raised	How Addressed / Justification Why Not Addressed
CEMP (and SWGCSP)	That the CEMP be updated to clarify construction water take volumes, licensing requirements and any additional water supply/take infrastructure. This is to include site water demands, surface water capture and all groundwater interference. Insufficient information has been provided to clearly understand the water take, licensing requirements and the ability to obtain any necessary water entitlement. The EIS refers to potential groundwater interference of 64ML in the Sydney Basin Central Groundwater Source, however WAL44469 which is referenced only has 30 units of entitlement. The ability to source the additional entitlement has not been demonstrated. A site water balance is required which summarises all site water demands, groundwater interception or surface water take and clearly show how all water take is to be accounted for or where an exemption may apply.	01-05-2023	The EIS reference design anticipated up to 64ML of groundwater would need to be dewatered from the Sydney Basin Central Groundwater Source. We are currently in the detailed design phase and construction planning for the AWRC and the pipelines, as part of this we will minimise dewatering where possible and we will refine the site water balance and dewatering calculations. However, 64ML is currently still assumed. Sydney Water has purchased more groundwater entitlements from this groundwater water source under controlled allocation. A new WAL is being processed and will be issued for the entitlements of 180ML which is for a number of Sydney Water projects. Sydney Water is currently liaising with representatives from DPE Water to obtain a Miscellaneous Work (MW) number for USC CSSI project and this will be used to link the project to the new WAL. Once issued with the new WAL, the SWGCSP will be updated with the new WAL number. Furthermore, Sydney Water will be consolidating the new WAL with WAL44469. Additional text summarising this response (and status of WAL44469) has been included in Section 3.5.2 of the SWGCSP.

CEMP (and SWGCSP)	Two exemptions to the requirement for a water access licence (WAL) are mentioned in Table 3-3. DPE Water advises that the exemption relating to road construction and maintenance (sch.4 cl 2 of the Water Management (General) Regulation 2018) would not apply to this project as it only applies to a road authority, which Sydney Water is not. The dust suppression WAL exemption in sch 4, cl 4 of the WM Reg 2018 however could apply as it is for public authorities.	01-05-2023	Table 3-3 has been updated by the removal of reference relating to road construction and maintenance.
CEMP (and SWGCSP)	No infrastructure (eg. pump) is mentioned to take water from the Nepean River or to meet site water demands. DPE Water advises that to be exempt from a water supply works approval under the Water Management Act 2000 (WMA 2000), these works must be assessed under the State Significant Infrastructure project or management plan assessment stages, or relevant approvals would need to be obtained separately.	01-05-2023	The project will only be sourcing water from town / potable supply and will not be taking from waterways for the purpose of construction. Where required, works will be done in accordance with UMM WW16 with regards to dewatering temporary in-stream structures. This requirement is included in Table 7-1 as the projects management measure.
CEMP (and SWGCSP)	Recommendation post approval: That the proponent ensure the relevant change of Water Access Licence (WAL) dealing application is completed with WaterNSW to nominate where the water is being taken from prior to the water take occurring. • WAL44469 is not currently linked to a work approval. Nominating the extraction point on the WAL is required to address offence provision 60D of the WMA 2000.	01-05-2023	The project acknowledges the post approval recommendation regarding resolution of the WAL. Sydney Water is currently liaising with representatives from DPE Water to obtain a Miscellaneous Work (MW) number for USC CSSI project and this will be used to link the project to the new WAL (discussed above). Once issued with the new WAL, the SWGCSP will be updated with the new WAL number. Furthermore, Sydney Water will be consolidating the new WAL with WAL44469.
SWGCSP	Recommendation – Prior to Approval The proponent should confirm water take volumes and licensing requirements including for site water demand, any surface water capture and all groundwater interference. Explanation Insufficient information has been provided to clearly understand the licensing requirements and take for the project. A site water balance should be provided summarising all site water demands, groundwater intercept or surface water take to clearly show all take can be accounted for under a water access licence (WAL) or where relevant when exemptions apply. The EIS mentioned potential groundwater interference with a take of 64 ML (57 ML for the Advanced Water Recycling Centre and 7 ML for the Brine pipeline and treated water pipeline) in the Sydney Basin Central Groundwater Source. The identified WA (WAL 44469) is noted to have been replaced by WAL 44810 through a consolidation dealing, and documents should be updated to reflect this change. The 30 ML held on this WAL is insufficient to cover potential take. Figure 7.6-2 of the CEMP sub-plan lists take from the Nepean River, of which there is no mention of entitlement held, and at the EIS stage it was noted to only be a possibility of take and as such no infrastructure has been proposed to take this water.	18-07-2023	Figure 7.6-2 has been revised to remove reference to the taking of water from the Nepean River. As the Environmental-Flows Pipeline is no longer being constructed as part of the USC AWRC CEMP and sub-plans, this take of water from the Nepean River has been deleted.
SWGCSP	Recommendation – Post Approval The proponent must ensure that relevant nomination of work dealing applications for WALs proposed to account for water take by the project have been completed prior to the water take occurring. Explanation WAL 44469 was not linked to a work approval and the replacement licence WAL 44810 nominates a number	18-07-2023	The project acknowledges the post approval recommendation regarding resolution of the WAL. Sydney Water is currently liaising with representatives from DPE Water to obtain a Miscellaneous Work (MW) number for USC CSSI project and this will be used to link the project to the new WAL (discussed above).

	of works which may or may not be associated with this project.		Once issued with the new WAL, the SWGCSP will be updated with the new WAL number. Furthermore, Sydney Water will be consolidating the new WAL with WAL44469.
SWGCSP	Recommendation – Prior to Approval The proponent should confirm the approach mentioned at the RTS stage that the launch/retrieval sites for trenchless pipelines will be setback in accordance with the Guidelines for Controlled Activities on Waterfront Land – Riparian corridors, or will be located in previously cleared areas to minimise impacts on riparian corridors. Explanation It was noted by the applicant at the RTS stage that works will be setback in accordance with the Guidelines for Controlled Activities on Waterfront land – Riparian corridors or they will be within cleared areas so would not impact riparian vegetation. This plan only notes that it will be located beyond the top of the bank, so confirmation is required on the approach that will be applied. The Guidelines for Controlled Activities on Waterfront land are available at: https://www.dpie.nsw.gov.au/water/licensing-and-trade/controlled-activity-approvals	18-07-2023	The following text has been included in Section 7.15 of the SWGCSP: Lunch and retrieval pits will not be directly on waterfront land and at all trenchless crossings will be a minimum of 75 meters from any waterway.

2.4 SWGCSP – DPI Fisheries

Consultation with the DPI Fisheries commenced on 31 March 2023 and concluded 18 April 2023.

Table 2-7 below includes the details of engagement between USC and DPI Fisheries regarding the SWGCSP (including surface water quality monitoring program). Table 2-8 includes a summary of the issues raised, how those were addressed and closed out. Full evidence of correspondence is in Appendix 4 of this report.

Table 2-7 Engagement log – SWGCSP – DPI Fisheries

#	Date	Correspondence		From	Recipient
		Form/Type	Purpose		
1	31-03-2023	Email	Issuing of sub-plan for consultation in accordance with CoA C4	Alyce Harrington	Josi Hollywood
2	01-05-2023	Email	Follow up issuing of sub-plan for consultation	Alyce Harrington	Josi Hollywood
3	03-07-2023	Email	Follow up issuing of SWGCSP and confirmation of any comments / questions.	Alyce Harrington	Josi Hollywood

Table 2-8 below summarises the consultation comments received from the DPI Fisheries on the SWGCSP (including surface water quality monitoring program).

Table 2-8 Summary of issues – SWGCSP – DPI Fisheries

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

2.5 SWGCSP – WaterNSW

Consultation with WaterNSW commenced on 31 March 2023 and concluded 25 May 2023.

Table 2-9 below includes the details of engagement between USC and WaterNSW regarding the SWGCSP (including surface water quality monitoring program). Table 2-10 includes a summary of the issues raised, how those were addressed and closed out. Full evidence of correspondence is in Appendix 5 of this report.

Table 2-9 Engagement log – SWGCSP – WaterNSW

#	Date	Correspondence		From	Recipient
		Form/Type	Purpose		
1	31-03-2023	Email	Issuing of sub-plan for consultation in accordance with CoA C4	Alyce Harrington	Justine Clarke
2	17-04-2023	Email	Respond to consultation	Justine Clarke	Alyce Harrington
3	17-04-2023	Email	Respond to consultation. Comments raised	Camilla Edmunds	Alyce Harrington
4	25-05-2023	Email	Re-issue of updated SWGCSP, SWQ-CMP and GW-CSP in response to WaterNSW comments.	Alyce Harrington	Camilla Edmunds / Justine Clarke
5	03-07-2023	Email	Follow up issuing of revised SWGCSP and confirmation comments / questions have been satisfactorily addressed.	Alyce Harrington	Justine Clarke
6	04-07-2023	Email	Response to consultation. Request for further information on remaining comments	Justine Clarke	Alyce Harrington
7	11-07-2023	Email	WaterNSW provided with a response to address the remaining comments raised	Mira Segaran	Justine Clarke
8	18-07-2023	Email	Follow up on status of comments on the SWGCSP	Alyce Harrington	Justine Clarke environmental.assessments @waternsw.com.au
9	21-07-2023	Phone Call (Voicemail)	Left voicemail inquiring the status of the SWGCSP comments	Alyce Harrington	Justine Clarke
10	21-07-2023	Email	Respond to SWGCSP remaining comments. No further comments raised	Justine Clarke	Alyce Harrington

Table 2-10 below summarises the consultation comments received from WaterNSW on the SWGCSP (including surface water quality monitoring program).

Table 2-10 Summary of issues – SWGCSP – WaterNSW

Document Section, CoA/REMM	Comment Raised	Date Raised	How Addressed / Justification Why Not Addressed
CEMP (and SWGCSP)	The key concerns for WaterNSW with regards to the construction of any new projects that directly impact on our lands or assets include:	17-04-2023	Additional section dedicated to Upper Canal has been added to table 7-1 of the SWGCSP. Specifically, SWG40 has been created.
CEMP (and SWGCSP)	No damage should occur to the water supply infrastructure at any stage of the development, including the stormwater structures currently serving the Upper Canal.	17-04-2023	Additional section dedicated to Upper Canal has been added to table 7-1 of the SWGCSP. Specifically, SWG41 has been created.
CEMP (and SWGCSP)	24-hour all-weather access to the Upper Canal corridor must be retained or provided for WaterNSW staff and contractors.	17-04-2023	Additional section dedicated to Upper Canal has been added to table 7-1 of the SWGCSP. Specifically, SWG42 has been created.
CEMP (and SWGCSP)	For security and safety purposes, there is to be no public access into the Upper Canal corridor at any time. If access is required by the proponent and/or	17-04-2023	Additional section dedicated to Upper Canal has been added to table 7-1 of the

	their contractors for any purpose during the development process, a written access consent will be required from WaterNSW.		SWGCSP. Specifically, SWG43 has been created.
CEMP (and SWGCSP)	The heritage values of the State Heritage listed Upper Canal must be taken into consideration and protected at all stages of the development.	17-04-2023	Additional section dedicated to Upper Canal has been added to table 7-1 of the SWGCSP. Specifically, SWG44 has been created.
SWGCSP	No water quality summary is provided for Warragamba River. For completeness a summary should be included on the baseline water quality. Alternatively, the baseline monitoring sites on the Warragamba River can be removed from the subplan, to coincide with the removal of the E-flows pipeline from the project	17-04-2023	The project has descoped the E-flows pipeline and DPE has approved the modification. References to Warragamba River has been removed from the sub-plan.
SWGCSP	It is unclear how each of the construction impacts identified here (specifically table 6-1), will or have been mitigated in the CEMP sub-plan. A corresponding link to the mitigation location should be identified.	17-04-2023	The structure of the document is such that Section 6 of the sub-plan directly discusses aspects and impacts only and directs the reader to Section 7 for the relevant controls and management measures. Adjusting Section 6 to include controls and management measures will be inconsistent with the format and intent of the document, a format that has been applied and the CEMP and all sub-plans of the project.
SWGCSP	WaterNSW supports the surface and groundwater management measures for phase 1 construction. Specifically, those measures that include erosion and sediment control, spill management, stockpile controls, rehabilitation, dewatering and trenchless crossing protections.	17-04-2023	Acknowledged and noted.
SWGCSP	It is recognised that this appendix is not included in the report and will be developed in consultation with specialist pipelines contractors. WaterNSW request to be involved in the development and review of this plan as it relates to the underbore crossing of the Upper Canal. This will ensure site specific controls are considered and implemented. This document should be removed as an appendix, with a corresponding action included in the CEMP to develop the plan during detailed design.	17-04-2023	Acknowledged and noted. Additional comment has been added to Section 4 confirming this.
SWGCSP	WaterNSW support the ESC procedure, and request that as progressive Erosion and Sediment Control Plans (ESCP) are developed that a site specific ESCP be developed for the crossing of the Upper Canal by the brine pipeline.	17-04-2023	Acknowledged and noted.
SWGCSP	It is unclear how the sites water balance will be monitored pre and post construction. The CEMP sub-plan clearly identifies how water quality will be monitored (Appendix E), but not water quantity & flow. Additional advice and monitoring parameters is required around surface water flow volumes leaving the AWRC site, specifically as they have the potential to impact on downstream environments, including the Warragamba Pipelines.	17-04-2023	A water balance study has been completed for the project and is detailed in EIS Appendix K Surface Water Assessment. Section 7.1.1 of EIS Appendix K concludes the flow patterns from the site would not be significantly altered due to the flat nature of the existing site (0.4 to 0.6%) and the proposed reference design grades (0.8%). Impacts to flood flows downstream would not be significant during the bulk earthworks phase and flood detention would not be required until hard surfaces are established. The water balance for the site under pre and post-construction conditions is detailed in Figure 7.1 of the SWGCSP, which has been revised to consider the final design to be constructed.

2.6 SWGCSP – Relevant Council

Consultation with the relevant councils commenced on 31 March 2023 and concluded 18 April 2023.

Table 2-11 below includes the details of engagement between USC and the relevant councils regarding the SWGCSP (including surface water quality monitoring program). Table 2-12 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 6 - Wollondilly Shire Council

Appendix 7 - Penrith City Council

Appendix 8 - Liverpool City Council

Appendix 9 - Fairfield City Council

Appendix 10 - Canterbury Bankstown City Council

Table 2-11 Engagement log – SWGCSP – 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	31-03-2023	Email	Issuing of sub-plan for consultation in accordance with CoA C4	Alyce Harrington	Mathew Harland Nafizul Akash Bianca Klein Ibrahim Muharrem
3	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	31-03-2023	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-plans 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	24-03-2023	Phone Call	Query regarding the response date for the sub-plan	Jerard Tungcab	Alyce Harrington
3	31-03-2023	Email	Issuing of sub-plan for consultation in accordance with CoA C4	Alyce Harrington	Jerard Tungcab

4	26-04-2023	Email	Notification regarding end of consultation period	Alyce Harrington	Jerard Tungcab
5	08-05-2023	Email	Additional response from Council regarding sub-plans submitted for consultation, however, nothing in relation to SWGCSP.	Jerard Tungcab	Alyce Harrington
Fairfield City Council					
1	13-03-2023	Meeting	Stakeholder Meeting with Council on 50% design completion	Michael Robertson Rama Sapkota	Andrew Mooney Kerren Ven Mursaleen Shah Zahid Hassan
2	31-03-2023	Email	Issuing of sub-plan for consultation in accordance with CoA C4	Alyce Harrington	Daniel Begnell mail@fairfieldcity.nsw.gov.au
3	03-04-2023	Email	Follow up on progression of all sub-plan comments	Alyce Harrington	Mursaleen Shah
4	04-04-2023	Email	Respond to follow up by John Holland	Mursaleen Shah	Alyce Harrington
5	04-04-2023	Email	Request to remove individual as point of contact	Mursaleen Shah	Alyce Harrington
6	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	31-03-2023	Email	Issuing of sub-plan for consultation in accordance with CoA C4	Alyce Harrington	Tim Ireland Paul Angel David Lowery Asad Suman David Milner
2	18-04-2023	Email	Respond to consultation. No comments raised.	David Milner	Alyce Harrington

Table 2-12 below summarises the consultation comments received from the relevant councils on the SWGCSP (including surface water quality monitoring program).

Table 2-12 Summary of issues –SWGCSP – Relevant Councils

Document Section, CoA/REMM	Comment Raised	Date Raised	How Addressed / Justification Why Not Addressed
CEMP (and SWGCSP)	Wollondilly Shire Council No correspondence or feedback received during the consultation period.	n/a	n/a
CEMP (and SWGCSP)	Penrith City Council No correspondence or feedback received during the consultation period.	n/a	n/a
CEMP (and SWGCSP)	Liverpool City Council Correspondence received from council following the completion of the consultation period, however, upon review of council's feedback, there was nothing in relation to the SWGCSP.	08-05-2023	n/a
CEMP (and SWGCSP)	Fairfield City Council No correspondence or feedback received during the consultation period.	n/a	n/a
CEMP (and SWGCSP)	Canterbury-Bankstown City Council Reviewed by our (CBCC) Environmental Health team and they advised they have no comment	18-04-2023	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(a) - Surface Water & Groundwater CEMP Sub-plan - for consultation (EPA)
Date:	Friday, 31 March 2023 3:11:22 PM
Attachments:	USCP-JHG-MPL-ENV-0001 Surface Water & Groundwater CEMP Sub-plan (Rev 03) 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 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) (SWGCSP)
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 **Surface Water & Groundwater CEMP Sub-plan** (SWGCSP, C4(a)). Please note that as there are a number of references to sections within the CEMP throughout the SWGCSP, 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 Tuesday 18 April 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

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(a) - Surface Water & Groundwater CEMP Sub-plan - for consultation (EPA)
Date:	Tuesday, 18 April 2023 8:42:59 PM
Attachments:	image007.png image008.png image009.png image010.png image011.png image012.png image013.png

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Hi Alyce,

Thank you for providing the Surface Water & Groundwater CEMP. The following comments are provided:

Surface Water Construction Monitoring Program (Appendix E)

-

- It is somewhat unclear the frequency to which the EPA will be provided monitoring reports under this program. Will the EPA be provided with only the six-monthly CMR (as per page 122), or a report for each event listed on page 122 (i.e. routine sampling, event sampling, trigger level exceedances)? It is recommended that the EPA is at the least provided the trigger level/acceptable range exceedance reports.
- It is noted that the water quality monitoring locations around the treated/brine pipeline works are still to be determined (SW06 on page 114). The proposed monitoring locations (and trigger point parameters) should be provided to the EPA for consideration prior to any relevant construction works being undertaken at these locations. This is to ensure that water quality impacts for the works at these locations can be adequately characterised.
- As noted in the document, various sections of this CEMP will need to be updated following John Holland's application for a licenced water discharge point in the coming months.

Groundwater Construction Monitoring Program (Appendix F)

- Same comments as per above surface water monitoring program regarding the frequency of reporting to the EPA.
- Additional supporting information should be provided as to how the groundwater quality objective values listed in Tables 3-1 and 3-2 were determined to refine the list of analytes for groundwater monitoring and to set trigger values. As an example, the specific guideline in Table 3-1 that is used to calculate the ammonia trigger value (2.3 mg/L) is not specified. This is of particular importance as there are instances where the project trigger value is much higher than the acceptable range.
- The monitoring program does not appear to include consideration of groundwater contamination from pipeline construction works. Table 4-8 of the EIS Groundwater Impact Assessment identified a range of EPA notified contaminated sites within the vicinity of pipeline construction, and specifically identifies the pipeline construction works near Metro Service Station at Bonnyrigg as a moderate risk. Under Conditions of Approval E74 to E83, a site auditor will be engaged to provide oversight in assessing the risk and extent of contamination at these locations. In the event any issues are raised by the auditor regarding contaminated groundwater risks at specific pipeline construction locations, the

monitoring program should be updated include relevant additional pipeline construction monitoring locations, and appropriate trigger guidelines/acceptance ranges at these locations should be determined based on baseline data undertaken as a priority.

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.

From: Alyce Harrington-JHG <Alyce.Harrington@jhg.com.au>
Sent: Friday, 31 March 2023 3:09 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(a) - Surface Water & Groundwater 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) (SWGCSP)
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 **Surface Water & Groundwater CEMP Sub-plan** (SWGCSP, C4(a)). Please note that as there are a number of references to sections within the CEMP throughout the SWGCSP, 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 Tuesday 18 April 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

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:	Daniel Burchmore; Trevor Wilson
Cc:	CAHILL, CHERYL; Cameron Varricchio; Mira Segaran-JHG
Subject:	RE: Upper South Creek (SSI 8906189) CoA C4(a) - Surface Water & Groundwater CEMP Sub-plan - for consultation (EPA)
Date:	Thursday, 25 May 2023 10:34:34 PM
Attachments:	image001.png image002.png image003.png image004.png image005.png image006.png image008.png image009.png

Good evening Daniel and Trevor,

John Holland on behalf of Sydney Water would like to thank EPA for participating in the consultation process and providing comments for the Upper South Creek project.

Please see attached updated Surface Water & Groundwater CEMP Sub-plan and corresponding comment register for your information.

EPA

Please download the documents from the link provided, noting that the link is valid for your email addresses only. If others require access to the documents, please download them and distribute as required.

If you have any questions regarding this matter, please do not hesitate to 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

From: Daniel Burchmore <Daniel.Burchmore@epa.nsw.gov.au>
Sent: Tuesday, April 18, 2023 8:43 PM
To: Alyce Harrington-JHG <Alyce.Harrington@jhg.com.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: RE: Upper South Creek (SSI 8906189) CoA C4(a) - Surface Water & Groundwater CEMP Sub-plan - for consultation (EPA)

Hi Alyce,

Thank you for providing the Surface Water & Groundwater CEMP. The following comments are provided:

Surface Water Construction Monitoring Program (Appendix E)

-

- It is somewhat unclear the frequency to which the EPA will be provided monitoring reports under this program. Will the EPA be provided with only the six-monthly CMR (as per page 122), or a report for each event listed on page 122 (i.e. routine sampling, event sampling, trigger level exceedances)? It is recommended that the EPA is at the least provided the trigger level/acceptable range exceedance reports.
- It is noted that the water quality monitoring locations around the treated/brine pipeline works are still to be determined (SW06 on page 114). The proposed monitoring locations (and trigger point parameters) should be provided to the EPA for consideration prior to any relevant construction works being undertaken at these locations. This is to ensure that water quality impacts for the works at these locations can be adequately characterised.
- As noted in the document, various sections of this CEMP will need to be updated following John Holland's application for a licenced water discharge point in the coming months.

Groundwater Construction Monitoring Program (Appendix F)

- Same comments as per above surface water monitoring program regarding the frequency of reporting to the EPA.
- Additional supporting information should be provided as to how the groundwater quality objective values listed in Tables 3-1 and 3-2 were determined to refine the list of analytes for groundwater monitoring and to set trigger values. As an example, the specific guideline in Table 3-1 that is used to calculate the ammonia trigger value (2.3 mg/L) is not specified. This is of particular importance as there are instances where the project trigger value is much higher than the acceptable range.
- The monitoring program does not appear to include consideration of groundwater contamination from pipeline construction works. Table 4-8 of the EIS Groundwater Impact Assessment identified a range of EPA notified contaminated sites within the vicinity of pipeline construction, and specifically identifies the pipeline construction works near Metro Service Station at Bonnyrigg as a moderate risk. Under Conditions of Approval E74 to E83, a site auditor will be engaged to provide oversight in assessing the risk and extent of contamination at these locations. In the event any issues are raised by the auditor regarding contaminated groundwater risks at specific pipeline construction locations, the monitoring program should be updated include relevant additional pipeline construction monitoring locations, and appropriate trigger guidelines/acceptance ranges at these

locations should be determined based on baseline data undertaken as a priority.

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.

From: Alyce Harrington-JHG <Alyce.Harrington@jhg.com.au>
Sent: Friday, 31 March 2023 3:09 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(a) - Surface Water & Groundwater CEMP Sub-plan - for consultation (EPA)

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C4

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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)
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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 **Surface Water & Groundwater CEMP Sub-plan** (SWGCSP, C4(a)). Please note that as there are a number of references to sections within the CEMP throughout the SWGCSP, 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 Tuesday 18 April 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

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:	Daniel Burchmore
Cc:	Jason Julius-JHG; Michael McIlveen-JHG; Darragh O"Brien-JHG; James Braham-JHG; Julian Thompson; Trevor Wilson; Benn Treharne; Richard Ioffrida-JHG
Subject:	RE: HPE CM: RE: John Holland - Upper South Creek AWRC EPL application update
Date:	Tuesday, 27 June 2023 3:05:00 PM
Attachments:	image002.png image003.png image004.png image005.png image006.png image007.png image008.png EPL 21800 Premises Map_Rev 2.pdf USCP-JHG-PLN-ENV-ESCP Stage 1 Enabling Works.pdf

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Good afternoon Daniel,

Hope you have been well.

To follow up on the remaining items regarding the USC draft EPL, please refer to the following items below:

- Please see attached updated premises boundary maps, inclusive of Lot/DP overlay to assist with clearly identifying premises boundaries.
- Inclusion of scheduled activity (42) *Waste Storage* is not required as the project will not be receiving waste from off site, nor will it be storing waste from off site (including storage for transfer).
- Material reuse and diversion of waste from landfill where appropriate, is a key priority for the project. John Holland and Sydney Water, in consultation with the project's EPA Accredited Site Auditor for contamination, are currently in discussions regarding the potential reuse of material won from other locations within the project boundary at the AWRC site. As such, the project has also considered the potential application of scheduled activity *(15) Contaminated Soil Treatment*. Whilst DSI investigations are yet to be finalised for the project, preliminary estimates of excavated material volumes indicate that this will not result in the treatment or storage of more than 30,000 cubic meters of contaminated soil (15.2.b.ii).
- In relation to special noise conditions regarding specific activities, the project will arrange a separate briefing with the EPA in the coming weeks to run through these details and understand the EPA's position and expectation on the proposed future activities. We note that this briefing may be after the initial EPL is approved and construction commences, however, detailed construction planning regarding these future activities may have not progressed enough to warrant a detailed conversation at that stage.

Regarding the USC Surface Water & Groundwater CEMP Sub-plan (SWGCSP):

- During the consultation period, feedback from other relevant government agencies included a request for the submission of an Erosion and Sediment Control Plan (ESCP). Please see attached the primary ESCP, as referenced in Section 7.5 of the SWGCSP for your reference. If there are any questions or comments, please let me know.
- Additionally, the project is currently working through first round comments received from DPE on the SWGCSP and wanted to confirm if the EPA had any outstanding comments or response regarding the updated SWGCSP issued to the EPA via email on 25 May 2023.

Please do not hesitate to contact me if you have any further questions.

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

From: Daniel Burchmore <Daniel.Burchmore@epa.nsw.gov.au>
Sent: Tuesday, May 9, 2023 3:49 PM
To: Alyce Harrington-JHG <Alyce.Harrington@jhg.com.au>
Cc: Rob Cranston-JHG <Rob.Cranston@jhg.com.au>; Jason Julius-JHG <Jason.Julius@jhg.com.au>; Michael McIlveen-JHG <Michael.McIlveen@jhg.com.au>; Darragh O'Brien-JHG <Darragh.O'Brien@jhg.com.au>; James Braham-JHG <James.Braham@jhg.com.au>; Julian Thompson <Julian.Thompson@epa.nsw.gov.au>; Trevor Wilson <Trevor.Wilson@epa.nsw.gov.au>; Benn Treharne <Benn.Treharne@epa.nsw.gov.au>; Simone Kenyon-JHG <Simone.Kenyon@jhg.com.au>
Subject: RE: HPE CM: RE: John Holland - Upper South Creek AWRC EPL application update

Hi Alyce,

In addition to the comments below, I just wanted to touch on the need for the premises maps submitted to include the relevant Lot/DP details.

The Premises boundary maps provided in Appendix 4 of the attached EPL application (AWRC and construction compounds) provide indications of where the licenced premises would be via satellite imagery. However, providing an overlay of the current Lot/DPs would more clearly outline the premises boundaries. While I can refer to various documents in the EIS etc to try and work out the actual lots/DPs of construction compounds for instance, there may be some legal ambiguity around this.

Would it be possible for JH to update the provided premises maps to include the relevant Lot/DPs? And can this requirement be incorporated for any future premises to be provided?

Happy to discuss further if needed.

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.

From: Daniel Burchmore
Sent: Monday, 8 May 2023 10:55 AM
To: Alyce Harrington-JHG <Alyce.Harrington@jhg.com.au>
Cc: Rob Cranston-JHG <Rob.Cranston@jhg.com.au>; Jason Julius-JHG <Jason.Julius@jhg.com.au>; Michael McIlveen-JHG <Michael.McIlveen@jhg.com.au>; Darragh O'Brien-JHG <Darragh.O'Brien@jhg.com.au>; James Braham-JHG <James.Braham@jhg.com.au>; Julian Thompson <Julian.Thompson@epa.nsw.gov.au>; Trevor Wilson <Trevor.Wilson@epa.nsw.gov.au>; Benn Treharne <Benn.Treharne@epa.nsw.gov.au>; Simone Kenyon-JHG <Simone.Kenyon@jhg.com.au>
Subject: HPE CM: RE: John Holland - Upper South Creek AWRC EPL application update

Hi Alyce,

Thanks for your feedback. The EPA's response to your comments on the draft licence are provided in the pdf above.

At this stage, the outstanding matters to be addressed appear to be:

- Provision of updated surface/groundwater CEMP by John Holland
- Confirmation of whether 'waste storage' scheduled activity will be needed on the EPL by John Holland – In this matter, it is worth noting that the 'waste storage' scheduled activity refers to 'the receiving from off site and storing (including storage for transfer) of waste.'
- Discussion around hours for noise conditions

In relation to the noise conditions, the EPA is happy to meet to discuss this further and understand the type of works that are proposed to be done outside of standard hours, why standard hours are requested to be extended, and any community agreements that will be sought in respect of this. It is important to note that for works that are not subject to emergency/safety requirements or restrictions placed by other authorities (i.e road occupancy licences), community agreement is the primary mechanism by which these works are typically allowed to go ahead.

Meeting availability on our end this week and next is as follows:

Tomorrow (9th) – 9 to 10am, 12.30 onward

Wed (10th) – Anytime except 11 to 12.30

Fri (12th) – Anytime except 11 to 11.30

Mon (15th) – Anytime after 12.30, except 2-2.30

Tues (16th) – Anytime before 12.30, except 11 to 11.30

Regards,

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

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

From: Alyce Harrington-JHG <Alyce.Harrington@jhg.com.au>
Sent: Friday, 5 May 2023 1:39 PM
To: Daniel Burchmore <Daniel.Burchmore@epa.nsw.gov.au>
Cc: Rob Cranston-JHG <Rob.Cranston@jhg.com.au>; Jason Julius-JHG <Jason.Julius@jhg.com.au>; Michael McIlveen-JHG <Michael.McIlveen@jhg.com.au>; Darragh O'Brien-JHG <Darragh.O'Brien@jhg.com.au>; James Braham-JHG <James.Braham@jhg.com.au>; Julian Thompson <Julian.Thompson@epa.nsw.gov.au>; Trevor Wilson <Trevor.Wilson@epa.nsw.gov.au>; Benn Treharne <Benn.Treharne@epa.nsw.gov.au>; Simone Kenyon-JHG <Simone.Kenyon@jhg.com.au>
Subject: RE: John Holland - Upper South Creek AWRC EPL application update

Good afternoon Daniel,

Thank you for providing John Holland with a draft EPL for review, we appreciate the timely turn-around since the EPL application was submitted via the eConnect portal.

Please note that the attached PDF includes comments throughout in addition to a response to the dot points raised in your earlier email correspondence.

- Provision of detailed premises maps for the pipeline construction works - The maps provided in the application appear to only show the AWRC and construction compounds. Acknowledging that other locations will come and go in terms of construction works, it is

envisioned that condition A2.3 should allow JH the flexibility to provide maps for each of these areas as they go.

John Holland acknowledges the EPA's comment and will provide updated maps of the premises boundary prior to commencement of construction works at that location.

- As per the comment on condition O5.1, provision of the Waste & Resource Use CEMP should be provided. This will also assist in justifying that the 'waste storage' scheduled activity threshold is not met.

  A copy of the Waste & Resource Use CEMP Sub-plan (WRUCSP) developed by John Holland for USC and reviewed by Sydney Water is attached to this email. For your information, the attached WRUCSP is currently with the project's ER for endorsement prior to issuing to DPE for assessment and approval.

- The noise conditions for OOHWs are consistent with the EPA's new standard approach under the recently development model transport licence for construction works (given the similarities between this project and those)- https://yoursay.epa.nsw.gov.au/model-transport-licence. Happy to discuss the implications of this approach for project works/any alternatives further if you have any concerns.

  John Holland has reviewed the draft noise conditions for OOHW and would like to engage further with the EPA in regards to potential future conditions to be introduced to the license to recognise specific activities that may warrant working outside of standard construction hours. For example, early planning discussions had with the USC construction team has identified the following key activities or works:

  - Significant structural concrete pours at key structures at the AWRC site (e.g. bioreactor, inlet works, etc)
  - Commissioning activities that warrant execution beyond and/or outside of standard construction hours (including hydrostatic testing)

- Comments were recently provided by the EPA on both the surface water and groundwater construction monitoring plans provided as part of the surface/groundwater CEMP sub-plan. Subject to clarification of the issues raised, the EPA considers it may be prudent to condition monitoring and reporting requirements for these programs on the EPL to ensure stronger oversight. Proposed conditions on these will be provided following clarification of the comments provided earlier week on both programs.

  John Holland acknowledges the EPA's comments regarding the Surface Water and Groundwater CEMP Sub-plan (SWGCSP). We are currently working through an update to the SWGCSP in accordance with the comments provided by the EPA and other relevant agencies nominated in the planning approval. John Holland notes that additional discussions will take place as these matters are resolved.

Also, to close the loop on previous discussions / issues related to the application submission via the portal and the application fee payment, please note that these matters have been resolved and I appreciate you following up.

Please feel free to reach out if you wish to discuss anything further.

Kind Regards,

Alyce Harrington
Planning, Environment & Approvals Director

Upper South Creek

Level 3, 65 Pirrama Road, Pyrmont NSW
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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: Daniel Burchmore <Daniel.Burchmore@epa.nsw.gov.au>
Sent: Friday, 21 April 2023 12:51 PM
To: Alyce Harrington-JHG <Alyce.Harrington@jhg.com.au>
Cc: Rob Cranston-JHG <Rob.Cranston@jhg.com.au>; Jason Julius-JHG <Jason.Julius@jhg.com.au>; Michael McIlveen-JHG <Michael.McIlveen@jhg.com.au>; Darragh O'Brien-JHG <Darragh.O'Brien@jhg.com.au>; James Braham-JHG <James.Braham@jhg.com.au>; Julian Thompson <Julian.Thompson@epa.nsw.gov.au>; Trevor Wilson <Trevor.Wilson@epa.nsw.gov.au>; Benn Treharne <Benn.Treharne@epa.nsw.gov.au>
Subject: RE: John Holland - Upper South Creek AWRC EPL application update

Hi Alyce,

Please see attached a proposed draft scheduled development licence for the Upper South Creek AWRC.

Proposed licence conditions

As flagged in the attached draft licence, there are a few things that need to be resolved from the EPA's view:

- Provision of detailed premises maps for the pipeline construction works - The maps provided in the application appear to only show the AWRC and construction compounds. Acknowledging that other locations will come and go in terms of construction works, it is envisioned that condition A2.3 should allow JH the flexibility to provide maps for each of these areas as they go.
- As per the comment on condition O5.1, provision of the Waste & Resource Use CEMP should be provided. This will also assist in justifying that the 'waste storage' scheduled activity threshold is not met.
- The noise conditions for OOHWs are consistent with the EPA's new standard approach under the recently development model transport licence for construction works (given the similarities between this project and those)- https://yoursay.epa.nsw.gov.au/model-transport-licence. Happy to discuss the implications of this approach for project works/any alternatives further if you have any concerns.
- Comments were recently provided by the EPA on both the surface water and groundwater construction monitoring plans provided as part of the surface/groundwater CEMP sub-plan. Subject to clarification of the issues raised, the EPA considers it may be

prudent to condition monitoring and reporting requirements for these programs on the EPL to ensure stronger oversight. Proposed conditions on these will be provided following clarification of the comments provided earlier week on both programs.

Your comments/concerns/suggested amendments/additional documents in relation to the draft licence are requested to be provided by **5 May 2023** (although I envision you will be looking to get these in earlier than this date). I am happy to meet to discuss any aspects of this further.

Licence submission issues

I wanted to confirm whether all your issues regarding submission of the licence applications/fee payment etc had been resolved. If there is anything you need assistance with in this regard, let me know.

Feel free contact me if you have questions.

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: Friday, 31 March 2023 11:00 AM
To: Julian Thompson <Julian.Thompson@epa.nsw.gov.au>; Daniel Burchmore <Daniel.Burchmore@epa.nsw.gov.au>; Trevor Wilson <Trevor.Wilson@epa.nsw.gov.au>
Cc: Rob Cranston-JHG <Rob.Cranston@jhg.com.au>; Jason Julius-JHG <Jason.Julius@jhg.com.au>; Michael McIlveen-JHG <Michael.McIlveen@jhg.com.au>; Darragh O'Brien-JHG <Darragh.O'Brien@jhg.com.au>; James Braham-JHG <James.Braham@jhg.com.au>
Subject: John Holland - Upper South Creek AWRC EPL application update

Good morning Julian, Daniel and Trevor,

Hope you are all well.

John Holland has finalised its Environmental Protection Licence application for *scheduled development work* for the Upper South Creek AWRC project. To keep you all updated, I attempted to log into the EPA's online eConnect portal yesterday to create a new application and upload supporting documentation, however I experienced issues getting all the way through the application online and as a result I contacted the EPA hotline seeking assistance.

I spoke with a team member (Luke) from the licensing team and after describing the issue to him, Luke mentioned he would contact me today after having discussed it with someone in his team who could assist with finalising the submission via eConnect.

Whilst the issue is being resolved, please see attached a copy of the application and supporting information consolidated in one pdf document. Once resolved, I will send through a follow-up email to confirm that the application has been formally issued via eConnect. Also attached is a copy of the signed POA under which John Holland have addressed Section 15 of the application.

Please also note that the last of the CEMP sub-plans (Surface Water & Groundwater) will be issued to the EPA for consultation in accordance with SSI-8609189 CoA C4(a) by close of business today, Friday 31 March 2023.

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

Kind regards,

Alyce Harrington
Planning, Environment & Approvals Director
Upper South Creek

JOHN HOLLAND

Level 3, 65 Pirrama Road, Pyrmont NSW
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E. Alyce.Harrington@jhg.com.au

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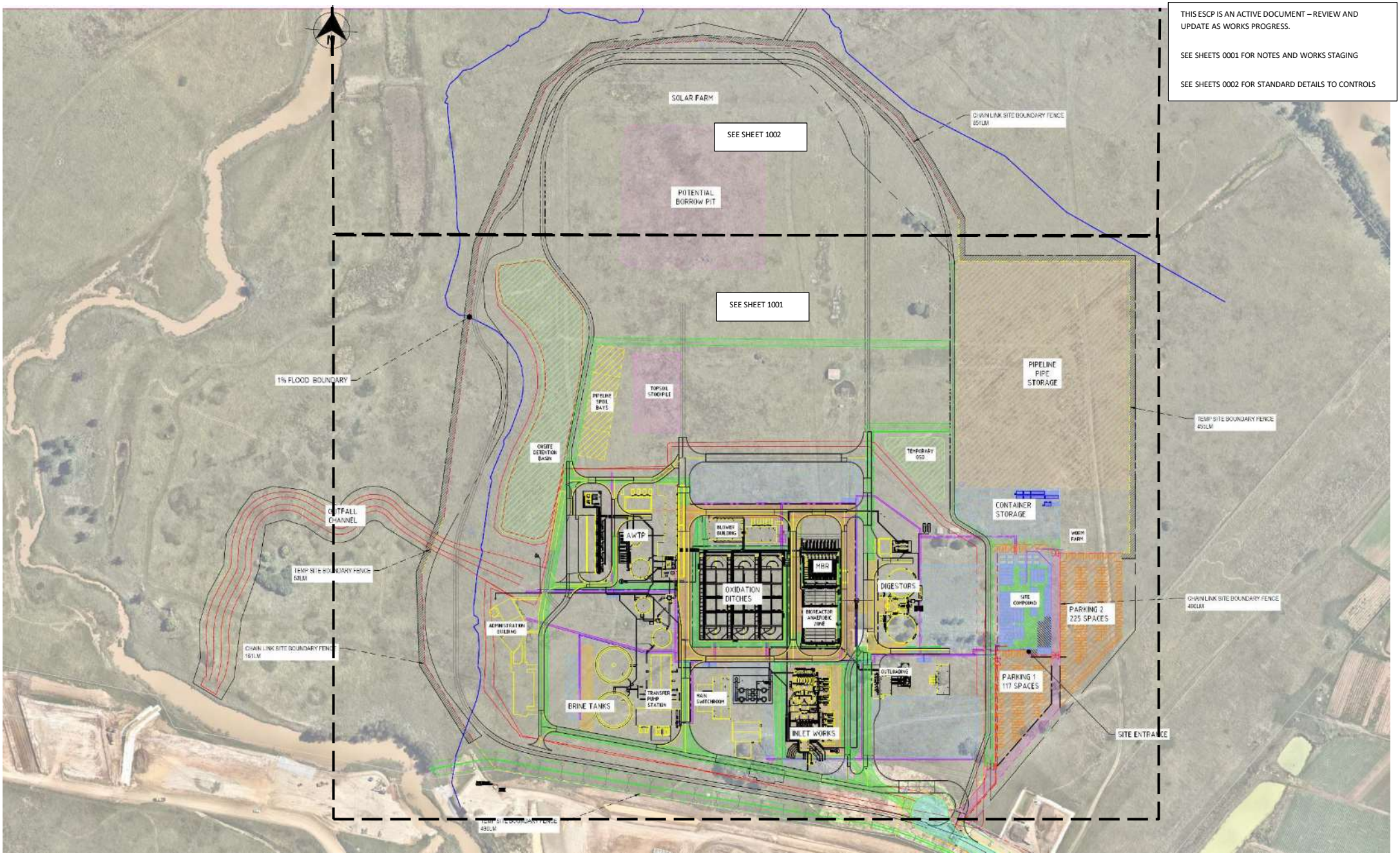

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PLAN PREPARED BY

C VINCENT (CPESC # 2385)

SHEETS IN THIS PLAN SET

1. GENERAL ARRANGMENT – FULL SITE EXTENT (SHEET 1000)
2. GENERAL ARRANGMENT – SOUTHERN (SHEET 1001)
3. GENERAL ARRANGMENT – NORTHERN (SHEET 1001)
4. NOTES AND DETAILS TO ESC (SHEET 0001)
5. STANDARD DETAILS TO ESC (SHEET 0002)

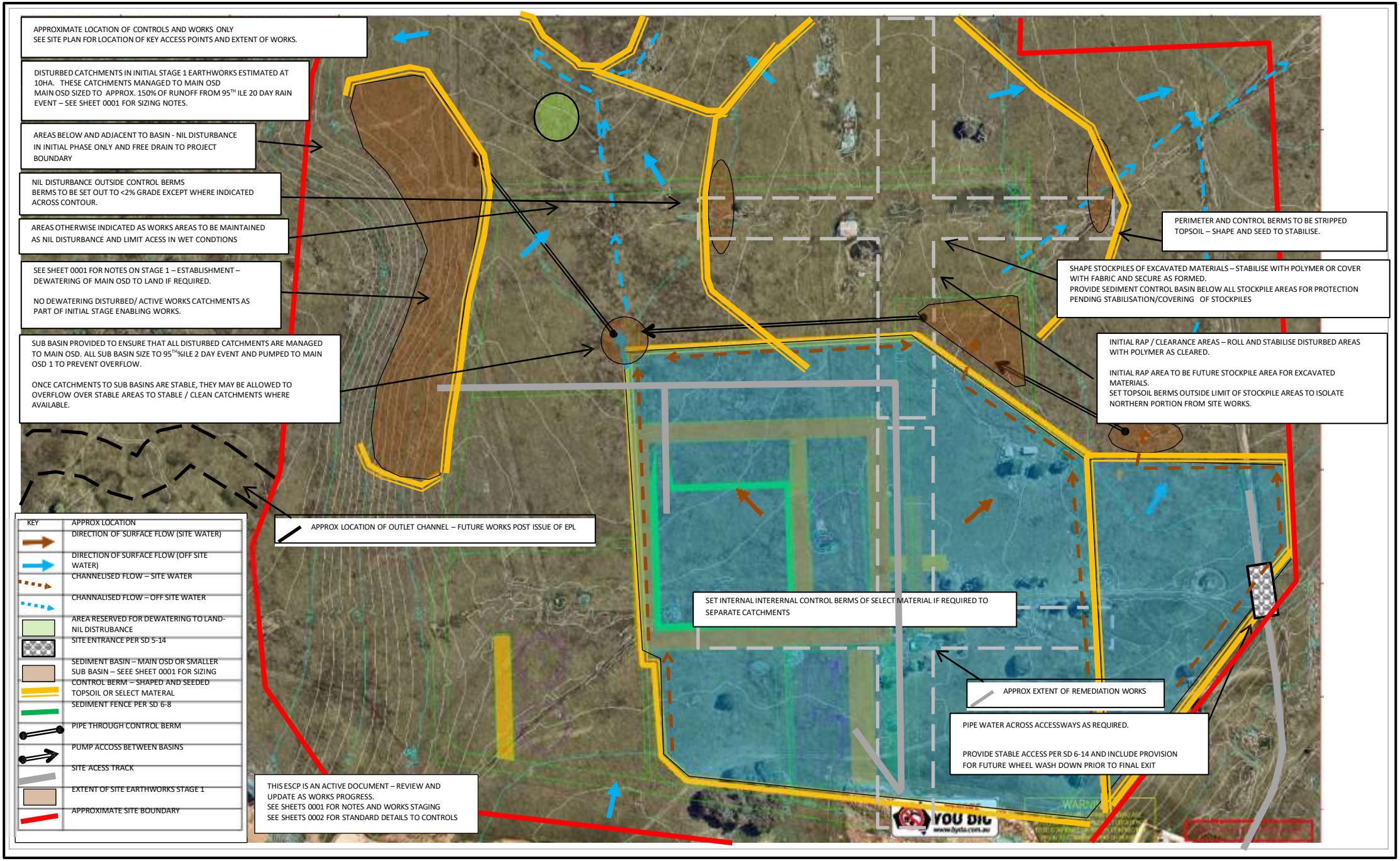
CLIENT BASE PLAN: NEAR MAPS IMAGE

CLIENT	JHLOR
DRAWN	CV
CREATED	JUNE 2023

PROGRESSIVE EROSION AND SEDIMENT CONTROL PLAN

KEMPS CREEK SEWERAGE NETWORK
WATER RESOURCE RECOVERY FACILITY
GENERAL ARRANGMENT - FULL SITE EXTENT

-	22025	ESC	EW	1000	0	16/06/23
SHEET	ERSED REF	PLAN	PREFIX	SHEET NUMBER	AMDT	DATE



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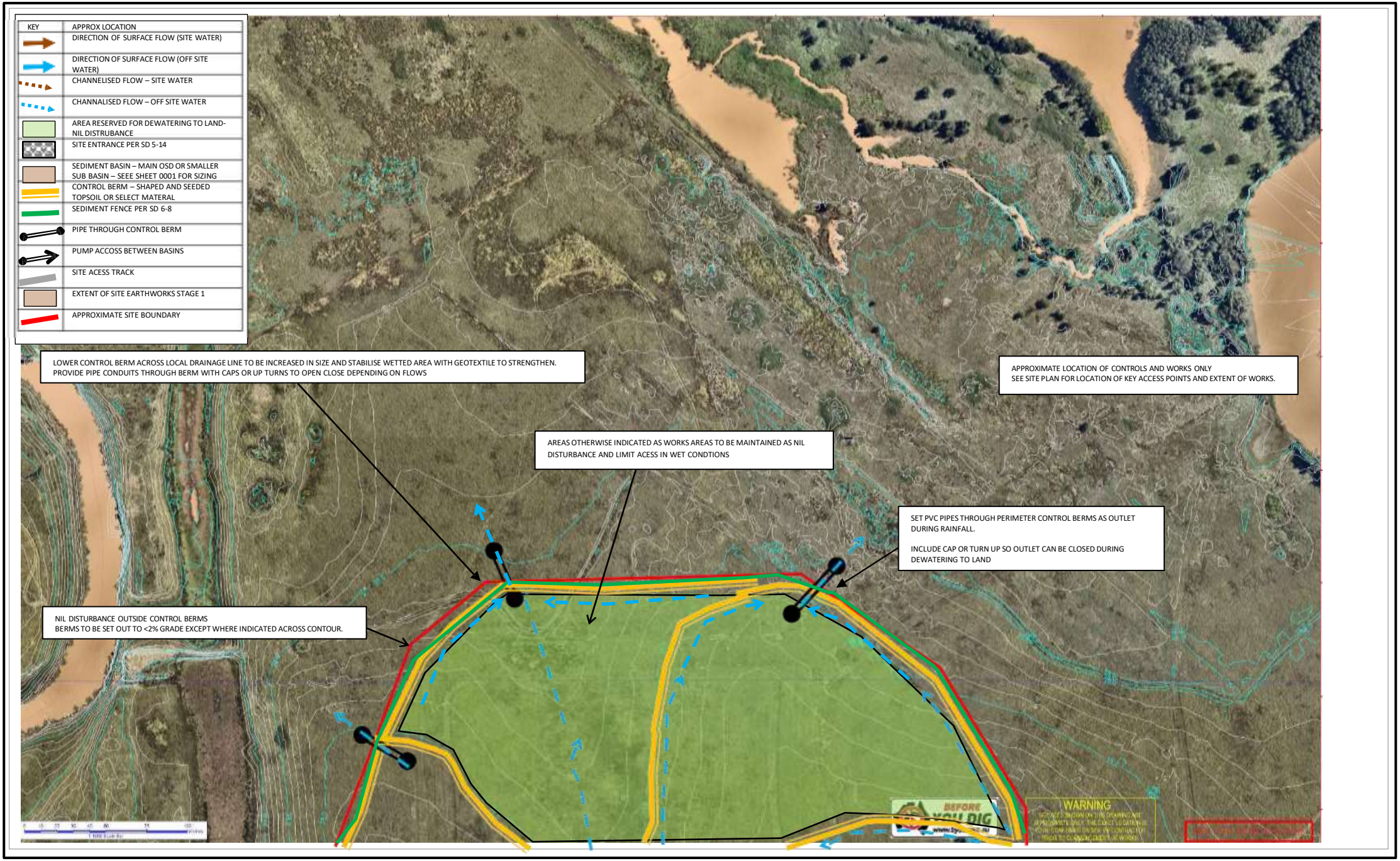
5. STANDARD DETAILS TO ESC (SHEET 0002)

CLIENT BASE PLAN: NEAR MAPS IMAGE

CLIENT	JHLOR	PROGRESSIVE EROSION AND SEDIMENT CONTROL PLAN				
DRAWN	CV	KEMPS CREEK SEWERAGE NETWORK WATER RESOURCE RECOVERY FACILITY GENERAL ARRANGMENT - SOUTHERN				
CREATED	APRIL 2023					
-	22025	ESC	EW	1001	1	16/06/23
SHEET	ERSED REF	PLAN	PREFIX	SHEET NUMBER	AMDT	DATE



ErSed

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PLAN PREPARED BY

C VINCENT (CPESC # 2385)

SHEETS IN THIS PLAN SET

1. GENERAL ARRANGMENT – FULL SITE EXTENT (SHEET 1000)
2. GENERAL ARRANGMENT – SOUTHERN (SHEET 1001)
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4. NOTES AND DETAILS TO ESC (SHEET 0001)
5. STANDARD DETAILS TO ESC (SHEET 0002)

CLIENT BASE PLAN: NEAR MAPS IMAGE

CLIENT	JHLOR	PROGRESSIVE EROSION AND SEDIMENT CONTROL PLAN				
DRAWN	CV	KEMPS CREEK SEWERAGE NETWORK WATER RESOURCE RECOVERY FACILITY GENERAL ARRANGMENT - NORTHERN				
CREATED	APRIL 2023					
-	**22025**	**ESC**	**EW**	**1003**	**1**	**16/06/23**
SHEET	ERSED REF	PLAN	PREFIX	SHEET NUMBER	AMDT	DATE

CONSTRUCTION STAGING FOR EROSION AND SEDIMENT CONTROL

1. SEDIMENT BASIN AND PRIMARY CONTROLS TO BE INSTALLED AND OPERATIONAL PRIOR TO COMMENCEMENT OF EARTHWORKS – CERTIFICATION TO BE PROVIDED BY CPESC
2. SEE NOTES TO SEDIMENT BASIN (THIS SHEET) FOR DISCUSSION OF IMPLIMENTATION OF TYPE D BASINS AT VARIOUS LOCATIONS
3. SITE ENTRANCE AND OTHER PRIMARY ACCESS CONTROLS TO BE IN PLACE PRIOR TO SITE ENTRY/EXIT BY HV
4. STRIPPED TOPSOIL TO CREATE SURFACE WATER CONTROLS. THESE ARETO BE INSPECTED AND CONFIRMED IN ACCORDANCE WITH THE ESCP AT COMMENCEMENT BY PM /PE/ SUPERINTENDENT AND CPESC
5. FOLLOWING REGULAR INSPECTIONS AND WORKS CONFIRMATION WITH PROJECT TEAM – THIS ESCP MAY BE REVISED / UPDATED
6. MAIN BASIN TO BE MANAGED AS TYPE D (BATCH AND TREAT) CONTROL UNTIL OUTLET IS ALLOWED WITH ISSUE OF EPL
7. SUB BASINS FOR EACH SUB CATCHMENT TO BE MAINTAINED AND MANAGED TO MAIN BASIN/OSD UNTIL EARTHWORKS PROGRESS AND ALL CATCHMENTS CAN NATURALLY REPORT TO MAIN BASIN/OSD

GENERAL NOTES TO SOIL AND WATER MANAGEMENT

LIMITED DISTURBANCE

1. NIL ACCESS OUTSIDE LIMIT OF APPROVED WORKS/DEFINED PROJECT BOUNDARIES.
2. PRIOR TO ISSUE OF EPL – LIMITED DISTURBANCE TO DEFINED STOCKPILE AREAS AND WORKS AREA
3. NIL DISTURBANCE TO NORTHEN RESERVED AREA FOR DEWATERING TO LAND

SEPARATION OF WATERS

1. MAINTAIN SURFACE WATER CONTROLS INSTALLED AT COMMENCEMENT OF PROJECT
2. NO SURFACE WATER FROM EXTERNAL CATCHMENTS TO ENTER CONSTRUCTION AREAS
3. DIRECT SITE WATERS TO SITE SEDIMENT CONTROLS – DO NOT REMOVE ANY SURFACE WATER DRAINAGE MEASURES UNTIL REPLACED BY CONTROLS DETAILED IN REVISED ESCPS
4. SEPARATE SEDIMENT CONTROL BUNDS AND SUB BASINS MAINTAINED FOR STOCKPILE AREAS UNTIL THESE HAVE BEEN COVERED, STABILISED AND SIGNED OFF BY PROJECT CPESC.

EROSION CONTROL

1. NIL DISTURBANCE OUTSIDE DEFINED LIMIT OF WORKS AREA.
2. KEEP EXPOSED FILL SURFACES SMOOTH AND COMPACTED AT SHUT DOWN TO REDUCE GENERATION OF DUST AND SEDIMENT RUNOFF.
3. KEEP STOCKPILES CONSOLIDATE AND WITHIN DEFINED STOCKPILE AREAS
4. KEEP STOCKPILES SMOOTH AND SEALED. STABILISE WITH POLYMER STOCKPILES NOT ACTIVE FOR >10 DAYS
5. STABILISE DISTURBED SURFACES WITH POLYMER APPLICATION – AREAS NOT ACTIVE FOR >20 DAYS
6. ALLOCATE AREAS WHICH MAY NOT BE DISTURBED – ROLL AND STABILISE WITH POLYMER TO REDUCE GENERATION OF DUST. THESE AREAS MAY BE USED FOR MATERIAL LAY DOWN AND STORAGE.
7. MAINTAIN CHECK DAMS WITHIN SURFACE WATER SWALES.
8. FOR SHUT DOWN AND IN ADVANCE OF LARGE RAIN EVENTS – SHAPE AND ROLL ACCESS WAYS – SHAPE AND DRAIN AWAY FROM MAIN ACCESS ROUTES TO LIMIT SATURATION.

SEDIMENT CONTROL

1. SHAPE ALL WORKS AREA TO SURFACE CONTROLS AND ENGAGES TO BASINS/SUB BASINS
2. SITE WATER DIRECTED TO SEDIMENT CONTROL BASIN PER ESCPS
3. A REVISED ESCP IS TO BE PREPARED FOR WHEN SURFACE WATER CONTROLS ARE MODIFIED
4. STABLE SITE ENTRANCE AT ACCESS POINTS – FOR EXIT POINTS PROVIDE ACCESS CONTROL PER SD 6-14
5. FOR MAIN ACCESS ESTABLISH CONCRETE SLAB WITH WASH DOWN TO ADJACENT SWALE DRAIN. USE FOR WHEEL WASH FOR HV PRIOR TO LEAVING LOT TO CONSTRUCTION ACCESS ROAD.
6. DEWATERING PER NOTES THIS SHEET OR OTHERWISE AS DETAILED WITHIN CEMP
7. FOR SHUT DOWN AND IN ADVANCE OF SIGNIFICANT RAIN EVENTS – INSPECT BASINS AND CONFIRM AND RECORD AVAILABLE VOLUME IS AVAILABLE – SEE BASIN SCHEDULE THIS SHEET

GUIDELINES

THIS ESCP HAS BEEN PREPARED TO BE IN ACCORDANCE WITH THE FOLLOWING BEST MANAGEMENT GUIDANCE DOCUMENTS.

- MANAGING URBAN STORMWATER – VOLUME 1 (LANDCOM 2004) (THE BLUE BOOK) AND VOLUMES 2 WHERE RELEVANT
- BEST PRACTICE EROSION AND SEDIMENT CONTROL (IECA 2008).
- TECHNICAL GUIDANCE FOR ACHIEVING WIANAMATTA-SOUTH CREEK STORMWATER MANAGEMENT TARGETS (EPA 2022)

SURFACE WATER MANAGEMENT & DEWATERING

1. WATER DETAINED WITHIN EXCAVATIONS AND SUMPS TO BE TRANSFERRED TO MAIN BASIN FOR MANAGEMENT/TREATMENT
2. SUB BASINS TO BE MANAGED TO MAIN BASIN WITHIN 48HRS. SUB BASINS MAY BE DEWATERED TO MAIN BASIN DURING RAINFALL
3. NO SURFACE WATER FROM CONCRETE WASHOUT TO INTERACT WITH SITE SURFACE WATER MANAGEMENT
4. WATER FROM MAIN BASIN / OSD TO BE DEWATERED/IRRIGATED TO LAND (NORTHERN RESERVED AREA) SEE BELOW
5. FOR DEWATERING TO LAND CONFIRM THAT PERIMETER BUNDS ARE IN PLACE AND OUTLET CONTROLS ARE CLOSED.
6. FOR DEWATERING TO LAND WATER IS NOT TO POND OR POOL IN AREAS. CONTINURALLY MOVE IRRIGATION UNITS AS REQUIRED.
7. WATER IS ONLY TO BE ACTIVELY (EG PUMPED) DISCHARGED WHEN IT IS TESTED AND CONFIRMED TO SATISFY THE FOLLOWING MINIMUM CRITERA
   A. NO VISIBLE OIL GREASE
   B. PH 6-5-PH8.5
   C. TSS <50 PPM OR BELOW CORRELATED NTU
8. ALL DEWATERING ACTIVITIES ARE TO BE SIGNED OFF BY APPROVED SITE PERSONEL (PM OR PE) AND NOTIFIED TO MAIN INFRASTRUCTURE CONTRACTOR
9. DEWATERING RECORDS TO BE RETAINED BY PE AND PROVIDED TO PRINCIPLE AS REQUESTED.
10. ONLY AUTHORISED AND INDUCTED PERSONNEL TO OPERATE PUMPS
11. PUMPING ACTIVITIES TO BE CONTINUALLY MONITORED/OBSERVED – SEE NOTES REGARDING POOLING.
12. NO WATER TO PASS OUTSIDE PROJECT BOUNDARY PRIOR TO ISSUE OF EPL

DUST CONTROL

1. SEE ALSO PROJECT AQMP FOR MITIGATION MEASURES
2. EXPOSED SURFACES ARE TO BE MAINTAINED ROLLED AND SMOOOTHED
3. MAINTAIN ACCESS TO ALL AREAS THROUGH EFFECTIVE HOUSEKEEPING AND MATERIALS MANAGEMENT
4. DUST TO BE CONTROLLED WITH WATER CART OR APPLICATION OF POLYMER OVER AREAS NOT TO BE DISTURBED FOR >20DAYS
5. SEE GENERAL MANAGEMENT OF STOCKPILES

GENERAL STOCKPILES

1. STOCKPILE MATERIALS ONLY AT DESIGNATED STOCKPILE AREAS – LOCATIONS AND EXTENT OF STOCKPILE AREAS TBC ON SITE
2. STABILISE STOCKPILES NOT WORKED FOR >20 DAYS.
3. SHAPE AND SMOOTH STOCKPILES AS FORMED

ACCESS CONTROL

1. ESTABLISH PREFERRED ACCESS ROUTES AT ESTABLISHEMENT WITH CONSIDERATION TO LAYDOWN AREAS AND STOCKPILE AREAS
2. WHERE POSSIBLE KEEP ACCESS ROUTES IN RAISED LOCATION AND FREE DRAINING AWAY TO SURFACE WATER /SWALE DRAINS
3. ESTABLISH AND MAINTAIN STABLE ACCESS AT MAIN SITE ENTRANCE AND WHERE ACCESS LEADS ONTO AND FROM PAVED SURFACES
4. LIMIT ACCESS IN WET CONDTIONS TO REDUCE TRACKING AND REQUIREMENTS FOR ONGOING WHEEL WASH DOWN.
5. LOCATE CONCRETE WASH DOWN FACILITES FOR READY ACCESS AND MANAGEMENT

SHUTDOWN PROCEDURE IN PREPARATION OF RAIN EVENTS >50% CHANCE OF >10MM

1. CONFIRM SITE ACESS IS CLEAN OF SEDIMENT AND STABLE
2. OBSERVE AND RECORD CAPACITY WITHIN BASINS
3. INSPECT SEDIMENT CONTROLS/SURFACE WATER DIVERSIONS AND CONFIRM THEY ARE CORRECTLY INSTALLED AND MAINTAINED
4. ENSURE THAT OUTLET CONTROLS FOR NORTHERN RESERVED AREA (DEWATERING TO LAND) ARE CLOSED
5. INSPECT PRIMARY INTERNAL ACCESS ROUTS AND CONFIRM THEY ARE SHAPPED AND ROLLED TO FREE DRAIN

MONITORING AND REVIEW

1. THIS ESCP IS AN ACTIVE DOCUMENT REVIEW AND AMEND AS REQUIRED
2. ESCP IS TO BE INSPECTED BY SITE CPESC , ENVIRONMENTAL CONSULTANT AND PROJECT ENVIRONMENTAL REPRESENTATIVE
3. RECORDS OF INSPECTIONS ARE TO BE RETAINED ON SITE AND PROVIDED TO APPROPRATE PERSONNEL FOR ACTION AND CLOSE OUT
4. ADDITIONAL INSPECTIONS OF CONTROLS TO BE CARRIED OUT PRIOR AND FOLLOWING EXTENDED SHUT DOWN & FOLLOWING RAINFALLS EVENT >10MM REVISE ESCP PRIOR TO ANY SUBSTANTIAL AMMENDMENTS OR CHANGES TO SURFACE WATER MANAGEMENT AND REMOVAL OF DRAINAGE INFRASTRUCTURE
5. APPROXIMATE LOCATION OF CONTROLS ONLY – LOCATION TO BE CONFIRMED BY SITE SUPERINTENDANT OR NOMINATED ENVIRONMENTAL STAFF/CPESC

GENERAL SITE MANAGEMENT

1. ALL SITE CHEMICALS FUELS AND OTHER PRODUCTS TO BE MANAGED AND STORED IN ACCORDANCE WITH THE CEMP
2. NO UN-ATTENDED FUEL CONTAINERS TO BE LEFT ON SITE
3. CONCRETE WASH OUT AND WASTE MANAGEMENT AT DESIGNATED MANAGEMENT AREAS ONLY
4. SITE WASTE TO BE MANAGED IN ACCORDANCE WITH CEMP – SEPARATE BINS AND SKIPS TO BE PROVIDED
5. ALL INCIDENTS TO BE MANAGED AND REPORTED IN ACCORDANCE WITH THE CEMP AND IMMEDIATELY NOTIFIED TO THE CONSTRUCTION SUPERINTENDENT.

NOTES TO SEDIMENT BASIN

1. SEDIMENT BASINS TO BE CONSTRUCTED AND OPERATIONAL PRIOR TO COMMENCEMENT OF CONSTRUCTION
2. MINIMUM CAPACITY TO BE INDICATED WITH MARKER POLE AND CONFIRMED WITH SURVEY
3. MINIMUM CAPACITY OF TYPE D BASINS TO BE IN ACCORDANCE WITH THE BASIN SCHEDULE – THIS SHEET
4. TYPE D TO BE DEWATERED TO LAND IN ACCORDANCE WITH SURFACE WATER MANAGEMENT & DEWATERING (THIS SHEET)
5. ONCE AND EPL IS ISSUED THE MAIN OSD IS TO BE RECONFIGURED TO OPERATE AS A TYPE A OR B SEDIMENT BASIN
6. SEE SIZING AND CALCULATIONS WITHIN BASIN SCHEDULE – THIS SHEET

ASSESSMENT OF EROSION RISK

SOIL LOSS CALCULATION/RUSLE (REVISED UNIVERSAL SOIL LOSS EQUATION)				
R_1 = 2500	K=0.05*	LS = 0.25	C= 1.0	P= 1.3
GIVES: SOIL LOSS AT 40 TONNES /HA (EROSION CLASS - VERY LOW)				
STORAGE VOLUME = 5.5 M3/HA/YR AT 1.3 T/M3				

BASIN SCHEDULE AND SIZING

TYPE D BASIN SIZING CALCULATIONS (95TH %ILE 20 DAY) **MAIN OSD**			
A	STORAGE ZONE M3/HA	2 MONTH STORAGE VOLUME =31/6= 5.2	
B	SETTLING ZONE M3/HA	CV=0.6	R_2(95%/20 DAY) =160.4
		10 X CV X $R_{2\ 2}$	962.4
TOTAL BASIN VOLUME (A+B)=		968 M3/HA M3/HA	
RECCOMMENDED VALUE @ ~120%=		NA	
ESTIMATED CATCHMENT AREA =		10 HA	
TOTAL BASIN VOLUME		**9,680 M3**	

TYPE D BASIN SIZING CALCULATIONS (95TH %ILE 2 DAY) **SUB BASINS**			
A	STORAGE ZONE M3/HA	2 MONTH STORAGE VOLUME =31/6= 5.2	
B	SETTLING ZONE M3/HA	CV=0.6	R_2(95%/2 DAY) =49.5
		10 X CV X $R_{2\ 2}$	346.5
TOTAL BASIN VOLUME (A+B)=		352 M3/HA M3/HA	
RECCOMMENDED VALUE @ ~120%=		NA	
ESTIMATED CATCHMENT AREA =		VARIOUS TO BE CONFIRMED ON SITE	
TOTAL BASIN VOLUMES		VARIOUS TO BE CONFIRMED ON SITE	

TYPE D BASIN SIZING CALCULATIONS (85TH%ILE 5 DAY) **COMPARISON ONLY**			
A	STORAGE ZONE M3/HA	2 MONTH STORAGE VOLUME =31/6= 5.2	
B	SETTLING ZONE M3/HA	CV=0.6	R_2(85%/5 DAY) =35.0
		10 X CV X $R_{2\ 2}$	210.0
TOTAL BASIN VOLUME (A+B)=		215.0 M3/HA M3/HA	
RECCOMMENDED VALUE @ ~120%=		NA	
ESTIMATED CATCHMENT AREA =		NA – FOR COMPARISON ONLY	
TOTAL BASIN VOLUME			

VALUE REFERENCES		
FACTOR		NOTES
R_1	RAINFALL EROSIVITY	BLUE BOOK APPENDIX B
K	SOIL ERODABILITY	DEFAULT CONSERVATIVE VALUE FOR GENERAL FILL
LS	LENGTH SLOPE	100M@4% OR EQUIVALENT – BLUE BOOK APPENDIX A4
C	COVER	MAXIMUM VALUE FOR ZERO COVER – BLUE BOOK APPENDIX A6
P	EROSION CONTROL PRACTICE	COMPACTED/SMOOTH – BLUE BOOK APPENDIX A5
Cv	RUNOFF COEFFICENT	HYDROLOGICA GROUP D – BLUE BOOK APPENDIX F
R_2	DESIGN RAINFALL DEPTH X%ILE/Y DAY	BLUE BOOK TABLE 6a – VALUE FOR PENRITH

CONSTRUCTION REQUIREMENTS FOR SEDIMENT BASINS (REF IECA WHITE BOOK TABLE B1)

1.	SEDIMENT BASIN TYPE	TYPE D
2.	LENGTH TO WIDTH RATIO	NA – BASINS NOT TO OVERFLOW – TO BE MANAGED BY PUMP
3.	MIN DEPTH SETTLING ZONE	0.6M (TYPE D)
4.	INLET CONTROL	PINNED MEDIUM GRADE GEOTEXTILE PER SD 5-7 - EXTEND TO 1M BELOW WETTED AREA INTERNAL FACE
5.	OUTLET CONTROL	PINNED MEDIUM GRADE GEOTEXTILE PER SD 5-7 - EXTEND TO 1M BELOW WETTED AREA INTERNAL FACE. REINFORCE WITH 150MM+ BALLAST AS SCOUR PROTECTION
	CAPACITY OF OUTLET TO BE MIN TO ACCOMMODATE 1:20 ARI AS MINIMUM SIZING TO BE CONFIRMED AT CONSTRUCTION	
6.	MIN FREEBOARD	450MM (BETWEEN MAX WATER LEVEL AND TOP OF BASIN WALL 300MM (WITHIN OUTLET CHANNEL)
7.	MIN EMBANKMENT/DAM WALL CREST WIDTH	2.5M (FOR BASINS WITH COMPACTED FILL WALL)
8.	MAX GRADIENT ACCESS RAMP	6:1 IF REQUIRED FOR MAINTENANCE
9.	MAX GRADIENT INTERNAL BATTERS	3:1 FOR STABLE CLAY MATERIAL OTHERWISE CONFIRM WITH SITE ENGINEER OR GEOTECHNICAL ENGINEER
10.	FLOCCULATION/TREATMENT (TYPE D)	GYPSUM AT 30-50KG PER 100M3 OF WATER OR OTHER FLOCCULANT PER DEWATERING SPECIFICATION/SUPPLIER RECOMMENDATIONS
11.	FLOCCULATION/TREATMENT (TYPE B)	NA

ERSED ENVIRONMENTAL PTY LTD
PO BOX 1124 LEICHARDT 2040
M. 0424 203 046
E. info@ersed.com.au

PLAN PREPARED BY
C VINCENT (CPESC # 2385)

SHEETS IN THIS PLAN SET
1. GENERAL ARRANGMENT – FULL SITE EXTENT (SHEET 1000)
2. GENERAL ARRANGMENT – SOUTHERN (SHEET 1001)
3. GENERAL ARRANGMENT – NORTHERN (SHEET 1001)
4. NOTES AND DETAILS TO ESC (SHEET 0001)
5. STANDARD DETAILS TO ESC (SHEET 0002)

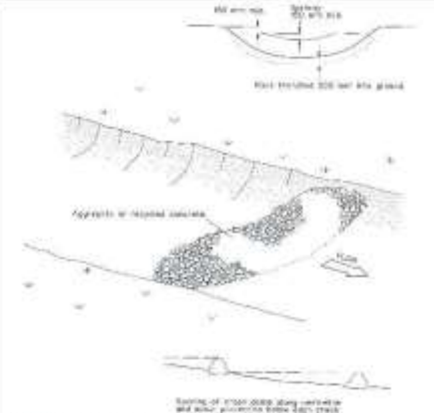
CLIENT BASE PLAN: NA

CLIENT	JHLOR
DRAWN	CV
CREATED	JUNE 2023

PROGRESSIVE EROSION AND SEDIMENT CONTROL PLAN

KEMPS CREEK SEWERAGE NETWORK
NOTES AND DETAILS TO EROSION AND SEDIMENT CONTROL

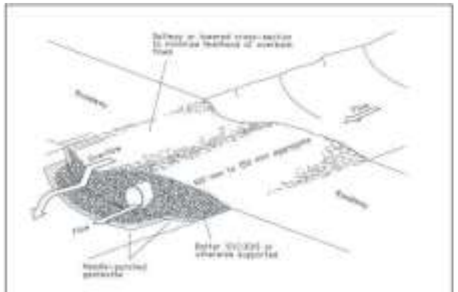
-	**22025**	**ESC**	**EW**	**0001**	**0**	**16/06/23**
SHEET	ERSED REF	PLAN	PREFIX	SHEET NUMBER	AMDT	DATE



Construction Notes

[illegible]

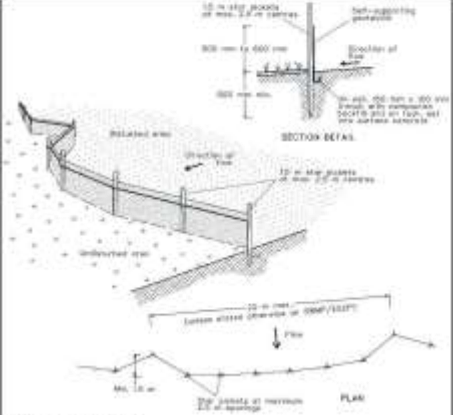
ROCK CHECK DAM SD 5-4



Construction Notes

[illegible]

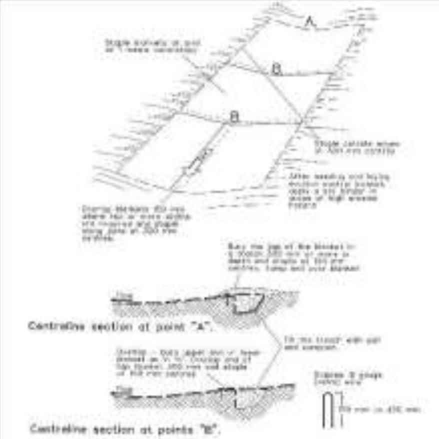
TEMPORARY WATERWAY CROSSING SD 5-1



Construction Notes

[illegible]

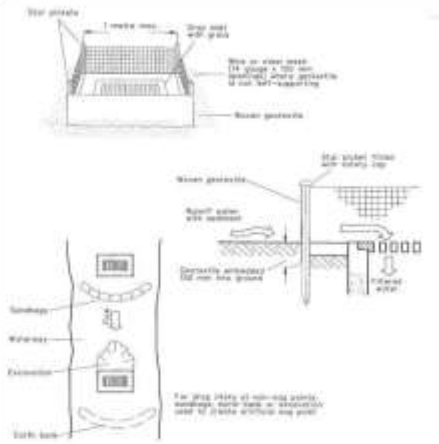
SEDIMENT FENCE SD 6-8



Construction Notes

[illegible]

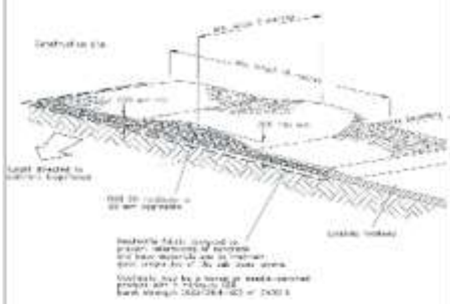
RECP : CONCENTRATED FLOW SD 5-7



Construction Notes

[illegible]

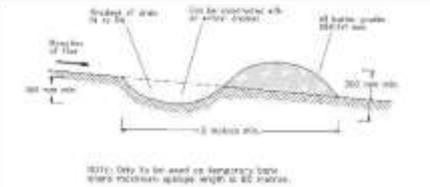
GEOTEXTILE INLET FILTER SD 6-12



Construction Notes

[illegible]

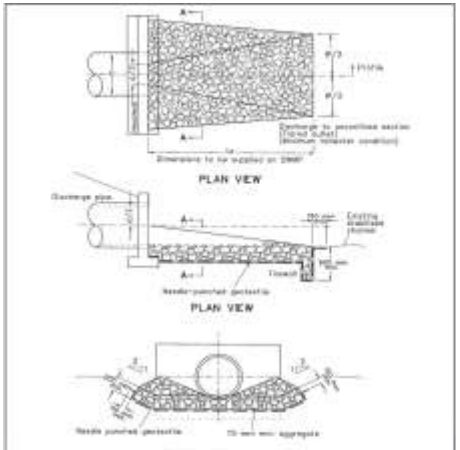
STABILISED SITE ACCESS SD 6-14



Construction Notes

[illegible]

EARTH BANK (LOW FLOW) SD 5-5



Construction Notes

[illegible]

ENERGY DISSIPATER SD 5-8

ErSed

ERSED ENVIRONMENTAL PTY LTD PO BOX 1124 LEICHARDT 2040 M. 0424 203 046 E. info@ersed.com.au	SHEETS IN THIS PLAN SET 1. GENERAL ARRANGMENT – FULL SITE EXTENT (SHEET 1000) 2. GENERAL ARRANGMENT – SOUTHERN (SHEET 1001) 3. GENERAL ARRANGMENT – NORTHERN (SHEET 1001) 4. NOTES AND DETAILS TO ESC (SHEET 0001) 5. STANDARD DETAILS TO ESC (SHEET 0002)	CLIENT	JHLOR	PROGRESSIVE EROSION AND SEDIMENT CONTROL PLAN
		DRAWN	CV	KEMPS CREEK SEWERAGE NETWORK WATER RESOURCE RECOVERY FACILITY STANDARD DETAILS TO EROSION AND SEDIMENT CONTROLS
		CREATED	JUNE 2023	
PLAN PREPARED BY		-	22025	
C VINCENT (CPESC # 2385)	CLIENT BASE PLAN: NA	SHEET	ERSED REF	

ESC	EW	0002	0	16/06/23
PLAN	PREFIX	SHEET NUMBER	AMDT	DATE

Alyce Harrington-JHG

From: Daniel Burchmore <Daniel.Burchmore@epa.nsw.gov.au>
Sent: Monday, 10 July 2023 6:20 PM
To: Alyce Harrington-JHG
Cc: Jason Julius-JHG; Michael McIlveen-JHG; Darragh O'Brien-JHG; James Braham-JHG; Julian Thompson; Trevor Wilson; Benn Treharne; Richard Ioffrida-JHG
Subject: RE: HPE CM: RE: HPE CM: RE: John Holland - Upper South Creek AWRC EPL application update
Attachments: 21800 (2).pdf

Hi Alyce,

Thanks for your email and the additional information provided within.

I have attached a new draft scheduled development EPL for your review – can you please provide comments by **COB 17 July 2023**? If there are no outstanding issues, the EPL can then be issued.

A few comments on the EPL and site management generally:

- Condition A1.3 has been added so that the sewage treatment plant cannot commence operation until limits for a licenced discharge for effluent are implemented under the licence.
- I have placed the Premises Maps you have provided in the EPA's internal database under folder number SF23/82338, and have amended condition A2.4 to reflect this.
- As discussed, noise conditions remain largely in-line with the 'standard' conditions for OOHWs pending further discussions with JH in the future.
- As requested, condition L4.5 has been amended to allow OOHWs when they are the result of a direction from a relevant authority.
- It was considered that the noise reporting requirements under condition R4.1 were too onerous given the nature of the development (and so this has been changed from a requirement for daily complaints reporting to weekly complaints reporting). This can be re-evaluated in the future.
- Conditions only relevant to an approved water discharge have been removed.
- I note your comment regarding the 'contaminated soil treatment' scheduled activity, and that John Holland should apply for a licence variation if it subsequently determines that the threshold for this activity will be met.

Regarding the surface water CEMP Sub-plan, no further comments from the EPA. However, I have been in contact with DPE (who have queried the site's approach to management of sediment run-off). John Holland have previously advised on multiple occasions that no offsite discharges will occur during preliminary (Stage A) earthworks at the site, and consequently no licence water discharge has been applied for regarding the early project stages. The EPA therefore advises the following:

- It is the EPA's expectation that construction run-off at the site is managed in such a way to prevent a discharge causing water pollution during these preliminary stages (prior to application for a water discharge licence - including appropriately designed sediment/detention basins).
- Any subsequent construction water discharge applied for by John Holland will have limits that are aligned to meeting the Wianamatta South Creek waterway health objectives and construction and operational phase stormwater management targets, in accordance with the Wianamatta MUSIC modelling toolkit and Technical Guidance for Achieving Wianamatta South Creek Stormwater Management Targets (DPE, 2022), as per planning approval condition E123.

Happy to discuss any of the above further.

Regards,

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

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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.

From: Alyce Harrington-JHG <Alyce.Harrington@jhg.com.au>
Sent: Tuesday, 27 June 2023 3:06 PM
To: Daniel Burchmore <Daniel.Burchmore@epa.nsw.gov.au>
Cc: Jason Julius-JHG <Jason.Julius@jhg.com.au>; Michael McIlveen-JHG <Michael.McIlveen@jhg.com.au>; Darragh O'Brien-JHG <Darragh.O'Brien@jhg.com.au>; James Braham-JHG <James.Braham@jhg.com.au>; Julian Thompson <Julian.Thompson@epa.nsw.gov.au>; Trevor Wilson <Trevor.Wilson@epa.nsw.gov.au>; Benn Treharne <Benn.Treharne@epa.nsw.gov.au>; Richard Ioffrida-JHG <Richard.Ioffrida@jhg.com.au>
Subject: HPE CM: RE: HPE CM: RE: John Holland - Upper South Creek AWRC EPL application update

Good afternoon Daniel,

Hope you have been well.

To follow up on the remaining items regarding the USC draft EPL, please refer to the following items below:

- Please see attached updated premises boundary maps, inclusive of Lot/DP overlay to assist with clearly identifying premises boundaries.
- Inclusion of scheduled activity (42) *Waste Storage* is not required as the project will not be receiving waste from off site, nor will it be storing waste from off site (including storage for transfer).
- Material reuse and diversion of waste from landfill where appropriate, is a key priority for the project. John Holland and Sydney Water, in consultation with the project's EPA Accredited Site Auditor for contamination, are currently in discussions regarding the potential reuse of material won from other locations within the project boundary at the AWRC site. As such, the project has also considered the potential application of scheduled activity *(15) Contaminated Soil Treatment*. Whilst DSI investigations are yet to be finalised for the project, preliminary estimates of excavated material volumes indicate that this will not result in the treatment or storage of more than 30,000 cubic meters of contaminated soil (15.2.b.ii).
- In relation to special noise conditions regarding specific activities, the project will arrange a separate briefing with the EPA in the coming weeks to run through these details and understand the EPA's position and expectation on the proposed future activities. We note that this briefing may be after the initial EPL is approved and construction commences, however, detailed construction planning regarding these future activities may have not progressed enough to warrant a detailed conversation at that stage.

Regarding the USC Surface Water & Groundwater CEMP Sub-plan (SWGCSP):

- During the consultation period, feedback from other relevant government agencies included a request for the submission of an Erosion and Sediment Control Plan (ESCP). Please see attached the primary ESCP, as referenced in Section 7.5 of the SWGCSP for your reference. If there are any questions or comments, please let me know.

- Additionally, the project is currently working through first round comments received from DPE on the SWGCSP and wanted to confirm if the EPA had any outstanding comments or response regarding the updated SWGCSP issued to the EPA via email on 25 May 2023.

Please do not hesitate to contact me if you have any further questions.

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

From: Daniel Burchmore <Daniel.Burchmore@epa.nsw.gov.au>
Sent: Tuesday, May 9, 2023 3:49 PM
To: Alyce Harrington-JHG <Alyce.Harrington@jhg.com.au>
Cc: Rob Cranston-JHG <Rob.Cranston@jhg.com.au>; Jason Julius-JHG <Jason.Julius@jhg.com.au>; Michael McIlveen-JHG <Michael.McIlveen@jhg.com.au>; Darragh O'Brien-JHG <Darragh.O'Brien@jhg.com.au>; James Braham-JHG <James.Braham@jhg.com.au>; Julian Thompson <Julian.Thompson@epa.nsw.gov.au>; Trevor Wilson <Trevor.Wilson@epa.nsw.gov.au>; Benn Treharne <Benn.Treharne@epa.nsw.gov.au>; Simone Kenyon-JHG <Simone.Kenyon@jhg.com.au>
Subject: RE: HPE CM: RE: John Holland - Upper South Creek AWRC EPL application update

Hi Alyce,

In addition to the comments below, I just wanted to touch on the need for the premises maps submitted to include the relevant Lot/DP details.

The Premises boundary maps provided in Appendix 4 of the attached EPL application (AWRC and construction compounds) provide indications of where the licenced premises would be via satellite imagery. However, providing an overlay of the current Lot/DPs would more clearly outline the premises boundaries. While I can refer to various documents in the EIS etc to try and work out the actual lots/DPs of construction compounds for instance, there may be some legal ambiguity around this.

Would it be possible for JH to update the provided premises maps to include the relevant Lot/DPs? And can this requirement be incorporated for any future premises to be provided?

Happy to discuss further if needed.

Regards,

Daniel Burchmore
Senior Operations Officer
Regulatory Operations Metro South
NSW Environment Protection Authority

P 02 9995 5995

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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.

From: Daniel Burchmore
Sent: Monday, 8 May 2023 10:55 AM
To: Alyce Harrington-JHG <Alyce.Harrington@jhg.com.au>
Cc: Rob Cranston-JHG <Rob.Cranston@jhg.com.au>; Jason Julius-JHG <Jason.Julius@jhg.com.au>; Michael McIlveen-JHG <Michael.McIlveen@jhg.com.au>; Darragh O'Brien-JHG <Darragh.O'Brien@jhg.com.au>; James Braham-JHG <James.Braham@jhg.com.au>; Julian Thompson <Julian.Thompson@epa.nsw.gov.au>; Trevor Wilson <Trevor.Wilson@epa.nsw.gov.au>; Benn Treharne <Benn.Treharne@epa.nsw.gov.au>; Simone Kenyon-JHG <Simone.Kenyon@jhg.com.au>
Subject: HPE CM: RE: John Holland - Upper South Creek AWRC EPL application update

Hi Alyce,

Thanks for your feedback. The EPA's response to your comments on the draft licence are provided in the pdf above.

At this stage, the outstanding matters to be addressed appear to be:

- Provision of updated surface/groundwater CEMP by John Holland
- Confirmation of whether 'waste storage' scheduled activity will be needed on the EPL by John Holland – In this matter, it is worth noting that the 'waste storage' scheduled activity refers to 'the receiving from off site and storing (including storage for transfer) of waste.'
- Discussion around hours for noise conditions

In relation to the noise conditions, the EPA is happy to meet to discuss this further and understand the type of works that are proposed to be done outside of standard hours, why standard hours are requested to be extended, and any community agreements that will be sought in respect of this. It is important to note that for works that are not subject to emergency/safety requirements or restrictions placed by other authorities (i.e road occupancy licences), community agreement is the primary mechanism by which these works are typically allowed to go ahead.

Meeting availability on our end this week and next is as follows:

Tomorrow (9th) – 9 to 10am, 12.30 onward
Wed (10th) – Anytime except 11 to 12.30
Fri (12th) – Anytime except 11 to 11.30
Mon (15th) – Anytime after 12.30, except 2-2.30
Tues (16th) – Anytime before 12.30, except 11 to 11.30

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.

From: Alyce Harrington-JHG <Alyce.Harrington@jhg.com.au>
Sent: Friday, 5 May 2023 1:39 PM
To: Daniel Burchmore <Daniel.Burchmore@epa.nsw.gov.au>
Cc: Rob Cranston-JHG <Rob.Cranston@jhg.com.au>; Jason Julius-JHG <Jason.Julius@jhg.com.au>; Michael McIlveen-JHG <Michael.McIlveen@jhg.com.au>; Darragh O'Brien-JHG <Darragh.O'Brien@jhg.com.au>; James Braham-JHG <James.Braham@jhg.com.au>; Julian Thompson <Julian.Thompson@epa.nsw.gov.au>; Trevor Wilson <Trevor.Wilson@epa.nsw.gov.au>; Benn Treharne <Benn.Treharne@epa.nsw.gov.au>; Simone Kenyon-JHG <Simone.Kenyon@jhg.com.au>
Subject: RE: John Holland - Upper South Creek AWRC EPL application update

Good afternoon Daniel,

Thank you for providing John Holland with a draft EPL for review, we appreciate the timely turn-around since the EPL application was submitted via the eConnect portal.

Please note that the attached PDF includes comments throughout in addition to a response to the dot points raised in your earlier email correspondence.

- Provision of detailed premises maps for the pipeline construction works - The maps provided in the application appear to only show the AWRC and construction compounds. Acknowledging that other locations will come and go in terms of construction works, it is envisioned that condition A2.3 should allow JH the flexibility to provide maps for each of these areas as they go.
  John Holland acknowledges the EPA's comment and will provide updated maps of the premises boundary prior to commencement of construction works at that location.

- As per the comment on condition O5.1, provision of the Waste & Resource Use CEMP should be provided. This will also assist in justifying that the 'waste storage' scheduled activity threshold is not met.
  A copy of the Waste & Resource Use CEMP Sub-plan (WRUCSP) developed by John Holland for USC and reviewed by Sydney Water is attached to this email. For your information, the attached WRUCSP is currently with the project's ER for endorsement prior to issuing to DPE for assessment and approval.

- The noise conditions for OOHWs are consistent with the EPA's new standard approach under the recently development model transport licence for construction works (given the similarities between this project and those)- https://yoursay.epa.nsw.gov.au/model-transport-licence. Happy to discuss the implications of this approach for project works/any alternatives further if you have any concerns.
  John Holland has reviewed the draft noise conditions for OOHW and would like to engage further with the EPA in regards to potential future conditions to be introduced to the license to recognise specific activities that may warrant working outside of standard construction hours. For example, early planning discussions had with the USC construction team has identified the following key activities or works:
  - Significant structural concrete pours at key structures at the AWRC site (e.g. bioreactor, inlet works, etc)

- Commissioning activities that warrant execution beyond and/or outside of standard construction hours (including hydrostatic testing)

- Comments were recently provided by the EPA on both the surface water and groundwater construction monitoring plans provided as part of the surface/groundwater CEMP sub-plan. Subject to clarification of the issues raised, the EPA considers it may be prudent to condition monitoring and reporting requirements for these programs on the EPL to ensure stronger oversight. Proposed conditions on these will be provided following clarification of the comments provided earlier week on both programs.
  John Holland acknowledges the EPA's comments regarding the Surface Water and Groundwater CEMP Sub-plan (SWGCSP). We are currently working through an update to the SWGCSP in accordance with the comments provided by the EPA and other relevant agencies nominated in the planning approval. John Holland notes that additional discussions will take place as these matters are resolved.

Also, to close the loop on previous discussions / issues related to the application submission via the portal and the application fee payment, please note that these matters have been resolved and I appreciate you following up.

Please feel free to reach out if you wish to discuss anything further.

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

From: Daniel Burchmore <Daniel.Burchmore@epa.nsw.gov.au>
Sent: Friday, 21 April 2023 12:51 PM
To: Alyce Harrington-JHG <Alyce.Harrington@jhg.com.au>
Cc: Rob Cranston-JHG <Rob.Cranston@jhg.com.au>; Jason Julius-JHG <Jason.Julius@jhg.com.au>; Michael McIlveen-JHG <Michael.McIlveen@jhg.com.au>; Darragh O'Brien-JHG <Darragh.O'Brien@jhg.com.au>; James Braham-JHG <James.Braham@jhg.com.au>; Julian Thompson <Julian.Thompson@epa.nsw.gov.au>; Trevor Wilson <Trevor.Wilson@epa.nsw.gov.au>; Benn Treharne <Benn.Treharne@epa.nsw.gov.au>
Subject: RE: John Holland - Upper South Creek AWRC EPL application update

Hi Alyce,

Please see attached a proposed draft scheduled development licence for the Upper South Creek AWRC.

Proposed licence conditions

As flagged in the attached draft licence, there are a few things that need to be resolved from the EPA's view:

- Provision of detailed premises maps for the pipeline construction works - The maps provided in the application appear to only show the AWRC and construction compounds. Acknowledging that other locations will come and go in terms of construction works, it is envisioned that condition A2.3 should allow JH the flexibility to provide maps for each of these areas as they go.

- As per the comment on condition O5.1, provision of the Waste & Resource Use CEMP should be provided. This will also assist in justifying that the 'waste storage' scheduled activity threshold is not met.
- The noise conditions for OOHWs are consistent with the EPA's new standard approach under the recently development model transport licence for construction works (given the similarities between this project and those)- https://yoursay.epa.nsw.gov.au/model-transport-licence. Happy to discuss the implications of this approach for project works/any alternatives further if you have any concerns.
- Comments were recently provided by the EPA on both the surface water and groundwater construction monitoring plans provided as part of the surface/groundwater CEMP sub-plan. Subject to clarification of the issues raised, the EPA considers it may be prudent to condition monitoring and reporting requirements for these programs on the EPL to ensure stronger oversight. Proposed conditions on these will be provided following clarification of the comments provided earlier week on both programs.

Your comments/concerns/suggested amendments/additional documents in relation to the draft licence are requested to be provided by **5 May 2023** (although I envision you will be looking to get these in earlier than this date). I am happy to meet to discuss any aspects of this further.

Licence submission issues

I wanted to confirm whether all your issues regarding submission of the licence applications/fee payment etc had been resolved. If there is anything you need assistance with in this regard, let me know.

Feel free contact me if you have questions.

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.

From: Alyce Harrington-JHG <Alyce.Harrington@jhg.com.au>
Sent: Friday, 31 March 2023 11:00 AM
To: Julian Thompson <Julian.Thompson@epa.nsw.gov.au>; Daniel Burchmore <Daniel.Burchmore@epa.nsw.gov.au>; Trevor Wilson <Trevor.Wilson@epa.nsw.gov.au>
Cc: Rob Cranston-JHG <Rob.Cranston@jhg.com.au>; Jason Julius-JHG <Jason.Julius@jhg.com.au>; Michael McIlveen-JHG <Michael.McIlveen@jhg.com.au>; Darragh O'Brien-JHG <Darragh.O'Brien@jhg.com.au>; James Braham-JHG <James.Braham@jhg.com.au>
Subject: John Holland - Upper South Creek AWRC EPL application update

Good morning Julian, Daniel and Trevor,

Hope you are all well.

John Holland has finalised its Environmental Protection Licence application for *scheduled development work* for the Upper South Creek AWRC project. To keep you all updated, I attempted to log into the EPA's online eConnect portal yesterday to create a new application and upload supporting documentation, however I experienced issues getting all the way through the application online and as a result I contacted the EPA hotline seeking assistance.

I spoke with a team member (Luke) from the licensing team and after describing the issue to him, Luke mentioned he would contact me today after having discussed it with someone in his team who could assist with finalising the submission via eConnect.

Whilst the issue is being resolved, please see attached a copy of the application and supporting information consolidated in one pdf document. Once resolved, I will send through a follow-up email to confirm that the application has been formally issued via eConnect. Also attached is a copy of the signed POA under which John Holland have addressed Section 15 of the application.

Please also note that the last of the CEMP sub-plans (Surface Water & Groundwater) will be issued to the EPA for consultation in accordance with SSI-8609189 CoA C4(a) by close of business today, Friday 31 March 2023.

If you have any questions regarding this matter, please do not hesitate to 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

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.

This email is intended for the addressee(s) named and may contain confidential and/or privileged information.
If you are not the intended recipient, please notify the sender and then delete it immediately.
Any views expressed in this email are those of the individual sender except where the sender expressly and with authority states them to be the views of the Environment Protection Authority.

PLEASE CONSIDER THE ENVIRONMENT BEFORE PRINTING THIS EMAIL

Appendix 2 – EHG – Evidence of Consultation

From:	Alyce Harrington-JHG
To:	Marnie Stewart
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(a) - Surface Water & Groundwater CEMP Sub-plan - for consultation (EHG)
Date:	Friday, 31 March 2023 3:15:37 PM
Attachments:	USCP-JHG-MPL-ENV-0001 Surface Water & Groundwater CEMP Sub-plan (Rev 03) clean and consolidated.pdf image001.png image002.png image003.png image004.png image005.png image006.png

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Good afternoon Marnie,

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 Environment & Heritage Group (EHG) within the NSW Department of Planning and Environment. A list of the plans and programs relevant to EHG is provided below.

C4

a. Surface Water & Groundwater CEMP Sub-plan (USCP-JHG-MPL-ENV-0001) (SWGCSP)
b. Flood Emergency Response CEMP Sub-plan (USCP-JHG-MPL-ENV-0002) (FERCSP)
d. Biodiversity CEMP Sub-plan (USCP-JHG-MPL-ENV-0004) (BCSP)
g. Heritage CEMP Sub-plan (USCP-JHG-MPL-ENV-0006) (HCSP)

C13

a. Surface Water Quality Construction Monitoring Program (Appendix E of the SWGCSP)

John Holland proposes to issue the relevant plans and program progressively, following review and approval by Sydney Water. As such, John Holland on behalf of Sydney Water, is please to present to EHG, the **Surface Water & Groundwater CEMP Sub-plan** (SWGCSP, C4(a)). Please note that the attached SWGCSP should be read in conjunction with the USC AWRC CEMP submitted in previous email correspondence.

It would be greatly appreciated if any comments regarding this submission are provided by close of business Tuesday 18 April 2023.

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

Thank you,

Alyce Harrington
Planning, Environment & Approvals Director
Upper South Creek

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:	Marnie Stewart
Cc:	CAHILL, CHERYL; Cameron Varricchio; Mira Segaran-JHG
Subject:	RE: Upper South Creek (SSI 8906189) CoA C4(a) - Surface Water & Groundwater CEMP Sub-plan - for consultation (EHG)
Date:	Monday, 1 May 2023 5:19:07 PM
Attachments:	image001.png image002.png image003.png image004.png image005.png image006.png

Good afternoon Marnie,

Hope you are well.

I wanted to reach out and confirm if EHG had any comments or feedback to provide regarding the Upper South Creek Surface Water & Groundwater CEMP Sub-plan that was issued for consultation on Friday 31 March 2023?

Following receipt of comments from the other relevant agencies and local councils, John Holland is in the midst of preparing the document for ER endorsement and subsequent submission to the DPE post-approval assessment team.

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

JOHN HOLLAND

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

From: Alyce Harrington-JHG
Sent: Friday, 31 March 2023 3:16 PM
To: Marnie Stewart <marnie.stewart@environment.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(a) - Surface Water & Groundwater CEMP Sub-plan - for consultation (EHG)

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It would be greatly appreciated if any comments regarding this submission are provided by close of business Tuesday 18 April 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

From:	Alyce Harrington-JHG
To:	Mira Segaran-JHG
Subject:	FW: Upper South Creek (SSI 8906189) CoA C4(a) - Surface Water & Groundwater CEMP Sub-plan - for consultation (EHG)
Date:	Monday, 1 May 2023 5:39:06 PM
Attachments:	image001.png image002.png image003.png image004.png image005.png image006.png

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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

From: Marnie Stewart <Marnie.Stewart@environment.nsw.gov.au>
Sent: Monday, 1 May 2023 5:37 PM
To: Alyce Harrington-JHG <Alyce.Harrington@jhg.com.au>
Cc: CAHILL, CHERYL <CHERYL.CAHILL@sydneywater.com.au>; Nathan Heath <Nathan.Heath@planning.nsw.gov.au>
Subject: RE: Upper South Creek (SSI 8906189) CoA C4(a) - Surface Water & Groundwater CEMP Sub-plan - for consultation (EHG)

Hi Alyce

Thank you for the email.

Confirming that EHG is currently reviewing the sub-plan and will be providing comments. I will come back to you tomorrow with a timeframe for our comments.

Kind regards,

Marnie Stewart
Senior Project Officer – Planning
Greater Sydney

Biodiversity & Conservation|Environment and Heritage
Department of Planning and Environment
T 02 9995 6868 | **E** marnie.stewart@environment.nsw.gov.au

4 Parramatta Square, 12 Darcy St, Parramatta NSW 2150
www.dpie.nsw.gov.au

From: Alyce Harrington-JHG <Alyce.Harrington@jhg.com.au>
Sent: Monday, 1 May 2023 5:19 PM
To: Marnie Stewart <Marnie.Stewart@environment.nsw.gov.au>
Cc: CAHILL, CHERYL <CHERYL.CAHILL@sydneywater.com.au>; Cameron Varricchio <CAMERON.VARRICCHIO@sydneywater.com.au>; Mira Segaran-JHG <Mira.Segaran@jhg.com.au>
Subject: RE: Upper South Creek (SSI 8906189) CoA C4(a) - Surface Water & Groundwater CEMP Sub-plan - for consultation (EHG)

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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

JOHN HOLLAND

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E. Alyce.Harrington@jhg.com.au

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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(a) - Surface Water & Groundwater CEMP Sub-plan - for consultation (EHG)

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d. Biodiversity CEMP Sub-plan (USCP-JHG-MPL-ENV-0004) (BCSP)
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C13

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John Holland proposes to issue the relevant plans and program progressively, following review and approval by Sydney Water. As such, John Holland on behalf of Sydney Water, is please to present to EHG, the **Surface Water & Groundwater CEMP Sub-plan** (SWGCSP, C4(a)). Please note that the attached SWGCSP should be read in conjunction with the USC AWRC CEMP submitted in previous email correspondence.

It would be greatly appreciated if any comments regarding this submission are provided by close of business Tuesday 18 April 2023.

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

Thank you,

Alyce Harrington
Planning, Environment & Approvals Director
Upper South Creek

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:	Marnie Stewart
Cc:	CAHILL, CHERYL; Cameron Varricchio; Mira Segaran-JHG
Subject:	Upper South Creek (SSI 8906189) CoA C4(a) - SWGCSP - Response re EHG comments
Date:	Thursday, 25 May 2023 10:29:55 PM
Attachments:	image001.png image002.png image003.png image004.png image005.png image006.png image007.png

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Good evening Marnie,

John Holland on behalf of Sydney Water would like to thank EHG for participating in the consultation process and providing comments for the Upper South Creek project.

Please see attached updated Surface Water & Groundwater CEMP Sub-plan and corresponding comment register for your information.

EHG

Please download the documents from the link provided, noting that the link is valid for your email address only. If others require access to the documents, please download them and distribute as required.

If you have any questions regarding this matter, please do not hesitate to 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

Department of Planning and Environment

Ms Cheryl Cahill
Environment Lead Major Projects
Sydney Water Corporation
1 SMITH STREET
PARRAMATTA, NSW, 2150

8/06/2023

Dear Ms. Cahill

Upper South Creek Advanced Water Recycling Centre (SSI-8609189)
Surface Water and Groundwater CEMP sub-plan - Request for Additional Information

I refer to the Surface Water and Groundwater CEMP sub-plan (Revision 04, dated 25 May 2023) submitted to the Department of Planning and Environment (the Department) as required under the conditions of approval for the Upper South Creek Advanced Water Recycling Centre proposal (SSI-8609189-PA-25). After careful consideration, the Department is requesting that you provide additional information.

You are requested to submit a revised Surface Water and Groundwater CEMP sub-plan that addresses the following:

- Environment Representative (ER) endorsement of the sub-plan, including an ER comments register demonstrating how comments raised by the ER have been addressed
- Outstanding comments raised by Environment and Heritage Group (EHG) in their letter on the sub-plan, dated 6 June 2023 (**Attachment A**). Please ensure consultation with all other relevant Government agencies and Councils under Condition C4(a) has been adequately closed out.

You are requested to provide the information, or notification that the information will not be provided, to the Department by Friday 16 June 2023. If you are unable to provide the requested information within this timeframe, you are required to provide, and commit to, a timeframe detailing the provision of this information.

If you have any questions, please contact Nathan Heath, who can be contacted on 02 8289 6617 or at nathan.heath@planning.nsw.gov.au.

Yours sincerely

Lloyd Eley-Smith

Team Leader
State Significant Acceleration
Attachment A: EHG letter on Surface Water and Groundwater CEMP sub-plan, dated 6 June 2023

Department of Planning and Environment

Our ref: DOC23/463814

Alyce Harrington
Environment and Approvals Manager
Upper South Creek
John Holland
Email: Alyce.Harrington@jhg.com.au

6 June 2023

Subject: Updated Upper South Creek Advanced Water Recycling Centre (SSI 8906189) – Surface Water and Groundwater CEMP Sub-plan – response to EHG comments

Dear Ms Harrington

Thank you for your email received 25 May 2023 providing the Environment and Heritage Group (EHG) the updated Upper South Creek Advanced Water Recycling Centre (SSI 8906189) Surface Water and Groundwater Construction Environmental Management Plan (CEMP) Sub-plan and corresponding comments register.

EHG has reviewed the updated CEMP sub-plan and comments register which detail how EHG comments in its letter dated 11 May 2023 have been addressed and provides comments in Attachment 1.

If you have any queries please contact Marnie Stewart, Senior Project Officer Planning Officer via Marnie.stewart@environment.nsw.gov.au.

Yours sincerely

S. Harrison

Susan Harrison

Senior Team Leader Planning
Greater Sydney Branch
Biodiversity and Conservation

Attachment 1 - EHG comments on Updated Upper South Creek Advanced Water Recycling Centre Surface Water and Groundwater CEMP Sub-plan and comments register

Each of the comments from EHG's previous letter dated 11 May 2023 are reproduced below, along with comments on how the updated CEMP Sub plan and comments register has addressed those comments.

Erosion and Sediment Control

EHG's previous comments

EHG considers that the CEMP sub plan does not meet the requirements of Condition C6(b) as no Erosion and Sediment Control Plans (ESCPs) detailing the actual type, location and sizing of controls has been included.

A separate ESCP(s) which outlines how the construction phase stormwater targets are achieved has not been provided, which is a requirement of the Technical guidance for Achieving Wianamatta South Creek Stormwater Management Targets (DPE, 2022) referred to in Condition C6(a). The submitted information does not contain suitable detail or calculations to illustrate how the stormwater targets will be achieved.

EHG's comments on updated CEMP Sub-plan and comments register

EHG notes that only minor wording additions have been provided. There are no ESCP's provided in the document. EHG is of the view that at a minimum, the primary ESCP referred to in the CEMP sub-plan should be produced now and included in the CEMP sub-plan.

EHG considers that the response does not meet the requirements of Condition C6, or the *Technical guidance for Achieving Wianamatta South Creek Stormwater Management Targets.*

EHG's previous comments

Information required

A revised CEMP sub plan which includes detailed ESCP(s) for each phase and area of works and which addresses the requirements of the Technical guidance for achieving Wianamatta-South Creek stormwater management targets (DPE, 2022). The ESCP(s) should be certified by a Certified Professional in Erosion and Sediment Control (CPESC) and specifically address the following:

- *Provide plans for each location and major phase of works, including clearing and grubbing, bulk earthworks (existing and final levels), civil works, and stabilisation/practical completion.*
- *Identify the type of sediment basin and provide details for all functional components (e.g., forebay, level spreader, spillway, dosing system, flocculant type). Note that Type-A/B will likely be required to achieve the targets within the South Creek catchment.*
- *Provide details of the proposed flocculant type, dose rate and corresponding settling time, based on jar testing of the soils present within the works areas.*
- *Provide sediment basin calculations demonstrating compliance with the targets.*
- *Provide catchments plans identifying the sub catchments for all major drainage and sediment controls for each phase of works.*
- *Provide calculation tables and sizing/dimensions for all major controls during all phases of works.*
- *Provide a construction sequence identifying the order and timing for both the implementation and decommissioning of all controls, relative to specific site activities/hold points.*

- *Provide details on the timing, methods and performance requirements for stabilisation of each area of site disturbance.*
- *Provide specific advice in relation to sodic/dispersive soil management – particularly in relation to excavated drainage controls.*
- *Provide details on how external catchment flows will be managed around or through the works without becoming contaminated, including details for waterway crossings for the pipelines.*

EHG's comments on updated CEMP Sub-plan and comments register

None of the above required information has been provided.

Surface Water Monitoring Program

EHG's previous comments

The focus of the monitoring program is on routine (dry weather) receiving water monitoring and to a lesser extent, wet weather monitoring. The routine (dry weather) monitoring is unlikely to detect any changes from background levels due to the impacts associated with the works being directly linked to rainfall, plus the variability in baseline data masking impacts. To be useful, monitoring needs to be linked to specific activities and times when impacts are likely to occur (i.e., during rainfall).

Information required

A revised surface water monitoring program which addresses the following:

- *Include monitoring sites immediately upstream and downstream of all pipeline crossings of waterways/drainage lines and include trigger values based on the absolute change in water quality parameters at these locations relative to one another.*

EHG's comments on updated CEMP Sub-plan and comments register

The comments register indicates that some of the crossings will be tunnel-bored while others will be trenched. While the CEMP sub-plan does mention tunnel-boring/horizontal directional drilling, it is unclear about which watercourse crossings will or won't use this trenchless technique.

Currently the monitoring detail for trenched waterway crossings is incomplete as there are no 'assessment criteria' stated in the monitoring program even though that term is used as the basis are actions/intervention. It may be intended that these criteria are stated in Table 4.1 but it is unclear.

It should be noted that if all waterway crossings are constructed using trenchless techniques, then the monitoring sites at the waterway crossings can be removed.

EHG's previous comments

- *Expand the acceptable values for monitoring sites to state the absolute values that must be achieved from controlled releases from storages such as batch sediment basins, pits and trenches (i.e., TSS 50mg/L, pH 6.5-8.5 etc).*
- *Expand the monitoring report to include allowance for HES basins which discharge during rainfall events (not as a controlled batch release post-event).*

EHG's comments on updated CEMP Sub-plan and comments register

The comments register indicates that there will be no discharge of any water from the project boundary during construction. EHG raises concern that this is not a resolved strategy and about the practicalities. There is no detail provided on how this could be achieved apart from references to dust suppression and land irrigation. It is also noted that the this claim conflicts directly with Figure 7.6-2 of the CEMP which predicts 14.4ML/yr runoff being discharged to Wianamatta South Creek during construction. EHG's previous comments therefore remain relevant.

EHG's previous comments

- *Expand the methodology for event based (wet weather) monitoring and explain how samples will be collect and in-situ measurements undertaken when impacts are likely to occur (i.e. while rainfall is occurring, not post-event).*

EHG's comments on updated CEMP Sub-plan and comments register

The updated information notes daily receiving water quality monitoring during sediment basin discharge but there are no details on whether this is during basin discharge or after it has ceased. 'Event triggered sampling' mentions 'significant rainfall' as a trigger but does not define this term (i.e., provide rainfall depth in mm) or provide any details of how representative samples of discharges from the site will be captured while discharge is actually occurring, given this may be of short duration.

Condition E115

EHG's previous comments

Condition E115 states:

> E115 Suitably qualified expert(s) must agree to methods of construction of pipelines across waterways and through shallow aquifers, in consultation with relevant State and/or local authorities.

As previously advised in its comments on the Biodiversity CEMP sub-plan, if possible EHG recommends that DPE (as the consent authority) engage an expert to undertake an independent review of the plans and subsequent inspection during construction.

EHG's comments on updated CEMP sub-plan and comments register

EHG advises that this recommendation remains relevant.

END OF SUBMISSION

From:	Alyce Harrington-JHG
To:	Marnie Stewart; OEH ROG Greater Sydney Region Planning Unit Mailbox
Cc:	Mira Segaran-JHG; Nathan Heath; CAHILL, CHERYL; Cameron Varricchio
Subject:	USC SSI-8609189-PA-25 - Request for Additional Information - SWGCSP (C4(a)) - For Review
Date:	Monday, 3 July 2023 2:44:00 PM
Attachments:	image001.png image002.png image003.png image004.png image005.png image006.png USCP-JHG-PLN-ENV-ESCP Stage 1 Enabling Works.pdf

Good afternoon Marnie,

In response to EHG comments regarding the USC Surface Water & Groundwater CEMP Sub-plan, please see attached the initial Erosion and Sediment Control Plan (ESCP) for the USC AWRC, prepared by the project CPESC, Carl Vincent.

Please note that the attached is for the AWRC Plant site only for EHG's review and consideration to assist with comments provided (Items 1 to 3(a-j)), noting that all remaining ESCPs developed will be done so progressively and in a coordinated fashion with the construction team and the project CPESC, and will be consistent with the project's erosion and sediment control principals and requirements.

Please also note that the remainder of comments provided by EHG will be addressed in the next issue of the revised SWGCSP, proposed to be issue 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@jhg.com.au

Mira Segaran-JHG

From: Mira Segaran-JHG
Sent: Tuesday, 11 July 2023 12:01 PM
To: Alyce Harrington-JHG; Marnie Stewart; OEH ROG Greater Sydney Region Planning Unit Mailbox
Cc: Nathan Heath; CAHILL, CHERYL; Cameron Varricchio
Subject: RE: USC SSI-8609189-PA-25 - Request for Additional Information - SWGCSP (C4(a)) - For Review

Good afternoon Marnie,

John Holland on behalf of Sydney Water would like to thank EHG for participating in the consultation process and providing comments for the Upper South Creek project.

Please see attached updated Surface Water and Groundwater CEMP Sub-plan and corresponding comment register.

EHG

Please download the documents from the link provided, noting that the link is valid for your email address only. If others require access to the documents, please download them and distribute as required.

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

Kind Regards,

Mira Segaran
Sustainability & Environment Graduate
NSW/ACT

JOHN HOLLAND

Building D, 10 Bourke Street
Mascot NSW 2020
M. +61 459 954 529
E. mira.segaran@jhg.com.au
W. johnholland.com.au

From: Alyce Harrington-JHG <Alyce.Harrington@jhg.com.au>
Sent: Monday, July 3, 2023 2:45 PM
To: Marnie Stewart <marnie.stewart@environment.nsw.gov.au>; OEH ROG Greater Sydney Region Planning Unit Mailbox <rog.gsrplanning@environment.nsw.gov.au>
Cc: Mira Segaran-JHG <Mira.Segaran@jhg.com.au>; Nathan Heath <Nathan.Heath@planning.nsw.gov.au>; CAHILL, CHERYL <CHERYL.CAHILL@sydneywater.com.au>; Cameron Varricchio <CAMERON.VARRICCHIO@sydneywater.com.au>
Subject: USC SSI-8609189-PA-25 - Request for Additional Information - SWGCSP (C4(a)) - For Review

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Please note that the attached is for the AWRC Plant site only for EHG's review and consideration to assist with comments provided (Items 1 to 3(a-j)), noting that all remaining ESCPs developed will be done so progressively and in a coordinated fashion with the construction team and the project CPESC, and will be consistent with the project's erosion and sediment control principals and requirements.

Please also note that the remainder of comments provided by EHG will be addressed in the next issue of the revised SWGCSP, proposed to be issue 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@jhg.com.au

Mira Segaran-JHG

From: Alyce Harrington-JHG
Sent: Thursday, 20 July 2023 4:05 PM
To: Jason Julius-JHG; Omar Saad-JHG
Cc: Mira Segaran-JHG
Subject: Fwd: USC SSI-8609189-PA-25 - Request for Additional Information - SWGCSP (C4(a)) - For Review

FYI

Get Outlook for iOS

From: Angela Taylor <angela.taylor@environment.nsw.gov.au>
Sent: Thursday, July 20, 2023 4:03:36 PM
To: Alyce Harrington-JHG <Alyce.Harrington@jhg.com.au>
Subject: RE: USC SSI-8609189-PA-25 - Request for Additional Information - SWGCSP (C4(a)) - For Review

Hi Alyce

I anticipate that EHG will be able to provide a consolidated response to the SWGCSP prior to the end of next week.

Kind regards
Angela

Angela Taylor
Senior Conservation Planning Officer
Biodiversity & Conservation
Environment and Heritage Group
Department of Planning and Environment

T (02) 9585 6146 **E** angela.taylor@environment.nsw.gov.au
environment.nsw.gov.au
Locked Bag 5022
Parramatta NSW 2150

I acknowledge the traditional custodians of the land and pay respects to Elders past and present. I also acknowledge all the Aboriginal and Torres Strait Islander staff working with NSW Government at this time.

Please consider the environment before printing this email.

From: Alyce Harrington-JHG <Alyce.Harrington@jhg.com.au>
Sent: Tuesday, 18 July 2023 12:34 PM
To: Angela Taylor <angela.taylor@environment.nsw.gov.au>; OEH ROG Greater Sydney Region Planning Unit Mailbox <rog.gsrplanning@environment.nsw.gov.au>

Cc: Mira Segaran-JHG <Mira.Segaran@jhg.com.au>; Nathan Heath <Nathan.Heath@planning.nsw.gov.au>; CAHILL, CHERYL <CHERYL.CAHILL@sydneywater.com.au>; Cameron Varricchio <CAMERON.VARRICCHIO@sydneywater.com.au>
Subject: RE: USC SSI-8609189-PA-25 - Request for Additional Information - SWGCSP (C4(a)) - For Review

Hi Angela,

Thanks so much for your response.

Can you give some guidance on when a consolidated response to the SWGCSP may be provided by EHG?

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

From: Angela Taylor <angela.taylor@environment.nsw.gov.au>
Sent: Tuesday, July 18, 2023 12:02 PM
To: Alyce Harrington-JHG <Alyce.Harrington@jhg.com.au>; OEH ROG Greater Sydney Region Planning Unit Mailbox <rog.gsrplanning@environment.nsw.gov.au>
Cc: Mira Segaran-JHG <Mira.Segaran@jhg.com.au>; Nathan Heath <Nathan.Heath@planning.nsw.gov.au>; CAHILL, CHERYL <CHERYL.CAHILL@sydneywater.com.au>; Cameron Varricchio <CAMERON.VARRICCHIO@sydneywater.com.au>
Subject: RE: USC SSI-8609189-PA-25 - Request for Additional Information - SWGCSP (C4(a)) - For Review

Hi Alyce

The initial Erosion and Sediment Control Plan is still currently under review. EHG anticipates that it will provide one set of consolidated comments on the SW&GW CEMP.

Kind regards
Angela

Angela Taylor
Senior Conservation Planning Officer
Biodiversity & Conservation
Environment and Heritage Group
Department of Planning and Environment

T (02) 9585 6146 **E** angela.taylor@environment.nsw.gov.au
environment.nsw.gov.au
Locked Bag 5022
Parramatta NSW 2150

I acknowledge the traditional custodians of the land and pay respects to Elders past and present. I also acknowledge all the Aboriginal and Torres Strait Islander staff working with NSW Government at this time.

Please consider the environment before printing this email.

From: Alyce Harrington-JHG <Alyce.Harrington@jhg.com.au>
Sent: Tuesday, 18 July 2023 10:22 AM
To: OEH ROG Greater Sydney Region Planning Unit Mailbox <rog.gsrplanning@environment.nsw.gov.au>; Angela Taylor <angela.taylor@environment.nsw.gov.au>
Cc: Mira Segaran-JHG <Mira.Segaran@jhg.com.au>; Nathan Heath <Nathan.Heath@planning.nsw.gov.au>; CAHILL, CHERYL <CHERYL.CAHILL@sydneywater.com.au>; Cameron Varricchio <CAMERON.VARRICCHIO@sydneywater.com.au>
Subject: RE: USC SSI-8609189-PA-25 - Request for Additional Information - SWGCSP (C4(a)) - For Review

Good morning,

The USC AWRC project recently issued an initial Erosion and Sediment Control Plan (ESCP), prepared by the project CPESC, Carl Vincent, in response to EHG comments regarding the Surface Water & Groundwater CEMP Sub-plan.

We would like to confirm if there are any outstanding comments from EHG regarding the ESCP submitted July 03, 2023?

Please do not hesitate to contact me if you need anything further.

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

From: Alyce Harrington-JHG
Sent: Monday, July 3, 2023 2:45 PM
To: Marnie Stewart <marnie.stewart@environment.nsw.gov.au>; OEH ROG Greater Sydney Region Planning Unit Mailbox <rog.gsrplanning@environment.nsw.gov.au>
Cc: Mira Segaran-JHG <Mira.Segaran@jhg.com.au>; Nathan Heath <Nathan.Heath@planning.nsw.gov.au>; CAHILL,

CHERYL <CHERYL.CAHILL@sydneywater.com.au>; Cameron Varricchio <CAMERON.VARRICCHIO@sydneywater.com.au>
Subject: USC SSI-8609189-PA-25 - Request for Additional Information - SWGCSP (C4(a)) - For Review

Good afternoon Marnie,

In response to EHG comments regarding the USC Surface Water & Groundwater CEMP Sub-plan, please see attached the initial Erosion and Sediment Control Plan (ESCP) for the USC AWRC, prepared by the project CPESC, Carl Vincent.

Please note that the attached is for the AWRC Plant site only for EHG's review and consideration to assist with comments provided (Items 1 to 3(a-j)), noting that all remaining ESCPs developed will be done so progressively and in a coordinated fashion with the construction team and the project CPESC, and will be consistent with the project's erosion and sediment control principals and requirements.

Please also note that the remainder of comments provided by EHG will be addressed in the next issue of the revised SWGCSP, proposed to be issue 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
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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.

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If you are not the intended recipient, please notify the sender and then delete it immediately.
Any views expressed in this email are those of the individual sender except where the sender expressly and with authority states them to be the views of the NSW Office of Environment, Energy and Science.

Upper South Creek

EHG, DPE, SWC and JHG

Alyce Harrington
Planning, Environment & Approvals Director
02 August 2023

Project Summary

JOHN HOLLAND

Project Summary

JOHN HOLLAND

Erosion and Sediment Control Strategy

JOHN HOLLAND

Initial kick-off meeting with EPA representatives (Dec 2022)

- Introductory meeting
- Indicative timing for EPL (scheduled development work) submission
- Confirmation of EPL boundary (AWRC plant + pipeline)

Follow-up meeting with EPA, including detailed ErSed control strategy (Feb 2023)

- Status of project approvals, including expected timing for EPL application submission
- Project's erosion and sediment control strategy for the site, and how this will inform licensing under Section 45 of the POEO Act
- Confirmation of phase 1 and phase 2 EPL process.

December 2022 –
initial ErSed strategy kick-off

February 2023 –
follow-up ErSed strategy (concurrent design development and construction planning)

May 2023 –
EPL application submission

July 2023 –
(25 th) EPL approval

August 2023 –
EPL variation submission

Erosion and Sediment Control Strategy

EPL Application Submission (May 2023)

Phase 1 - ErSed strategy for an initial EPL from construction commencement:

- No discharge of water from site.
- Erosion and sediment controls will be installed at the earliest possibility, these will be designed in consultation with the project CPESC and will prioritise diverting construction phase stormwater from entering site in the first instance, followed by site staging to minimise disturbance to areas onsite.
- Captured construction phase stormwater will be managed efficiently on-site, including assisting with compaction of materials, dust suppression and irrigation
- If any groundwater is encountered on site, this will be kept separate from construction phase stormwater and will be removed from site as liquid waste
- In consultation with the project CPESC, John Holland will prepare an application to vary the EPL (once issued as final) to introduce a licensed construction sediment basin to allow discharge of construction phase stormwater from site.

December 2022 –
initial ErSed strategy kick-off

February 2023 –
follow-up ErSed strategy (concurrent design development and construction planning)

May 2023 –
EPL application submission

July 2023 –
(25th) EPL approval

August 2023 –
EPL variation submission

Erosion and Sediment Control Strategy

JOHN HOLLAND

EPL Variation Submission (August 2023)

Phase 2 – ErSed strategy following variation of EPL to introduce licensed construction sediment basins :

- Technical memo prepared in accordance with CoA E124 (WPIA)
- EPL variation application proposed to be issued in August 2023
- This EPL variation is proposed to introduce a licensed construction sediment basin to allow discharge of water from site
- Any construction phase stormwater discharges will be carried out in accordance with the EPL conditions introduced as part of the approved variation
- Groundwater will continue to be separated from surface water and will continue to be removed from site as liquid waste by a suitably qualified waste transporter to a facility licensed to accept it.

December 2022 –
initial ErSed strategy kick-off

February 2023 –
follow-up ErSed strategy (concurrent design development and construction planning)

May 2023 –
EPL application submission

July 2023 –
(25 th) EPL approval

August 2023 –
EPL variation submission

CoA C6(b)

EHG Comment:
The ESCP covers only an initial phase of works and it is unclear how the controls will integrate or transition to later stages of works at the site. At least preliminary ESCPs, showing major sediment and drainage controls are required for all stages of works at the facility and for the pipeline construction (including waterway crossings).

EHG Comment:
There are no calculations directly relating how the strategy proposed will meet the construction-phase stormwater targets. As HES basins are not being proposed, water balance calculations are required to show how the use of the OSD and other sumps/basins and pumping strategies will achieve the targets. Critical information such as pumping rates, sizes of actual individual basins and dewatering timeframe for the OSD will need to be documented and used as the basis for the calculations.

EHG Comment:
No sizing of bunds/drains or basin spillways provided. Internal site catchment areas now shown.

USC Response:
Refer to the following slides for discussion around phasing of works and controls.

Erosion and Sediment Control Staging

JOHN HOLLAND

Enabling Works ESCP

SCOPE / ACTIVITIES

- Establishment of environmental controls, including key erosion and sediment controls (OSD, sub-basins, turkey's nest) to facilitate critical work areas (blue-shaded area).
- Stripping of topsoil and initial levelling of the critical construction zone
- Stockpiling materials
- Demolition of structures on site
- Establishment of key access tracks
- Establishment of compound

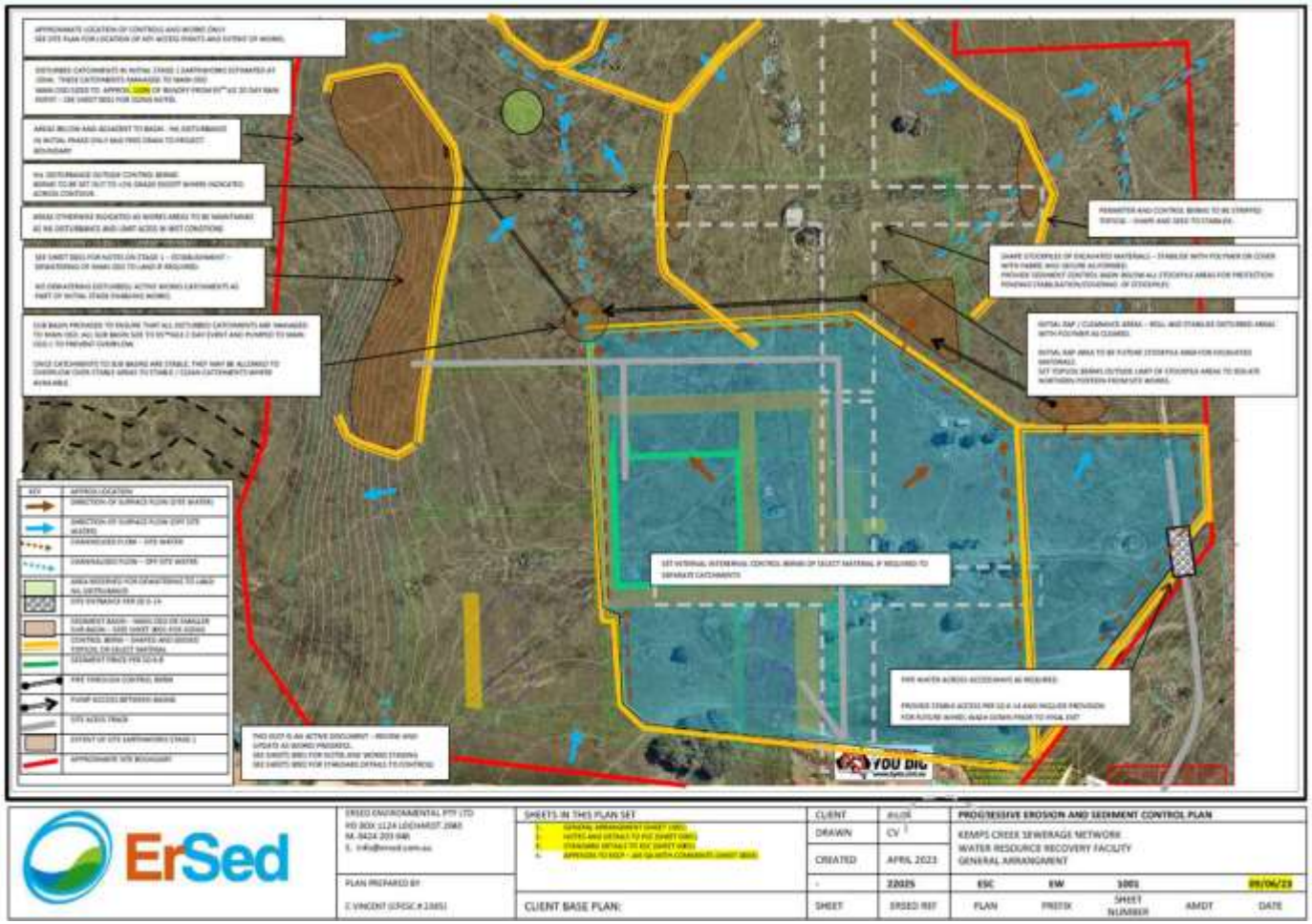
EPL PHASING

Scheduled development work EPL issued 25.07.2023 (21800):

- EPL does not nominate a construction sediment basin permitted for discharge, or corresponding discharge criteria at this stage.
- EPL variation preparation with corresponding Water Pollution Impact Assessment

HOLDPOINTS

- When the OSD reaches 85% capacity, construction activities onsite will be halted, and steps take to seal the site (to achieve an effective C-factor of <0.6).
- Construction is not permitted to recommence until sufficient capacity of the OSD is restored.



Erosion and Sediment Control Staging

JOHN HOLLAND

Enabling Works ESCP

SCOPE / ACTIVITIES

- Establishment of environmental controls, including key erosion and sediment controls (OSD, sub-basins, turkey's nest) to facilitate critical work areas (blue-shaded area).
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- Establishment of compound

EPL PHASING

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- EPL does not nominate a construction sediment basin permitted for discharge, or corresponding discharge criteria at this stage.
- EPL variation preparation with corresponding Water Pollution Impact Assessment

HOLDPOINTS

- When the OSD reaches 85% capacity, construction activities onsite will be halted, and steps take to seal the site (to achieve an effective C-factor of <0.6).
- Construction is not permitted to recommence until sufficient capacity of the OSD is restored.

BASIN SCHEDULE AND SIZING

TYPE D BASIN SIZING CALCULATIONS (95TH %ILE 20 DAY) **MAIN OSD**			
A	STORAGE ZONE M3/HA	2 MONTH STORAGE VOLUME =31/6= 5.2	
B	SETTLING ZONE M3/HA	CV=0.6	R_2(95%/20 DAY) =160.4
		10 X CV X R_2 =	962.4
TOTAL BASIN VOLUME (A+B)=		968 M3/HA M3/HA	
RECCOMMENDED VALUE @ ~120%=		NA	
ESTIMATED CATCHMENT AREA =		10 HA	
TOTAL BASIN VOLUME		**9,680 M3**	

TYPE D BASIN SIZING CALCULATIONS (95TH %ILE 2 DAY) **SUB BASINS**			
A	STORAGE ZONE M3/HA	2 MONTH STORAGE VOLUME =31/6= 5.2	
B	SETTLING ZONE M3/HA	CV=0.6	R_2(95%/2 DAY) =49.5
		10 X CV X R_2 =	346.5
TOTAL BASIN VOLUME (A+B)=		352 M3/HA M3/HA	
RECCOMMENDED VALUE @ ~120%=		NA	
ESTIMATED CATCHMENT AREA =		VARIOUS TO BE CONFIRMED ON SITE	
TOTAL BASIN VOLUMES		VARIOUS TO BE CONFIRMED ON SITE	

Erosion and Sediment Control Staging

JOHN HOLLAND

Enabling Works ESCP

SCOPE / ACTIVITIES

- Establishment of environmental controls, including key erosion and sediment controls (OSD, sub-basins, turkey's nest) to facilitate critical work areas (blue-shaded area).
- Stripping of topsoil and initial levelling of the critical construction zone
- Stockpiling materials
- Demolition of structures on site
- Establishment of key access tracks
- Establishment of compound

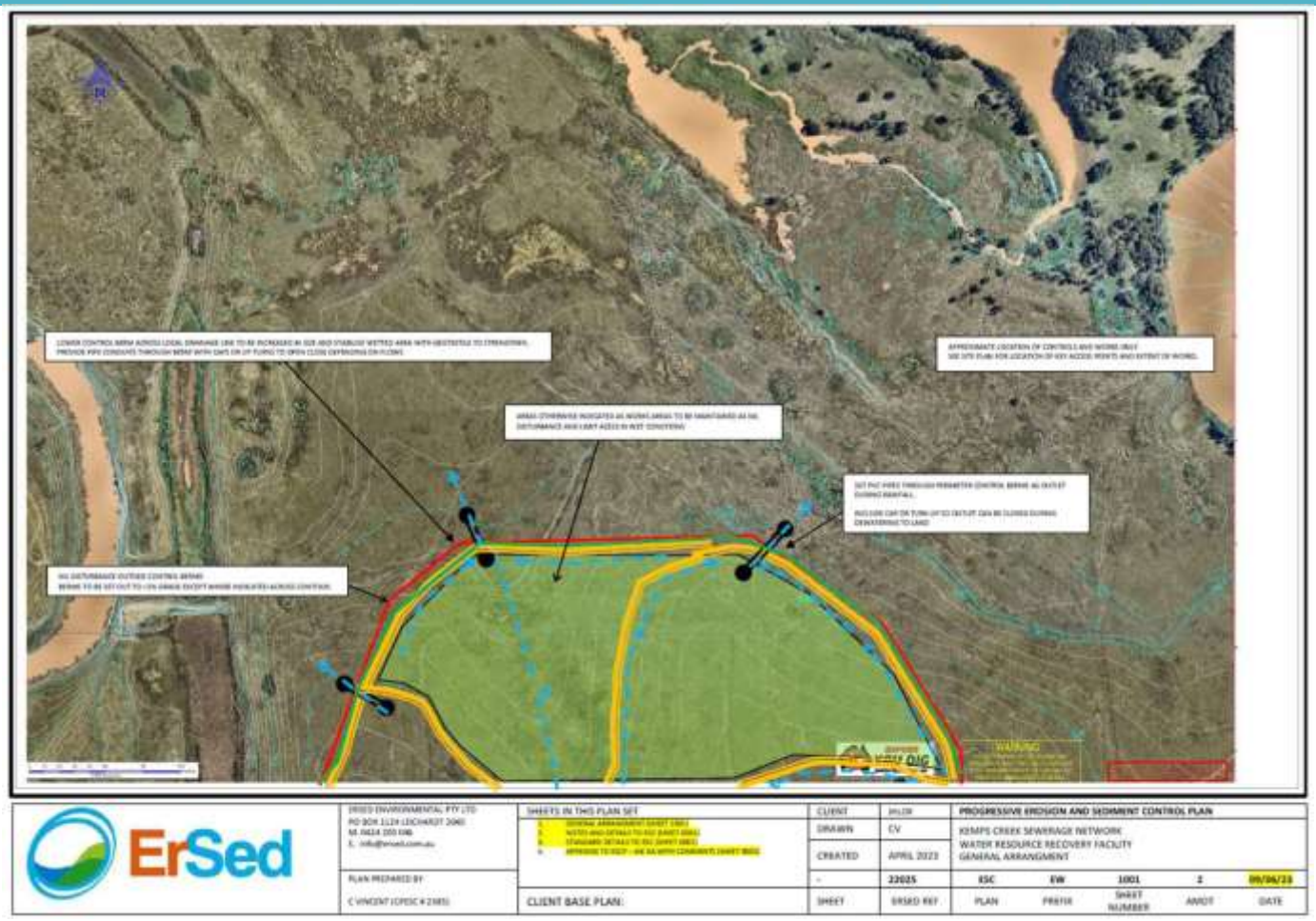
EPL PHASING

Scheduled development work EPL issued 25.07.2023 (21800):

- EPL does not nominate a construction sediment basin permitted for discharge, or corresponding discharge criteria at this stage.
- EPL variation preparation with corresponding Water Pollution Impact Assessment

HOLDPOINTS

- When the OSD reaches 85% capacity, construction activities onsite will be halted, and steps take to seal the site (to achieve an effective C-factor of <0.6).
- Construction is not permitted to recommence until sufficient capacity of the OSD is restored.



Erosion and Sediment Control Staging

JOHN HOLLAND

Stage 1 Bulk Earthworks ESCP

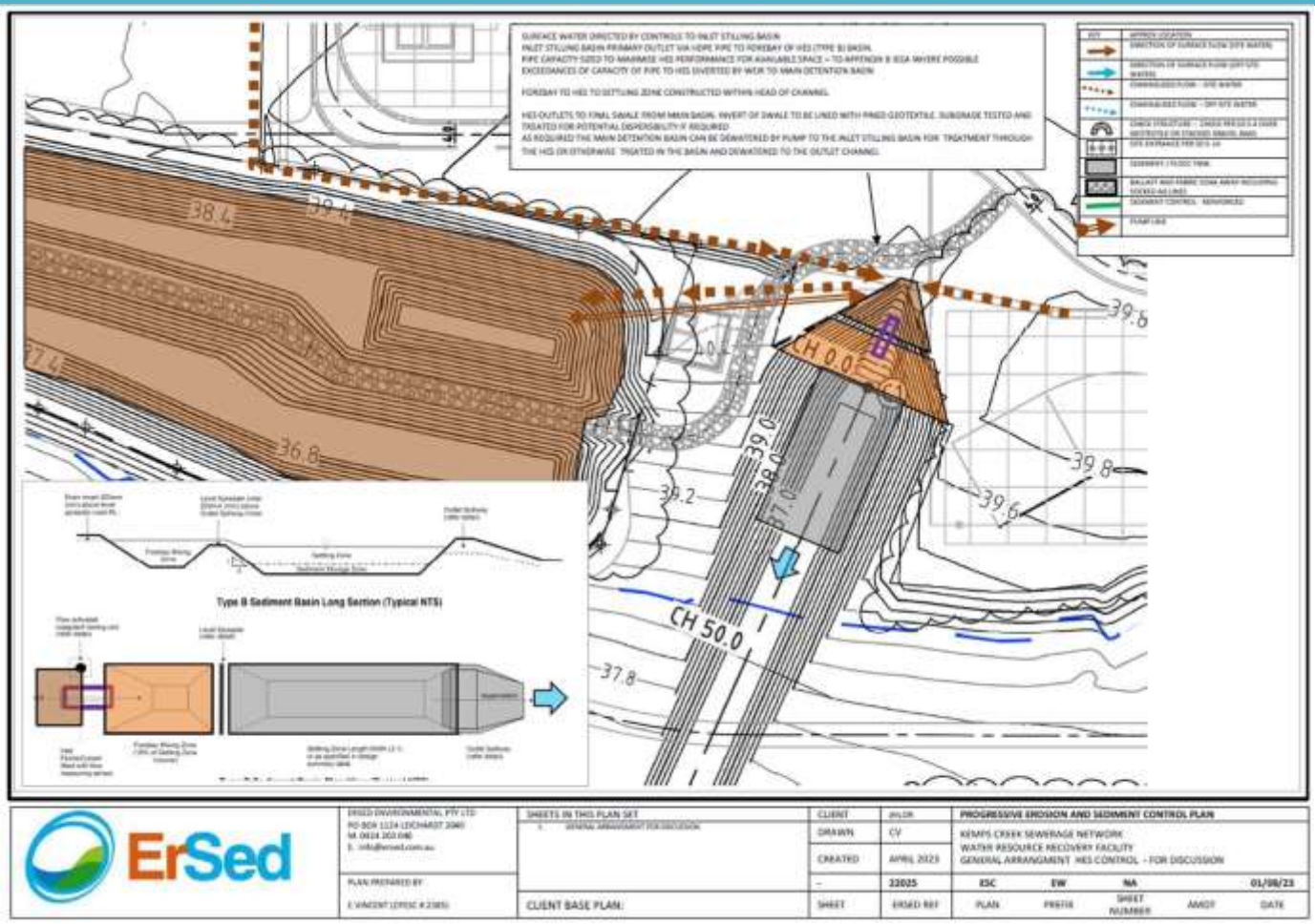
SCOPE / ACTIVITIES

- Incorporates use of the HES structure to be established as part of the sediment control for the critical bulk earthworks scope.
- HES structure **prohibits** movement / discharge of water over the outlet spillway.
- Does not include disturbance of the construction area west of the critical works zone (blue-shaded).
- Priority is shrinking catchments onsite and ensuring non-disturbance of as much of the site as possible.
- The HES structure is constructed to such an extent that its ready to be activated / 'turned on'.

EPL PHASING

- **Prior to** approval of any EPL variation to permit construction phase stormwater discharges, activities will be managed in accordance with ESCP, developed and endorsed by project CPESC.
- Due to existing contours and flat terrain, mostly involves active pumping of water from sized sub-basins, sumps, trenches, excavations, etc. to the OSD.

Additional text over page



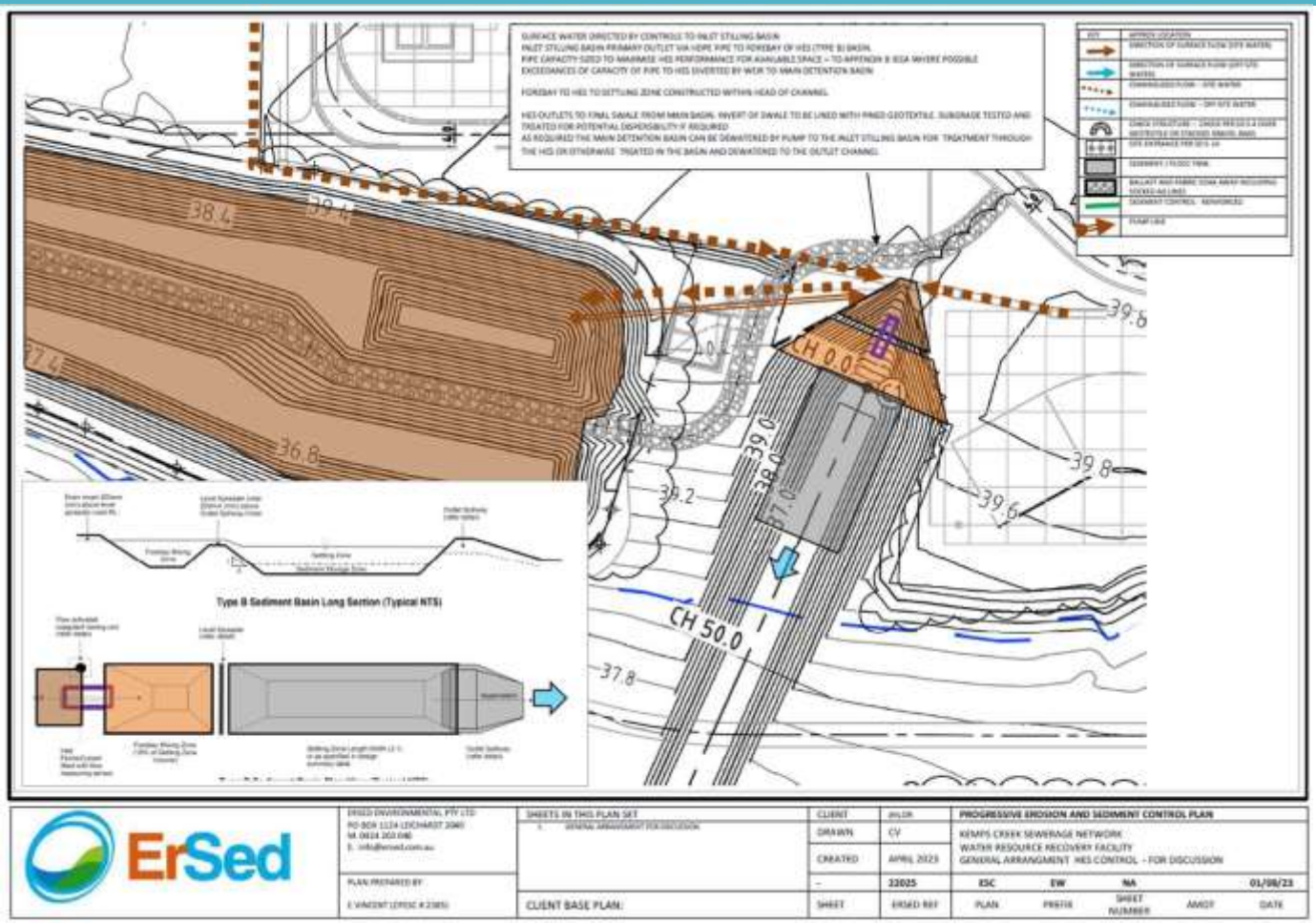
Erosion and Sediment Control Staging

JOHN HOLLAND

Stage 1 Bulk Earthworks ESCP

HOLDPOINTS

- When the OSD reaches 85% capacity, construction activities onsite will be halted, and steps take to seal the site (to achieve an effective C-factor of <0.6).
- Construction is not permitted to recommence until sufficient capacity of the OSD is restored.



Erosion and Sediment Control Staging

JOHN HOLLAND

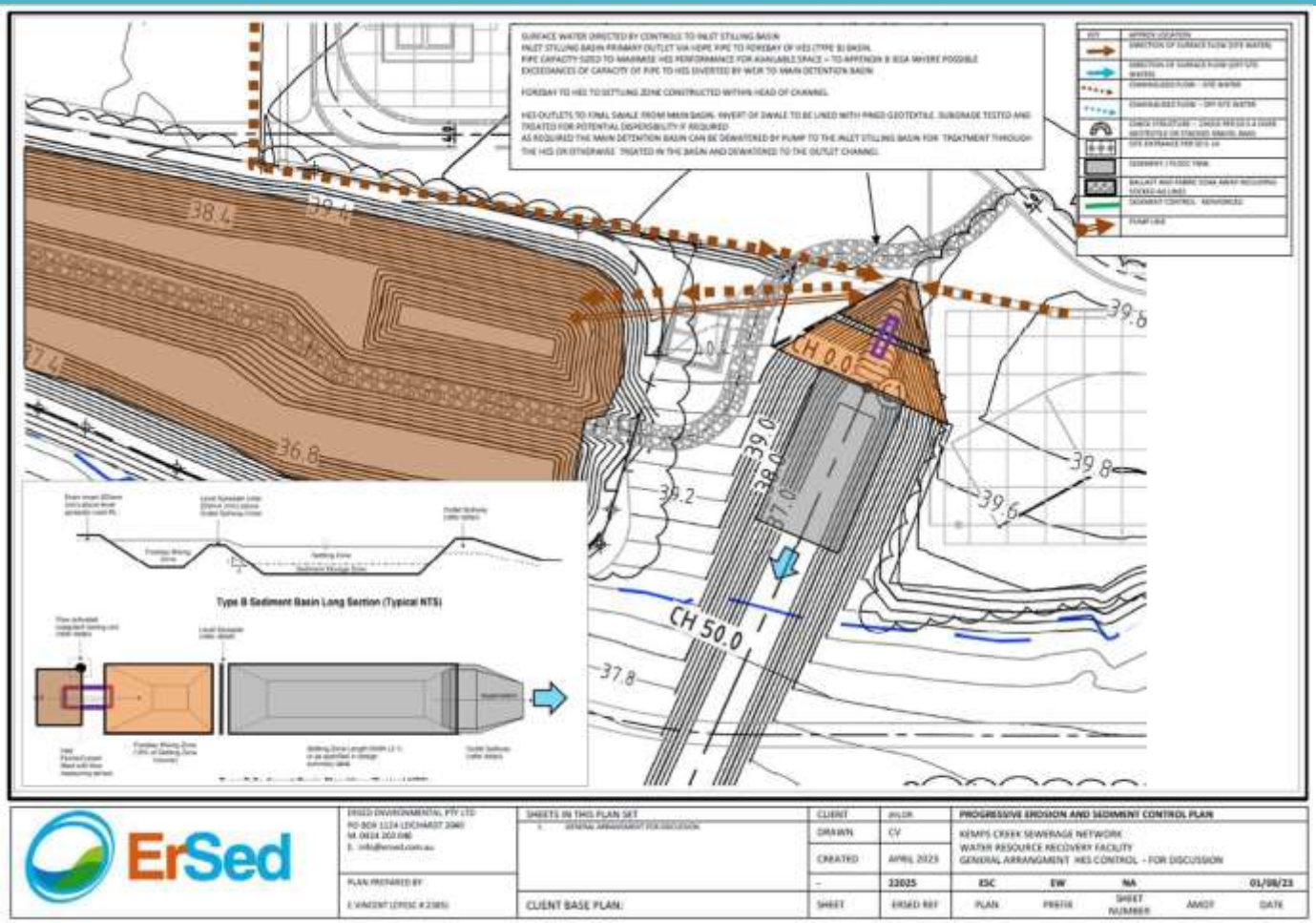
Stage 2 Bulk Earthworks ESCP

SCOPE / ACTIVITIES

Incorporates use of the HES structure to be established as part of the sediment control for the critical bulk earthworks scope.
HES structure **permits** movement / discharge of water over the outlet spillway.
Incorporates disturbance of the remainder of construction areas.
Focuses on localised, standard ersed controls to keep sedimentation as close as possible to its source.

EPL PHASING

Post approval of EPL variation to permit construction phase stormwater discharges, activities to be managed in accordance with ESCP, considerate of basin and discharge criteria nominated in the EPL.



CoA C6(b)

EHG Comment:
The ESCP covers only an initial phase of works and it is unclear how the controls will integrate or transition to later stages of works at the site. At least preliminary ESCPs, showing major sediment and drainage controls are required for all stages of works at the facility and for the pipeline construction (including waterway crossings).

USC Response:

- Preparation of ESCP for the AWRC plant site is critical to achieving key testing and commissioning dates and as such, ESCPs are being prioritized for the AWRC plant site.

- ESCPs developed for pipelines will be consistent with requirements / controls established for AWRC, including compliance with:
  - Managing Urban Stormwater: Soils & Construction (4th edition, Landcom 2004) ('Blue Book'), and
  - (In the South Creek catchment) Technical Guidance for Achieving Wianamatta South Creek Stormwater Management Targets (DPE, 2022).

- Pipeline ESCPs for waterway crossings to be developed and finalised subject to closeout of trenched pipeline methodology and what controls and management measures best suit project-specific requirements, subject to CPESC and geomorphologist advice.

CoA C6(b)

JOHN HOLLAND

EHG Comment:
Land irrigation of treated water is proposed. What is the required infiltration rate for this to be successful based on full dewatering of the OSD basin within the required timeframe and how will this be feasible following a significant rain event which fills the OSD and when ground conditions will be already saturated? This appears to be a strategy which will only work intermittently, at best.

USC Response:

- Ample capacity in the OSD relative to area of disturbance.
- Preferentially water retained within the site be used for dust suppression and where necessary for construction purposes (e.g. to assist with compaction)
- EPL variation application to be submitted shortly to license the OSD as a construction sediment basin (with approved discharge point and criteria).

CoA C6(b)

JOHN HOLLAND

EHG Comment:

Furthermore, given the sodic/saline soils in the area, a soil assessment and land capacity assessment is required to be completed by a soil scientist to certify this approach is suitable, will not impact soil/groundwater conditions and the limitations on the approach.

USC Response:

- CoA C4(c) - Soils & Contamination CEMP Sub-plan developed and endorsed by the project's EPA Accredited Site Auditor and addresses saline and sodic soils (Section 6.4).
- Salinity and sodicity potential and preliminary soil testing results undertaken as part of the EIS indicates a range of non-saline and non-sodic to moderate and high-level salinity and sodicity across the pipelines and AWRC site.
- Management measures include:
  - Where detailed design indicates soils will be disturbed, the project will engage with a suitably qualified expert to assess excavated soils for salinity and sodicity. The timing and nature of the engagement will take into account the timing of the EPL variation to permit discharge of water from site, preferentially over irrigation to land. Pending outcome of any assessment undertaken, requirements will be incorporated into the CEMP and relevant sub-plans.
  - Management of 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 where possible. If not possible to avoid excavation, they will not be reused within the project for landscaping or surface rehabilitation. Alternatively, potential treatment and on-site reuse will be further investigated.

CoA C6(b)

JOHN HOLLAND

EHG Comment:
Gypsum is a slow-acting and difficult to deliver chemical for large basins. What testing has been conducted to determine likely settling rates and method of application?

USC Response:

Flexibility has been included in the example ESCP provided – "Gypsum at 30-50kg per 100m3 of water or other flocculant…"

Gypsum is likely to be used for the smaller sub-basins to be established throughout the construction zone. However, more suitable alternatives (for example Alum) will be investigated to ensure that (given the size of the OSD), HES settling rates can be achieved. Jar testing will be undertaken to confirm the correct setting co-efficient is applied to the site, and by default, a conservative coefficient of 12,000 is proposed to be used.

CoA C6(b)

EHG Comment:
'Seeding' is inappropriate as the sole method to stabilise bunds if they are intended to act as immediate flow control devices.

USC Response:

In consultation with the project CPESC, ESCPs will reflect adaptability of controls. Where seeding of bunds may not be appropriate, the project CPESC will advise of alternative stabilization methods to implement (e.g. stabilized with geo-fabric material).

CoA C6(b)

EHG Comment:
It is unclear where stockpiles will be placed and whether additional disturbance outside of the blue shaded area will occur – particularly during construction of the OSD.

USC Response:

Pending construction staging, stockpile locations and their stay / duration will vary.

Stockpiles will be located within the construction area which includes the blue-shaded area in the example ESCP for Enabling Works provided, and for practicality reasons, will be confirmed onsite.

Stockpiles will be managed in accordance with the Stockpile Management Protocol (Appendix A9 of the CEMP) and any other controls and constraints identified by the project CPESC and documented on the ESCP.

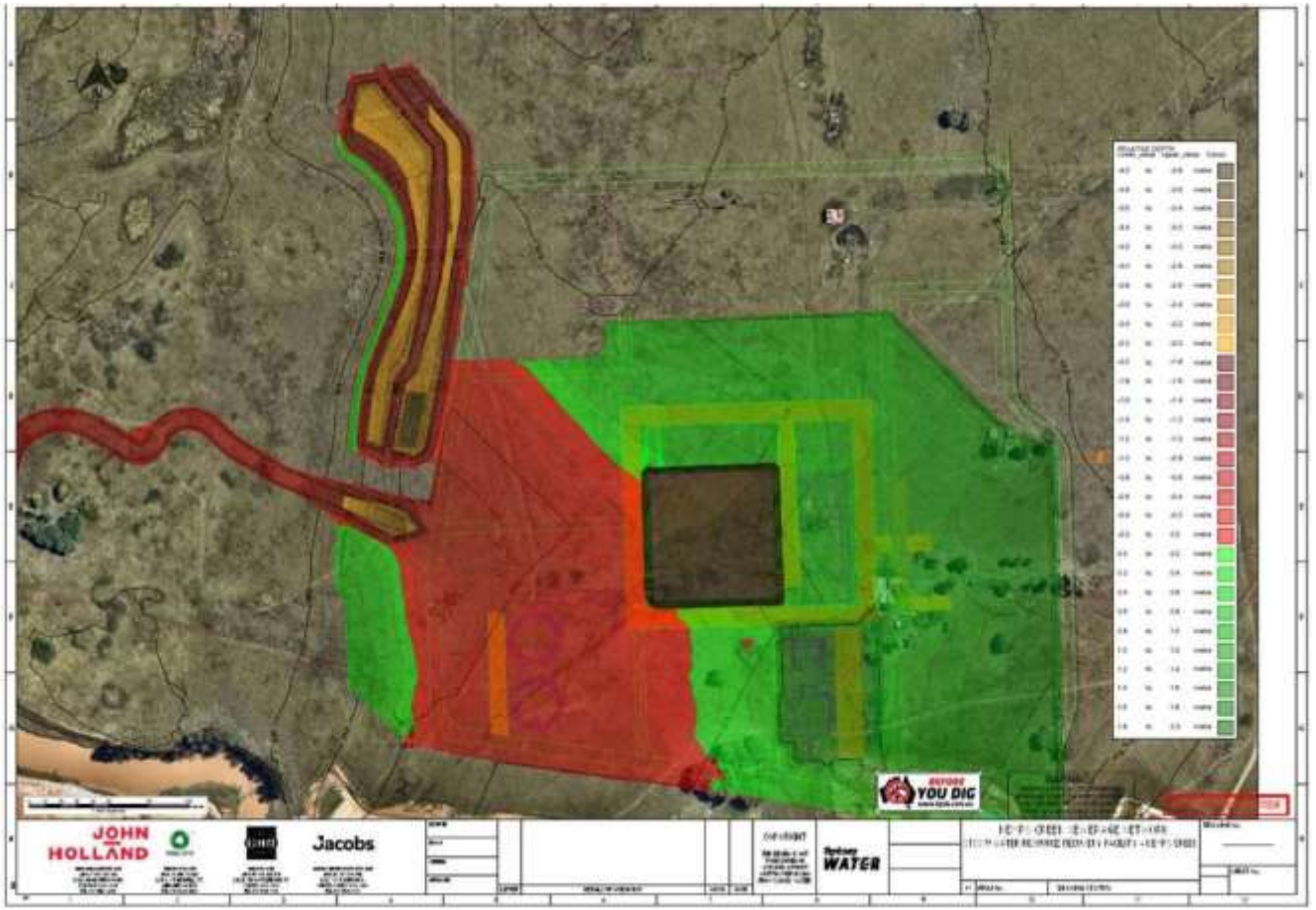
CoA C6(b)

EHG Comment:
Final contours are not shown. This is required in order to understand how earthworks levels will change and influence controls as earthworks progress. Additional plans should be provided.

USC Response:

Contour lines depicting existing and staged bulk earthworks contours have been overlaid onto ESCP template. An example of the base overlay has been provided on the next slide and will be used for plans developed moving forward.

CoA C6(b)



EHG Comment:
The monitoring program continues to use 'acceptable range' values which provide scope for potentially significant pollution incidents to occur and not trigger action, if the waterway values stay below the acceptable range – which in some cases is significant. The 'acceptable values' should be updated to include a criteria that 10% increase between upstream and downstream monitoring locations is not acceptable.

USC Response:

Tables 4.2-1 and 4.2-2 of the SW construction monitoring program has been updated to include a criteria that a 10% increase between upstream and downstream monitoring locations is not acceptable.

Note that an additional comment has been included to state that this criteria will only be implemented until sufficient pre-construction baseline data has been obtained and utilized to inform existing conditions and variability within the waterway.

SW-CMP

JOHN HOLLAND

Table 4.2-1 Adopted Water Quality Assessment Criteria (AWRC)

Water Course	Physicochemical parameter Note – applicable to the construction phase only	Project Acceptable Range	Project Trigger Value	
			Lower Level	Upper Level
South Creek	Water pH	6.77 – 8.34	7.28	7.79
	Turbidity (NTU)	0 – 310	0	140
	Dissolved Oxygen (%)	47.25 – 131.2	66.9	101.2
	Conductivity (µS/cm)	352.95 – 2104.25	747	1526
	Total Suspended Solids (TSS) (mg/L) *	0-50	-	40
Kemps Creek	Water pH	6.79 – 7.83	7.41	7.59
	Turbidity (NTU)	0 – 168.5	0	59
	Dissolved Oxygen (%)	41.88 – 97.31	52.6	83.8
	Conductivity (µS/cm)	346.51 – 4117.8	1041	2390
	Total Suspended Solids (TSS) (mg/L) *	0-50	-	40
Badgerys Creek	Water pH	6.98 – 7.66	7.18	7.34
	Turbidity (NTU)	0 – 577.7	0	60
	Dissolved Oxygen (%)	26.15 – 101.02	52.6	83.8
	Conductivity (µS/cm)	356.68 – 2777.8	767	1506
	Total Suspended Solids (TSS) (mg/L) *	0 - 50	-	40
Nepean River	Water pH	6.78 – 8.32	7.09	7.66
	Turbidity (NTU)	0 – 58.9	0	17.6
	Dissolved Oxygen (%)	79.41 – 114.9	88.9	105.8
	Conductivity (µS/cm)	148.95 – 540.8	191.4	439
	Total Suspended Solids (TSS) (mg/L) *	0 - 50	-	40

*No baseline data available. Project acceptable range and triggers values are based on the ANZG 80% protection of freshwater species, including ecosystem type (lowland river).

Note – a 10% increase between upstream and downstream monitoring locations is not acceptable and requires action be taken consistently with Section 4.1 of this SW-CMP. This 10% criteria is applicable until sufficient pre-construction monitoring data has been obtained and utilised to inform existing condition and variability within the waterway.

Table 4.2-2 Adopted Water Quality Assessment Criteria (Pipelines)

Water Course	Physicochemical parameter Note – applicable to the construction phase only	Project Acceptable Range	Project Trigger Value	
			Lower Level	Upper Level
South Creek	Water pH	6.77 – 8.34	7.28	7.79
	Turbidity (NTU)	0 – 310	0	140
	Dissolved Oxygen (%)	47.25 – 131.2	66.9	101.2
	Conductivity (µS/cm)	352.95 – 2104.25	747	1526
	Total Suspended Solids (TSS) (mg/L) *	0-50	-	40
Oaky Creek*	Water pH	6.5 – 8.0	6.8	7.7
	Turbidity (NTU)	0 – 50	0	40
	Dissolved Oxygen (%)	85 - 110	90	105
	Conductivity (µS/cm)	125 – 2200	300	2000
	Total Suspended Solids (TSS) (mg/L)	0-50	-	40
Cosgroves Creek*	Water pH	6.5 – 9.0	6.8	7.7
	Turbidity (NTU)	0 – 50	0	40
	Dissolved Oxygen (%)	85 – 110	90	105
	Conductivity (µS/cm)	125 – 2200	300	2000
	Total Suspended Solids (TSS) (mg/L)	0-50	-	40

*No baseline data available. Project acceptable range and triggers values are based on the ANZG 80% protection of freshwater species, including ecosystem type (lowland river).

Note – a 10% increase between upstream and downstream monitoring locations is not acceptable and requires action be taken consistently with Section 4.1 of this SW-CMP. This 10% criteria is applicable until sufficient pre-construction monitoring data has been obtained and utilised to inform existing condition and variability within the waterway.

EHG Comment:
Ambient (dry weather) monitoring for pipeline crossings is appropriate if there is baseflow. For other locations, dry weather monitoring offers little/no benefit and would provide a false impression of good environmental performance, as impacts are linked to rainfall. Justify or remove routine monthly monitoring at sites where there is no baseflow.

USC Response:

Section 5.4.2 of the SW construction monitoring program has been updated.

Note that ambient (dry weather) monitoring has been maintained at the AWRC Plant site (at South Creek) as there is baseflow in this waterway year round.

SW-CMP

JOHN HOLLAND

EHG Comment:
Ambient (dry weather) monitoring for pipeline crossings is appropriate if there is baseflow. For other locations, dry weather monitoring offers little/no benefit and would provide a false impression of good environmental performance, as impacts are linked to rainfall. Justify or remove routine monthly monitoring at sites where there is no baseflow.

5.4.2 Routine Sampling

Routine monitoring shall be undertaken:

- AWRC Plant
  As there is a baseflow at South Creek, ambient (dry weather) sampling will occur once per month when there is no rainfall; and increasing to daily in the receiving watercourse where rainfall results in sediment basin discharge.

- AWRC Pipelines
  At pipeline monitoring locations nominated in Table 5.1-2 and where there is baseflow, ambient (dry weather) sampling will occur once per month during and immediately following trenching activities and subject to confirmation from CPESC that stabilisation has been achieved as required.

Ideally, where multiple monitoring events occur in a month, these will be conducted to capture data both before a discharge and after a discharge.

This programmed monthly monitoring will be supplemented by specific wet weather or incident response monitoring, as described in Section 5.4.3.

EHG Comment:
There is still insufficient detail on wet weather sampling/monitoring, with daily sampling noted within the watercourse when sediment basins are discharging and additional sampling when 20mm of rainfall is recorded. This still fails to recognise that discharges may be of short duration and explain how representative samples of site discharges will be obtained.

USC Response:

Where reasonable and safe access permits, samples will also be obtained that are representative of discharges from site of a short duration.

Collection of wet weather monitoring samples will be consistent with the sampling methodology outlined in Section 5.3 and outcomes reported in accordance with Section 7.

SW-CMP

JOHN HOLLAND

EHG Comment:

There is still insufficient detail on wet weather sampling/monitoring, with daily sampling noted within the watercourse when sediment basins are discharging and additional sampling when 20mm of rainfall is recorded. This still fails to recognise that discharges may be of short duration and explain how representative samples of site discharges will be obtained.

5.4.3 Event Triggered Sampling

Additional water quality monitoring will be undertaken in response to unplanned events, such as significant rainfall, incidents, substantiated complaints, exceedance of project acceptable ranges or HES basins which discharge during rainfall events (not as a controlled batch release post rainfall event), to gain an understanding of changes to prevailing conditions or impacts to water quality under such circumstances. Event triggered sampling at relevant pipeline monitoring locations nominated in Table 5.1-2, will only occur during the trenching of the waterway and in accordance with the trigger values nominated in Section 4.2.1.

At least one wet weather monitoring event should be undertaken following a substantial rainfall event, defined as greater than 20 millimetres recorded over the course of a 24-hour period. Where reasonable and safe access permits, samples will also be obtained that are representative of discharges from site of a short duration. Wet weather monitoring will provide context for the effects of increased flows and stormwater influences on water quality. Collection of wet weather monitoring samples will be consistent with the sampling methodology outlined in Section 5.3 and outcomes reported in accordance with Section 7. If prolonged periods of rainfall occur additional sampling events are recommended until a cessation of overland runoff from the site. Wet weather monitoring should be undertaken in accordance with the above-described protocol and with a standard report to follow. This report should include a record of any sediment basin discharges during or following the event, due to overflows or planned dewatering.

Should incidents with the potential to impact upon water quality occur, such as sediment basin discharges or fuel spills, post incident monitoring and reporting should be undertaken to identify whether any of the project trigger values or objectives have been exceeded. The accompanying brief report should include a record of any sediment basin dewatering or refuelling undertaken at the time (e.g. pump or refuelling permit).

EHG Comment:
Expand the acceptable values for monitoring sites to state the absolute values that must be achieved from controlled releases from storages such as batch sediment basins, pits and trenches (i.e., TSS 50mg/L, pH 6.5-8.5 etc.

USC Response:

Section 4.1 states that project acceptable values have been obtained (preferentially) using baseline data for the relevant waterways. Where this is not possible, (and is indicated in the notes provided under Tables 4.2-1 and 4.2-2) relevant water quality guideline values have been used.

SW-CMP

JOHN HOLLAND

Table 4.2-1 Adopted Water Quality Assessment Criteria (AWRC)

Water Course	Physicochemical parameter Note – applicable to the construction phase only	Project Acceptable Range	Project Trigger Value	
			Lower Level	Upper Level
South Creek	Water pH	6.77 – 8.34	7.28	7.79
	Turbidity (NTU)	0 – 310	0	140
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	Total Suspended Solids (TSS) (mg/L) *	0-50	-	40
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	Turbidity (NTU)	0 – 577.7	0	60
	Dissolved Oxygen (%)	26.15 – 101.02	52.6	83.8
	Conductivity (µS/cm)	356.68 – 2777.8	767	1506
	Total Suspended Solids (TSS) (mg/L) *	0 - 50	-	40
Nepean River	Water pH	6.78 – 8.32	7.09	7.66
	Turbidity (NTU)	0 – 58.9	0	17.6
	Dissolved Oxygen (%)	79.41 – 114.9	88.9	105.8
	Conductivity (µS/cm)	148.95 – 540.8	191.4	439
	Total Suspended Solids (TSS) (mg/L) *	0 - 50	-	40

*No baseline data available. Project acceptable range and triggers values are based on the ANZG 80% protection of freshwater species, including ecosystem type (lowland river).

Note – a 10% increase between upstream and downstream monitoring locations is not acceptable and requires action be taken consistently with Section 4.1 of this SW-CMP. This 10% criteria is applicable until sufficient pre-construction monitoring data has been obtained and utilised to inform existing condition and variability within the waterway.

Table 4.2-2 Adopted Water Quality Assessment Criteria (Pipelines)

Water Course	Physicochemical parameter Note – applicable to the construction phase only	Project Acceptable Range	Project Trigger Value	
			Lower Level	Upper Level
South Creek	Water pH	6.77 – 8.34	7.28	7.79
	Turbidity (NTU)	0 – 310	0	140
	Dissolved Oxygen (%)	47.25 – 131.2	66.9	101.2
	Conductivity (µS/cm)	352.95 – 2104.25	747	1526
	Total Suspended Solids (TSS) (mg/L) *	0-50	-	40
Oaky Creek*	Water pH	6.5 – 8.0	6.8	7.7
	Turbidity (NTU)	0 – 50	0	40
	Dissolved Oxygen (%)	85 - 110	90	105
	Conductivity (µS/cm)	125 – 2200	300	2000
	Total Suspended Solids (TSS) (mg/L)	0-50	-	40
Cosgroves Creek*	Water pH	6.5 – 9.0	6.8	7.7
	Turbidity (NTU)	0 – 50	0	40
	Dissolved Oxygen (%)	85 – 110	90	105
	Conductivity (µS/cm)	125 – 2200	300	2000
	Total Suspended Solids (TSS) (mg/L)	0-50	-	40

*No baseline data available. Project acceptable range and triggers values are based on the ANZG 80% protection of freshwater species, including ecosystem type (lowland river).

Note – a 10% increase between upstream and downstream monitoring locations is not acceptable and requires action be taken consistently with Section 4.1 of this SW-CMP. This 10% criteria is applicable until sufficient pre-construction monitoring data has been obtained and utilised to inform existing condition and variability within the waterway.

SW-CMP

JOHN HOLLAND

EHG Comment:
Expand the monitoring report to include allowance for HES basins which discharge during rainfall events (not as a controlled batch release post-event).

USC Response:

Section 5.4.3 of the SW construction monitoring program has been expanded to include allowance for HES basins.

5.4.3 Event Triggered Sampling

Additional water quality monitoring will be undertaken in response to unplanned events, such as significant rainfall, incidents, substantiated complaints, exceedance of project acceptable ranges or HES basins which discharge during rainfall events (not as a controlled batch release post rainfall event), to gain an understanding of changes to prevailing conditions or impacts to water quality under such circumstances. Event triggered sampling at relevant pipeline monitoring locations nominated in Table 5.1-2, will only occur during the trenching of the waterway and in accordance with the trigger values nominated in Section 4.2.1.

At least one wet weather monitoring event should be undertaken following a substantial rainfall event, defined as greater than 20 millimetres recorded over the course of a 24-hour period. Wet weather monitoring will provide context for the effects of increased flows and stormwater influences on water quality. If prolonged periods of rainfall occur additional sampling events are recommended until a cessation of overland runoff from the site. Wet weather monitoring should be undertaken in accordance with the above-described protocol and with a standard report to follow. This report should include a record of any sediment basin discharges during or following the event, due to overflows or planned dewatering.

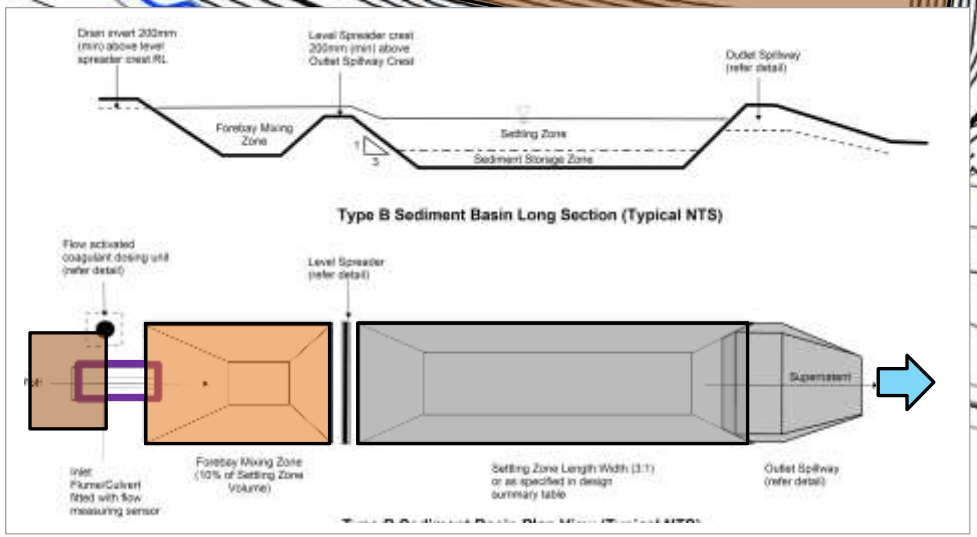
Should incidents with the potential to impact upon water quality occur, such as sediment basin discharges or fuel spills, post incident monitoring and reporting should be undertaken to identify whether any of the project trigger values or objectives have been exceeded. The accompanying brief report should include a record of any sediment basin dewatering or refuelling undertaken at the time (e.g. pump or refuelling permit).

SURFACE WATER DIRECTED BY CONTROLS TO INLET STILLING BASIN
INLET STILLING BASIN PRIMARY OUTLET VIA HDPE PIPE TO FOREBAY OF HES (TYPE B) BASIN.
PIPE CAPACITY SIZED TO MAXIMISE HES PERFORMANCE FOR AVAILABLE SPACE – TO APPENDIX B IECA WHERE POSSIBLE
EXCEEDANCES OF CAPACITY OF PIPE TO HES DIVERTED BY WEIR TO MAIN DETENTION BASIN

FOREBAY TO HES TO SETTLING ZONE CONSTRUCTED WITHIN HEAD OF CHANNEL

HES OUTLETS TO FINAL SWALE FROM MAIN BASIN. INVERT OF SWALE TO BE LINED WITH PINED GEOTEXTILE. SUBGRADE TESTED AND TREATED FOR POTENTIAL DISPERSIBILITY IF REQUIRED
AS REQUIRED THE MAIN DETENTION BASIN CAN BE DEWATERED BY PUMP TO THE INLET STILLING BASIN FOR TREATMENT THROUGH THE HES OR OTHERWISE TREATED IN THE BASIN AND DEWATERED TO THE OUTLET CHANNEL

KEY	APPROX LOCATION
	DIRECTION OF SURFACE FLOW (SITE WATER)
	DIRECTION OF SURFACE FLOW (OFF SITE WATER)
	CHANNELISED FLOW – SITE WATER
	CHANNALISED FLOW – OFF SITE WATER
	CHECK STRUCTURE – CHECK PER SD 5-4 OVER GEOTEXTILE OR STACKED GRAVEL BAGS
	SITE ENTRANCE PER SD 5-14
	SEDIMENT / FLOCC TANK
	BALLAST AND FABRIC SOAK AWAY INCLUDING SOCKED AG LINES
	SEDIMENT CONTROL - REINFORCED
	PUMP LINE



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PLAN PREPARED BY

C VINCENT (CPESC # 2385)

SHEETS IN THIS PLAN SET

1. GENERAL ARRANGMENT FOR DISCUSSION

CLIENT BASE PLAN:

CLIENT	JHLOR	**PROGRESSIVE EROSION AND SEDIMENT CONTROL PLAN**
DRAWN	CV	KEMPS CREEK SEWERAGE NETWORK WATER RESOURCE RECOVERY FACILITY GENERAL ARRANGMENT HES CONTROL - FOR DISCUSSION
CREATED	APRIL 2023	
-	**22025**	**ESC** **EW** **NA** **01/08/23**
SHEET	ERSED REF	PLAN PREFIX SHEET NUMBER AMDT DATE

Appendix 3 – DPE Water – Evidence of Consultation

From:	Alyce Harrington-JHG
To:	alistair.drew@dpie.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(a) - Surface Water & Groundwater CEMP Sub-plan - for consultation (DPE Water)
Date:	Friday, 31 March 2023 3:31:15 PM
Attachments:	image001.png image002.png image003.png image004.png image005.png image006.png USCP-JHG-MPL-ENV-0008 Upper South Creek CEMP (Rev 04)_clean and consolidated.pdf USCP-JHG-MPL-ENV-0001 Surface Water & Groundwater CEMP Sub-plan (Rev 03)_clean and consolidated.pdf

Good afternoon Alistair,

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 DPE Water within the NSW Department of Planning and Environment. A list of the plan and programs relevant to DPE Water is provided below.

C4

a. Surface Water & Groundwater CEMP Sub-plan (USCP-JHG-MPL-ENV-0001) (SWGCSP)

C13

a. Surface Water Quality Construction Monitoring Program (Appendix E of the SWGCSP)
b. Groundwater Construction Monitoring Program (Appendix F of the SWGCSP)

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

It would be greatly appreciated if any comments regarding this submission are provided by close of business Tuesday 18 April 2023.

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

Thank you,

Alyce Harrington
Planning, Environment & Approvals Director

Upper South Creek

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:	CAHILL, CHERYL; Cameron Varricchio
Cc:	Darragh O"Brien-JHG; Mira Segaran-JHG; Wadeea Chaudhary-JHG; Simone Kenyon-JHG
Subject:	FW: DPE Water response - Upper South Creek (SSI 8906189) CoA C4(a) - Surface Water & Groundwater CEMP Sub-plan - for consultation (DPE Water)
Date:	Monday, 1 May 2023 4:32:45 PM
Attachments:	image001.png image002.png image003.png image004.png image005.png image006.png DPE Water advice - Upper Sth Ck Water Recyc Cntr CEMP.pdf

FYI

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

From: DPIE Water Assessments Mailbox <water.assessments@dpie.nsw.gov.au>
Sent: Monday, 1 May 2023 3:52 PM
To: Alyce Harrington-JHG <Alyce.Harrington@jhg.com.au>
Subject: DPE Water response - Upper South Creek (SSI 8906189) CoA C4(a) - Surface Water & Groundwater CEMP Sub-plan - for consultation (DPE Water)

Dear Alyce,

Please see attached response from DPE Water following review of the provided documents.

Regards
Tim

Tim Baker
Senior Project Officer
Water Assessments
Department of Planning and Environment—Water
T 0428162097 | **E** tim.baker@dpie.nsw.gov.au

From: Alyce Harrington-JHG <Alyce.Harrington@jhg.com.au>
Sent: Friday, 31 March 2023 3:30 PM

To: Alistair Drew <alistair.drew@dpie.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(a) - Surface Water & Groundwater CEMP Sub-plan - for consultation (DPE Water)

Good afternoon Alistair,

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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 the DPE Water within the NSW Department of Planning and Environment. A list of the plan and programs relevant to DPE Water is provided below.

C4

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Please note that as there are a number of references to sections within the CEMP throughout the SWGCSP, John Holland has also provided a copy of the CEMP for DPE Water's reference.

It would be greatly appreciated if any comments regarding this submission are provided by close of business Tuesday 18 April 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

Department of Planning and Environment

Our ref: OUT23/6371

Alyce Harrington
John Holland

Email: Alyce.Harrington@jhg.com.au

1 May 2023

Subject: Upper South Creek Advanced Water Recycling Centre and Pipelines – Construction Environmental Management Plan (CEMP) and Surface Water & Groundwater CEMP SUB-Plan

Dear Alyce Harrington

I refer to your request dated 31 March 2023 providing the Department of Planning and Environment (DPE) Water an opportunity to comment on the above matter.

The Department of Planning and Environment- Water (DPE Water) has reviewed the Upper South Creek Advanced Water Recycling Centre and Pipelines (CEMP) and Surface Water and Groundwater Sub-Plan.

Recommendations have been made to clarify water licensing requirements at the site and the administrative arrangements to ensure water take is appropriately accounted for. Please see attachment A for further detail.

Should you have any further queries in relation to this submission please do not hesitate to contact DPE Water Assessments at water.assessments@dpie.nsw.gov.au,

Yours sincerely,

E Rogers

Liz Rogers
Manager, Assessments, Knowledge Division
Department of Planning and Environment: Water

Attachment A

Detailed advice regarding the Upper South Creek Advanced Water Recycling Centre and Pipelines Construction Environmental Management Plan (CEMP) and Surface Water and Groundwater CEMP Sub-Plan

1.0 Water take and licensing

1.1 Recommendation prior to submitting for approval

That the CEMP be updated to clarify construction water take volumes, licensing requirements and any additional water supply/take infrastructure. This is to include site water demands, surface water capture and all groundwater interference.

Explanation

Insufficient information has been provided to clearly understand the water take, licensing requirements and the ability to obtain any necessary water entitlement. The EIS refers to potential groundwater interference of 64ML in the Sydney Basin Central Groundwater Source, however WAL44469 which is referenced only has 30 units of entitlement. The ability to source the additional entitlement has not been demonstrated.

A site water balance is required which summarises all site water demands, groundwater interception or surface water take and clearly show how all water take is to be accounted for or where an exemption may apply.

Two exemptions to the requirement for a water access licence (WAL) are mentioned in Table 3-3. DPE Water advises that the exemption relating to road construction and maintenance (sch.4 cl 2 of the Water Management (General) Regulation 2018) would not apply to this project as it only applies to a road authority, which Sydney Water is not. The dust suppression WAL exemption in sch 4, cl 4 of the WM Reg 2018 however could apply as it is for public authorities.

No infrastructure (eg. pump) is mentioned to take water from the Nepean River or to meet site water demands. DPE Water advises that to be exempt from a water supply works approval under the *Water Management Act 2000* (WMA 2000), these works must be assessed under the State Significant Infrastructure project or management plan assessment stages, or relevant approvals would need to be obtained separately.

1.2 Recommendation post approval

That the proponent ensure the relevant change of Water Access Licence (WAL) dealing application is completed with WaterNSW to nominate where the water is being taken from prior to the water take occurring.

Explanation

WAL44469 is not currently linked to a work approval. Nominating the extraction point on the WAL is required to address offence provision 60D of the WMA 2000.

End Attachment A

From:	Alyce Harrington-JHG
To:	alistair.drew@dpie.nsw.gov.au
Cc:	CAHILL, CHERYL; Cameron Varricchio; Mira Segaran-JHG
Subject:	Upper South Creek (SSI 8906189) CoA C4(a) - SWGCSP - Response re DPE Water comments
Date:	Thursday, 25 May 2023 10:26:11 PM
Attachments:	image001.png image002.png image003.png image004.png image005.png image006.png image007.png

---

Good evening Alistair,

John Holland on behalf of Sydney Water would like to thank DPE Water for participating in the consultation process and providing comments for the Upper South Creek project.

Please see attached updated Surface Water & Groundwater CEMP Sub-plan and corresponding comment register for your information.

DPE Water

Please download the documents from the link provided, noting that the link is valid for your email address only. If others require access to the documents, please download them and distribute as required.

If you have any questions regarding this matter, please do not hesitate to 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

From:	Alyce Harrington-JHG
To:	"DPIE Water Assessments Mailbox"
Cc:	Mira Segaran-JHG; alistair.drew@dpie.nsw.gov.au
Subject:	RE: Upper South Creek (SSI 8906189) CoA C4(a) - SWGCSP - Response re DPE Water comments
Date:	Wednesday, 28 June 2023 4:56:00 PM
Attachments:	image001.png image002.png image003.png image004.png image005.png image006.png image007.png image008.png

Good afternoon,

John Holland has recently received comments from the Department of Planning & Environment (DPE) Post Approvals Team regarding the USC Surface Water & Groundwater CEMP sub-plan (SWGCSP).

As we work towards responding and closing out these comments, John Holland would like to confirm that the revised SWGCSP and accompanying comments register (issued Thursday 25 May 2023) satisfactorily address comments raised by DPE Water.

Please do not hesitate to contact me if you have any further questions.

Sincerely,

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

From: Alyce Harrington-JHG
Sent: Tuesday, May 30, 2023 2:51 PM
To: DPIE Water Assessments Mailbox <water.assessments@dpie.nsw.gov.au>
Subject: RE: Upper South Creek (SSI 8906189) CoA C4(a) - SWGCSP - Response re DPE Water comments

Hi Naila,

No problem, the address has been included in the link - DPE Water

Please try again and let me know if you have any issues.

Thanks,

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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Hi Alyce

Can you please send the link to water.assessments@dpie.nsw.gov.au.

Thanks and Regards

Naila Tabassum
Assistant Projects Officer
Water Group | Department of Planning and Environment
E naila.tabassum@dpie.nsw.gov.au
dpie.nsw.gov.au
Level 17, 4 Parramatta Square, 12 Darcy Street | Locked Bag 5022 | Parramatta NSW 2150

Our Vision: Together, we create thriving environments, communities and economics.

NSW GOVERNMENT

From: Alistair Drew <alistair.drew@dpie.nsw.gov.au>
Sent: Friday, 26 May 2023 8:12 AM
To: DPIE Water Assessments Mailbox <water.assessments@dpie.nsw.gov.au>
Subject: Fw: Upper South Creek (SSI 8906189) CoA C4(a) - SWGCSP - Response re DPE Water

comments

Regards,

Alistair Drew

Acting Senior Project Officer **I** Business Planning and Support, Water Infrastructure NSW

Water Group | Department of Planning and Environment
The Store, 6 Stewart Ave, Newcastle West NSW 2302
M 0417 626 567 | **E** alistair.drew@dpie.nsw.gov.au

www.dpie.nsw.gov.au

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Cc: CAHILL, CHERYL <CHERYL.CAHILL@sydneywater.com.au>; Cameron Varricchio <CAMERON.VARRICCHIO@sydneywater.com.au>; Mira Segaran-JHG <Mira.Segaran@jhg.com.au>
Subject: Upper South Creek (SSI 8906189) CoA C4(a) - SWGCSP - Response re DPE Water comments

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DPE Water

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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

From: Patricia Borges on behalf of DPIE Water Assessments Mailbox
To: Alyce Harrington-JHG
Subject: Re: Upper South Creek (SSI 8906189) CoA C4(a) - SWGCSP - Response re DPE Water comments
Date: Monday, 3 July 2023 11:38:09 AM
Attachments: image001.png
image002.png
image003.png
image004.png
image005.png
image006.png
image007.png
image008.png

Dear Alyce,

The Department of Planning and Environment - Water (DPE Water) has received post approval documents for the Upper South Creek project.

The Department of Planning and Environment strongly recommends that you submit this documentation in the NSW Major Projects Portal. Submission of your documents in the NSW planning portal will ensure that your documents are correctly associated with your portal account, and enable you to communicate directly with DPE Water, including to seek progress updates.

DPE Water will commence review of your documents once received in the portal. To sign to your account, please visit the Major Projects Website here

You can also refer to our help guide on how to lodge post-approval documentation in the Portal

Please do not reply to this email.

Kind regards
Department of Planning and Environment – Water

From: Alyce Harrington-JHG <Alyce.Harrington@jhg.com.au>
Sent: Wednesday, 28 June 2023 4:56 PM
To: DPIE Water Assessments Mailbox <water.assessments@dpie.nsw.gov.au>
Cc: Mira Segaran-JHG <Mira.Segaran@jhg.com.au>; Alistair Drew <alistair.drew@dpie.nsw.gov.au>
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Please do not hesitate to contact me if you have any further questions.

Sincerely,

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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Hi Naila,

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Please try again and let me know if you have any issues.

Thanks,

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: Naila Tabassum <naila.tabassum@dpie.nsw.gov.au> **On Behalf Of** DPIE Water Assessments Mailbox
Sent: Tuesday, May 30, 2023 1:47 PM
To: Alyce Harrington-JHG <Alyce.Harrington@jhg.com.au>

Subject: FW: Upper South Creek (SSI 8906189) CoA C4(a) - SWGCSP - Response re DPE Water comments

Hi Alyce

Can you please send the link to water.assessments@dpie.nsw.gov.au.

Thanks and Regards

Naila Tabassum
Assistant Projects Officer
Water Group | Department of Planning and Environment
E naila.tabassum@dpie.nsw.gov.au
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Level 17, 4 Parramatta Square, 12 Darcy Street | Locked Bag 5022 | Parramatta NSW 2150

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Subject: Fw: Upper South Creek (SSI 8906189) CoA C4(a) - SWGCSP - Response re DPE Water comments

Regards,

Alistair Drew
Acting Senior Project Officer **I** Business Planning and Support, Water Infrastructure NSW
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Upper South Creek

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Level 3, 65 Pirrama Road, Pyrmont NSW
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E. Alyce.Harrington@jhg.com.au

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To:	DPIE Water Assessments Mailbox
Cc:	CAHILL, CHERYL; Nathan Heath
Subject:	RE: Upper South Creek (SSI 8906189) CoA C4(a) - SWGCSP - Response re DPE Water comments
Date:	Monday, 3 July 2023 6:13:00 PM
Attachments:	image001.png image002.png image003.png image004.png image005.png image006.png image007.png image008.png SWG.pdf

Good evening,

Thank you for the email.

Please note that the relevant documents were provided via email to the DPE Water Assessments Mailbox on May 30, 2023 and were also uploaded by Sydney Water Environmental Lead, Cheryl Cahill via the Planning Portal on June 01, 2023 (as shown in the attached screenshot).

The documents have been re-issued via the Planning Portal again as requested in DPE Water's email earlier today.

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

From: Patricia Borges <patricia.borges@dpie.nsw.gov.au> **On Behalf Of** DPIE Water Assessments Mailbox
Sent: Monday, July 3, 2023 11:38 AM
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Please do not hesitate to contact me if you have any further questions.

Sincerely,

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Planning, Environment & Approvals Director
Upper South Creek

Level 3, 65 Pirrama Road, Pyrmont NSW
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E. Alyce.Harrington@jhg.com.au

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Upper South Creek

Level 3, 65 Pirrama Road, Pyrmont NSW
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Thanks and Regards

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Assistant Projects Officer
Water Group | Department of Planning and Environment
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Alistair Drew

Acting Senior Project Officer **I** Business Planning and Support, Water Infrastructure NSW

Water Group | Department of Planning and Environment
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Cc: CAHILL, CHERYL <CHERYL.CAHILL@sydneywater.com.au>; Cameron Varricchio <CAMERON.VARRICCHIO@sydneywater.com.au>; Mira Segaran-JHG <Mira.Segaran@jhg.com.au>
Subject: Upper South Creek (SSI 8906189) CoA C4(a) - SWGCSP - Response re DPE Water comments

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DPE Water

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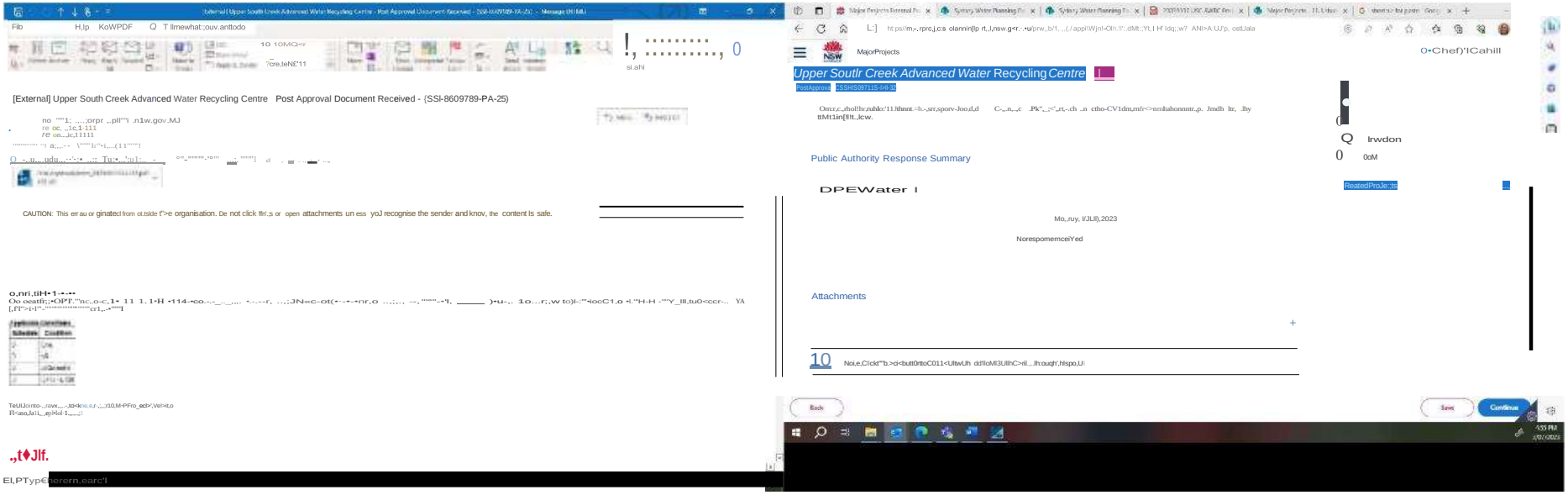
If you have any questions regarding this matter, please do not hesitate to contact me.

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


[External] Upper South Creek Advanced Water Recycling Centre Post Approval Document Received - (SSI-8609789-PA-25)
CAUTION: This email originated from outside the organisation. Do not click links or open attachments unless you recognise the sender and know the content is safe.
Upper Soutlr Creek Advanced Water Recycling Centre
Public Authority Response Summary
DPEWater
Attachments

Mira Segaran-JHG

From: Alyce Harrington-JHG
Sent: Wednesday, 19 July 2023 10:34 AM
To: Mira Segaran-JHG
Subject: FW: [External] DPE Water_Upper South Creek CEMP SW & GW Subplans
Attachments: DPE Water_Upper South Creek CEMP SW GW Subplans.pdf

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

From: Cheryl Cahill <CHERYL.CAHILL@sydneywater.com.au>
Sent: Wednesday, July 19, 2023 10:03 AM
To: Alyce Harrington-JHG <Alyce.Harrington@jhg.com.au>
Cc: Cameron Varricchio <CAMERON.VARRICCHIO@sydneywater.com.au>
Subject: FW: [External] DPE Water_Upper South Creek CEMP SW & GW Subplans

Hi,

See response from DPE Water and my initial response to them.

Happy to discuss and let me know if you need me to reach out to them for clarification.

Thanks,
Cheryl

From: Cheryl Cahill
Sent: Wednesday, 19 July 2023 9:57 AM
To: 'Simon Francis' <simon.francis@dpie.nsw.gov.au>
Cc: Lloyd Eley-Smith <Lloyd.Eley-Smith@planning.nsw.gov.au>; Nathan Heath <Nathan.Heath@planning.nsw.gov.au>; DPIE Water Assessments Mailbox <water.assessments@dpie.nsw.gov.au>
Subject: RE: [External] DPE Water_Upper South Creek CEMP SW & GW Subplans

Hi Simon,

Thank you very much for your response, I will forward this to our delivery partner for their action. The issue with the portal may be due to the response period closing on the 17/07. However, I will attach your response on the portal as evidence of consultation, as part of the SSI-8609189-PA-32 record.

If there are any clarifications required, I will get in touch with you directly (will duplicate over email/ portal record).

Thanks again,
Cheryl

From: Simon Francis <simon.francis@dpie.nsw.gov.au>
Sent: Wednesday, 19 July 2023 9:46 AM
To: Cheryl Cahill <CHERYL.CAHILL@sydneywater.com.au>
Cc: Lloyd Eley-Smith <Lloyd.Eley-Smith@planning.nsw.gov.au>; Nathan Heath <Nathan.Heath@planning.nsw.gov.au>; DPIE Water Assessments Mailbox <water.assessments@dpie.nsw.gov.au>
Subject: [External] DPE Water_Upper South Creek CEMP SW & GW Subplans

Hi Cheryl

Please find our response attached. It wasn't on the Major Projects portal, not sure why it wasn't there, but sending to you directly instead.

Kind Regards

Simon Francis

Senior Project Officer - Assessments

Water | Department of Planning and Environment
M 0428 926 117 | **E** simon.francis@dpie.nsw.gov.au
www.dpie.nsw.gov.au

Our Vision: Together, we create thriving environments, communities and economies.

I live and work on Awabakal Country.

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We work flexibly. If you have received an email from me outside of normal business hours, I'm sending it at a time that suits me. Unless it's urgent, I'm not expecting you to read or reply until normal business hours.

Department of Planning and Environment

Our ref: OUT23/11009

Ms Cheryl Cahill
Sydney Water

Email: cheryl.cahill@sydneywater.com.au

18 July 2023

Subject: **Upper South Creek Advanced Water Recycling Centre (SSI-8609189-PA-32) - Surface Water and Groundwater Construction Environmental Management Plans**

Dear Ms Cahill

I refer to your request for advice sent on 3 July 2023 to the Department of Planning and Environment (DPE) Water about the above matter.

This proposed project is the concept and Stage 1 development application for an Advanced Water Recycling Centre to provide wastewater services and recycled water for the Aerotropolis and South West Growth Areas and associated pipelines.

DPE Water has reviewed the management plans and provides recommendations regarding water take, licensing and controlled activities for waterfront land. Please see Attachment A for more information.

Should you have any further queries in relation to this submission please do not hesitate to contact DPE Water Assessments at water.assessments@dpie.nsw.gov.au

Yours sincerely,

Rose-Anne Hawkeswood
A/Manager, Assessments, Knowledge Division
Department of Planning and Environment: Water

Attachment A

Detailed advice to DPE Planning & Assessment regarding the Upper South Creek Advanced Water Recycling Centre (SSI-8609189-PA-32) - Surface Water and Groundwater Construction Environmental Management Plans

1.0 Water Take and Licencing

1.1 Recommendation – Prior to Approval

The proponent should confirm water take volumes and licensing requirements including for site water demand, any surface water capture and all groundwater interference.

Explanation

Insufficient information has been provided to clearly understand the licensing requirements and take for the project. A site water balance should be provided summarising all site water demands, groundwater intercept or surface water take to clearly show all take can be accounted for under a water access licence (WAL) or where relevant when exemptions apply.

The EIS mentioned potential groundwater interference with a take of 64 ML (57 ML for the Advanced Water Recycling Centre and 7 ML for the Brine pipeline and treated water pipeline) in the Sydney Basin Central Groundwater Source. The identified WA (WAL 44469) is noted to have been replaced by WAL 44810 through a consolidation dealing, and documents should be updated to reflect this change. The 30 ML held on this WAL is insufficient to cover potential take. Figure 7.6-2 of the CEMP sub-plan lists take from the Nepean River, of which there is no mention of entitlement held, and at the EIS stage it was noted to only be a possibility of take and as such no infrastructure has been proposed to take this water.

1.2 Recommendation – Post Approval

The proponent must ensure that relevant nomination of work dealing applications for WALs proposed to account for water take by the project have been completed prior to the water take occurring.

Explanation

WAL 44469 was not linked to a work approval and the replacement licence WAL 44810 nominates a number of works which may or may not be associated with this project.

2.0 Controlled Activities on Waterfront Land

2.1 Recommendation – Prior to Approval

The proponent should confirm the approach mentioned at the RTS stage that the launch/retrieval sites for trenchless pipelines will be setback in accordance with the Guidelines for Controlled Activities on Waterfront Land – Riparian corridors, or will be located in previously cleared areas to minimise impacts on riparian corridors.

Explanation

It was noted by the applicant at the RTS stage that works will be setback in accordance with the Guidelines for Controlled Activities on Waterfront land – Riparian corridors or they will be within cleared areas so would not impact riparian vegetation. This plan only notes that it will be located beyond the top of the bank, so confirmation is required on the approach that will be applied. The Guidelines for Controlled Activities on Waterfront land are available at:

https://www.dpie.nsw.gov.au/water/licensing-and-trade/controlled-activity-approvals

End Attachment A

Mira Segaran-JHG

From: Mira Segaran-JHG
Sent: Tuesday, 25 July 2023 9:03 AM
To: DPIE Water Assessments Mailbox; patricia.borges@dpie.nsw.gov.au; simon.francis@dpie.nsw.gov.au
Cc: CAHILL, CHERYL; Alyce Harrington-JHG
Subject: RE: Upper South Creek (SSI 8906189) CoA C4(a) - SWGCSP - Response re DPE Water comments

Hi Patricia

The documents attached in the previous email is not related to the Upper South Creek Advanced Water Recycling Centre SSI-8609189-Mod-2. It is the Surface Water and Groundwater CEMP Sub-plan issued back to DPE Water and references DPE Water's letter (Ref: OUT23/11009) and email received on the 18/07/23.

DPE Water

Please download the documents from the link provided, noting that the link is valid for your email address only. If others require access to the documents, please download them and distribute as required.

Please let me know if there are any further issues or questions.

Sincerely,

Mira Segaran
Sustainability & Environment Graduate
NSW/ACT

JOHN HOLLAND

Building D, 10 Bourke Street
Mascot NSW 2020
M. +61 459 954 529
E. mira.segaran@jhg.com.au
W. johnholland.com.au

From: Patricia Borges <patricia.borges@dpie.nsw.gov.au> **On Behalf Of** DPIE Water Assessments Mailbox
Sent: Monday, July 24, 2023 5:46 PM
To: Mira Segaran-JHG <Mira.Segaran@jhg.com.au>
Cc: CAHILL, CHERYL <CHERYL.CAHILL@sydneywater.com.au>; Alyce Harrington-JHG <Alyce.Harrington@jhg.com.au>
Subject: Re: Upper South Creek (SSI 8906189) CoA C4(a) - SWGCSP - Response re DPE Water comments

Hi Mira,

Could you please confirm if you are referring to the Upper South Creek Advanced Water Recycling Centre SSI-8609189-Mod-2?

The attached file is not accessible and it requires permission to access the files.

Please let me know.

Patricia Borges
Assistant Projects Officer

Water Group | Department of Planning and Environment

E patricia.borges@dpie.nsw.gov.au

dpie.nsw.gov.au

Our Vision: Together, we create thriving environments, communities and economics.

I acknowledge the traditional custodians of the land and pay respects to Elders past and present. I also acknowledge all the Aboriginal and Torres Strait Islander staff working with NSW Government at this time.

From: Mira Segaran-JHG <Mira.Segaran@jhg.com.au>
Sent: Monday, 24 July 2023 1:14 PM
To: DPIE Water Assessments Mailbox <water.assessments@dpie.nsw.gov.au>
Cc: CAHILL, CHERYL <CHERYL.CAHILL@sydneywater.com.au>; Alyce Harrington-JHG <Alyce.Harrington@jhg.com.au>
Subject: RE: Upper South Creek (SSI 8906189) CoA C4(a) - SWGCSP - Response re DPE Water comments

Good afternoon,

Please see revised Surface Water and Groundwater CEMP Sub-Plan in response to DPE Water comments received on the 18/07/23

DPE Water

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

Sincerely,

Mira Segaran
Sustainability & Environment Graduate
NSW/ACT

JOHN HOLLAND

Building D, 10 Bourke Street
Mascot NSW 2020
M. +61 459 954 529
E. mira.segaran@jhg.com.au
W. johnholland.com.au

From: Alyce Harrington-JHG <Alyce.Harrington@jhg.com.au>
Sent: Tuesday, July 18, 2023 6:32 PM
To: DPIE Water Assessments Mailbox <water.assessments@dpie.nsw.gov.au>
Cc: CAHILL, CHERYL <CHERYL.CAHILL@sydneywater.com.au>; Nathan Heath <Nathan.Heath@planning.nsw.gov.au>; Mira Segaran-JHG <Mira.Segaran@jhg.com.au>
Subject: RE: Upper South Creek (SSI 8906189) CoA C4(a) - SWGCSP - Response re DPE Water comments

Good evening,

John Holland would like to confirm the status of remaining comments on the USC Surface Water & Groundwater CEMP Sub-plan issued via the DPE Water Assessments Mailbox (as per correspondence chain below), and additionally by Sydney Water Environment Lead, Cheryl Cahill via the Planning Portal on 01 June 2023.

Please do not hesitate to contact me if you have any further questions or comments.

Thanks,

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

From: Alyce Harrington-JHG
Sent: Monday, July 3, 2023 6:13 PM
To: DPIE Water Assessments Mailbox <water.assessments@dpie.nsw.gov.au>
Cc: CAHILL, CHERYL <CHERYL.CAHILL@sydneywater.com.au>; Nathan Heath <Nathan.Heath@planning.nsw.gov.au>
Subject: RE: Upper South Creek (SSI 8906189) CoA C4(a) - SWGCSP - Response re DPE Water comments

Good evening,

Thank you for the email.

Please note that the relevant documents were provided via email to the DPE Water Assessments Mailbox on May 30, 2023 and were also uploaded by Sydney Water Environmental Lead, Cheryl Cahill via the Planning Portal on June 01, 2023 (as shown in the attached screenshot).

The documents have been re-issued via the Planning Portal again as requested in DPE Water's email earlier today.

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: Patricia Borges <patricia.borges@dpie.nsw.gov.au> **On Behalf Of** DPIE Water Assessments Mailbox
Sent: Monday, July 3, 2023 11:38 AM

To: Alyce Harrington-JHG <Alyce.Harrington@jhg.com.au>
Subject: Re: Upper South Creek (SSI 8906189) CoA C4(a) - SWGCSP - Response re DPE Water comments

Dear Alyce,

The Department of Planning and Environment - Water (DPE Water) has received post approval documents for the Upper South Creek project.

The Department of Planning and Environment strongly recommends that you submit this documentation in the NSW Major Projects Portal. Submission of your documents in the NSW planning portal will ensure that your documents are correctly associated with your portal account, and enable you to communicate directly with DPE Water, including to seek progress updates.

DPE Water will commence review of your documents once received in the portal. To sign to your account, please visit the Major Projects Website here

You can also refer to our help guide on how to lodge post-approval documentation in the Portal

Please do not reply to this email.

Kind regards
Department of Planning and Environment – Water

From: Alyce Harrington-JHG <Alyce.Harrington@jhg.com.au>
Sent: Wednesday, 28 June 2023 4:56 PM
To: DPIE Water Assessments Mailbox <water.assessments@dpie.nsw.gov.au>
Cc: Mira Segaran-JHG <Mira.Segaran@jhg.com.au>; Alistair Drew <alistair.drew@dpie.nsw.gov.au>
Subject: RE: Upper South Creek (SSI 8906189) CoA C4(a) - SWGCSP - Response re DPE Water comments

Good afternoon,

John Holland has recently received comments from the Department of Planning & Environment (DPE) Post Approvals Team regarding the USC Surface Water & Groundwater CEMP sub-plan (SWGCSP).

As we work towards responding and closing out these comments, John Holland would like to confirm that the revised SWGCSP and accompanying comments register (issued Thursday 25 May 2023) satisfactorily address comments raised by DPE Water.

Please do not hesitate to contact me if you have any further questions.

Sincerely,

Alyce Harrington
Planning, Environment & Approvals Director
Upper South Creek

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

From: Alyce Harrington-JHG
Sent: Tuesday, May 30, 2023 2:51 PM
To: DPIE Water Assessments Mailbox <water.assessments@dpie.nsw.gov.au>
Subject: RE: Upper South Creek (SSI 8906189) CoA C4(a) - SWGCSP - Response re DPE Water comments

Hi Naila,

No problem, the address has been included in the link - DPE Water

Please try again and let me know if you have any issues.

Thanks,

Alyce Harrington
Planning, Environment & Approvals Director
Upper South Creek

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

From: Naila Tabassum <naila.tabassum@dpie.nsw.gov.au> **On Behalf Of** DPIE Water Assessments Mailbox
Sent: Tuesday, May 30, 2023 1:47 PM
To: Alyce Harrington-JHG <Alyce.Harrington@jhg.com.au>
Subject: FW: Upper South Creek (SSI 8906189) CoA C4(a) - SWGCSP - Response re DPE Water comments

Hi Alyce

Can you please send the link to water.assessments@dpie.nsw.gov.au.

Thanks and Regards

Naila Tabassum
Assistant Projects Officer
Water Group | Department of Planning and Environment
E naila.tabassum@dpie.nsw.gov.au
dpie.nsw.gov.au
Level 17, 4 Parramatta Square, 12 Darcy Street | Locked Bag 5022 | Parramatta NSW 2150

Our Vision: Together, we create thriving environments, communities and economics.

From: Alistair Drew <alistair.drew@dpie.nsw.gov.au>
Sent: Friday, 26 May 2023 8:12 AM
To: DPIE Water Assessments Mailbox <water.assessments@dpie.nsw.gov.au>
Subject: Fw: Upper South Creek (SSI 8906189) CoA C4(a) - SWGCSP - Response re DPE Water comments

Regards,

Alistair Drew

Acting Senior Project Officer **I** Business Planning and Support, Water Infrastructure NSW

Water Group | Department of Planning and Environment
The Store, 6 Stewart Ave, Newcastle West NSW 2302
M 0417 626 567 | **E** alistair.drew@dpie.nsw.gov.au

www.dpie.nsw.gov.au

Our Vision: Together, we create thriving environments, communities and economies.

The Department of Planning and Environment acknowledges that it stands on Aboriginal land.
We acknowledge the traditional custodians of the land and we show our respect for elders past, present and emerging through thoughtful and collaborative approaches to our work, seeking to demonstrate our ongoing commitment to providing places in which Aboriginal people are included socially, culturally and economically.

From: Alyce Harrington-JHG <Alyce.Harrington@jhg.com.au>
Sent: Thursday, 25 May 2023 10:26 PM
To: Alistair Drew <alistair.drew@dpie.nsw.gov.au>
Cc: CAHILL, CHERYL <CHERYL.CAHILL@sydneywater.com.au>; Cameron Varricchio <CAMERON.VARRICCHIO@sydneywater.com.au>; Mira Segaran-JHG <Mira.Segaran@jhg.com.au>
Subject: Upper South Creek (SSI 8906189) CoA C4(a) - SWGCSP - Response re DPE Water comments

Good evening Alistair,

John Holland on behalf of Sydney Water would like to thank DPE Water for participating in the consultation process and providing comments for the Upper South Creek project.

Please see attached updated Surface Water & Groundwater CEMP Sub-plan and corresponding comment register for your information.

DPE Water

Please download the documents from the link provided, noting that the link is valid for your email address only. If others require access to the documents, please download them and distribute as required.

If you have any questions regarding this matter, please do not hesitate to 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

Appendix 4 – DPI Fisheries – Evidence of Consultation

From:	Alyce Harrington-JHG
To:	Josi Hollywood
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(a) - Surface Water & Groundwater CEMP Sub-plan - for consultation (DPI Fisheries)
Date:	Friday, 31 March 2023 3:44:33 PM
Attachments:	image001.png image002.png image003.png image004.png image005.png image006.png USCP-JHG-MPL-ENV-0008 Upper South Creek CEMP (Rev 04)_clean and consolidated.pdf USCP-JHG-MPL-ENV-0001 Surface Water & Groundwater CEMP Sub-plan (Rev 03)_clean and consolidated.pdf

Good afternoon Josi,

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 Department of Primary Industries, Fisheries NSW. The plan and program relevant to DPI Fisheries are listed below:

C4

a. Surface Water & Groundwater CEMP Sub-plan (USCP-JHG-MPL-ENV-0001) (SWGCSP)

C13

a. Surface Water Quality Construction Monitoring Program (Appendix E of the SWGCSP)
b. Groundwater Construction Monitoring Program (Appendix F of the SWGCSP)

Following review and approval by Sydney Water, John Holland is please to present to DPI Fisheries, the **Surface Water & Groundwater CEMP Sub-plan** (SWGCSP, C4(a)). Please note that as there are a number of references to sections within the CEMP throughout the SWGCSP, John Holland has also provided a copy of the CEMP for DPI Fisheries' reference.

It would be greatly appreciated if any comments regarding this submission are provided by close of business Tuesday 18 April 2023.

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

Thank you,

Alyce Harrington
Planning, Environment & Approvals Director
Upper South Creek

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:	Josi Hollywood
Cc:	CAHILL, CHERYL; Cameron Varricchio; Mira Segaran-JHG
Subject:	RE: Upper South Creek (SSI 8906189) CoA C4(a) - Surface Water & Groundwater CEMP Sub-plan - for consultation (DPI Fisheries)
Date:	Monday, 1 May 2023 5:22:18 PM
Attachments:	image001.png image002.png image003.png image004.png image005.png image006.png

Good afternoon Josi,

Hope you are well.

I wanted to reach out and confirm if DPI Fisheries had any comments or feedback to provide regarding the Upper South Creek Surface Water & Groundwater CEMP Sub-plan that was issued for consultation on Friday 31 March 2023?

Following receipt of comments from the other relevant agencies and local councils, John Holland is in the midst of preparing the document for ER endorsement and subsequent submission to the DPE post-approval assessment team.

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

JOHN HOLLAND

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

From: Alyce Harrington-JHG
Sent: Friday, 31 March 2023 3:43 PM
To: Josi Hollywood <josi.hollywood@dpi.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(a) - Surface Water & Groundwater CEMP Sub-plan - for consultation (DPI Fisheries)

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It would be greatly appreciated if any comments regarding this submission are provided by close of business Tuesday 18 April 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

From:	Alyce Harrington-JHG
To:	"Josi Hollywood"
Cc:	"CAHILL, CHERYL"; "Cameron Varricchio"; Mira Segaran-JHG
Subject:	RE: Upper South Creek (SSI 8906189) CoA C4(a) - Surface Water & Groundwater CEMP Sub-plan - for consultation (DPI Fisheries)
Date:	Monday, 3 July 2023 5:21:00 PM
Attachments:	image001.png image002.png image003.png image004.png image005.png image006.png

Good evening Josi,

I hope this email finds you well.

The Upper South Creek project is progressing towards the end of the assessment period of the project CEMP and sub-plans with the DPE post-approval assessment team.

We would like to confirm if there are any comments or questions from the DPI Fisheries regarding the Surface Water & Groundwater CEMP sub-plan (and accompanying construction monitoring programs) submitted?

Please do not hesitate to contact me if you need anything further.

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

From: Alyce Harrington-JHG
Sent: Monday, May 1, 2023 5:22 PM
To: Josi Hollywood <josi.hollywood@dpi.nsw.gov.au>
Cc: CAHILL, CHERYL <CHERYL.CAHILL@sydneywater.com.au>; Cameron Varricchio <CAMERON.VARRICCHIO@sydneywater.com.au>; Mira Segaran-JHG <Mira.Segaran@jhg.com.au>
Subject: RE: Upper South Creek (SSI 8906189) CoA C4(a) - Surface Water & Groundwater CEMP Sub-plan - for consultation (DPI Fisheries)

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Following receipt of comments from the other relevant agencies and local councils, John Holland is in the midst of preparing the document for ER endorsement and subsequent submission to the DPE post-approval assessment team.

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

JOHN HOLLAND

Level 3, 65 Pirrama Road, Pyrmont NSW
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E. Alyce.Harrington@jhg.com.au

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Subject: Upper South Creek (SSI 8906189) CoA C4(a) - Surface Water & Groundwater CEMP Sub-plan - for consultation (DPI Fisheries)

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

Thank you,

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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

Mira Segaran-JHG

From: Mira Segaran-JHG
Sent: Monday, 24 July 2023 1:14 PM
To: DPIE Water Assessments Mailbox
Cc: CAHILL, CHERYL; Alyce Harrington-JHG
Subject: RE: Upper South Creek (SSI 8906189) CoA C4(a) - SWGCSP - Response re DPE Water comments

Good afternoon,

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DPE Water

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Sincerely,

Mira Segaran
Sustainability & Environment Graduate
NSW/ACT

JOHN HOLLAND

Building D, 10 Bourke Street
Mascot NSW 2020
M. +61 459 954 529
E. mira.segaran@jhg.com.au
W. johnholland.com.au

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Planning, Environment & Approvals Director
Upper South Creek

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

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Good evening,

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The documents have been re-issued via the Planning Portal again as requested in DPE Water's email earlier today.

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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Dear Alyce,

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DPE Water will commence review of your documents once received in the portal. To sign to your account, please visit the Major Projects Website here

You can also refer to our help guide on how to lodge post-approval documentation in the Portal

Please do not reply to this email.

Kind regards
Department of Planning and Environment – Water

From: Alyce Harrington-JHG <Alyce.Harrington@jhg.com.au>
Sent: Wednesday, 28 June 2023 4:56 PM
To: DPIE Water Assessments Mailbox <water.assessments@dpie.nsw.gov.au>
Cc: Mira Segaran-JHG <Mira.Segaran@jhg.com.au>; Alistair Drew <alistair.drew@dpie.nsw.gov.au>
Subject: RE: Upper South Creek (SSI 8906189) CoA C4(a) - SWGCSP - Response re DPE Water comments

Good afternoon,

John Holland has recently received comments from the Department of Planning & Environment (DPE) Post Approvals Team regarding the USC Surface Water & Groundwater CEMP sub-plan (SWGCSP).

As we work towards responding and closing out these comments, John Holland would like to confirm that the revised SWGCSP and accompanying comments register (issued Thursday 25 May 2023) satisfactorily address comments raised by DPE Water.

Please do not hesitate to contact me if you have any further questions.

Sincerely,

Alyce Harrington
Planning, Environment & Approvals Director
Upper South Creek

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

From: Alyce Harrington-JHG
Sent: Tuesday, May 30, 2023 2:51 PM
To: DPIE Water Assessments Mailbox <water.assessments@dpie.nsw.gov.au>
Subject: RE: Upper South Creek (SSI 8906189) CoA C4(a) - SWGCSP - Response re DPE Water comments

Hi Naila,

No problem, the address has been included in the link - DPE Water

Please try again and let me know if you have any issues.

Thanks,

Alyce Harrington
Planning, Environment & Approvals Director
Upper South Creek

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

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From: Naila Tabassum <naila.tabassum@dpie.nsw.gov.au> **On Behalf Of** DPIE Water Assessments Mailbox
Sent: Tuesday, May 30, 2023 1:47 PM
To: Alyce Harrington-JHG <Alyce.Harrington@jhg.com.au>
Subject: FW: Upper South Creek (SSI 8906189) CoA C4(a) - SWGCSP - Response re DPE Water comments

Hi Alyce

Can you please send the link to water.assessments@dpie.nsw.gov.au.

Thanks and Regards

Naila Tabassum
Assistant Projects Officer
Water Group | Department of Planning and Environment
E naila.tabassum@dpie.nsw.gov.au
dpie.nsw.gov.au
Level 17, 4 Parramatta Square, 12 Darcy Street | Locked Bag 5022 | Parramatta NSW 2150

Our Vision: Together, we create thriving environments, communities and economics.

From: Alistair Drew <alistair.drew@dpie.nsw.gov.au>
Sent: Friday, 26 May 2023 8:12 AM
To: DPIE Water Assessments Mailbox <water.assessments@dpie.nsw.gov.au>
Subject: Fw: Upper South Creek (SSI 8906189) CoA C4(a) - SWGCSP - Response re DPE Water comments

Regards,

Alistair Drew

Acting Senior Project Officer **I** Business Planning and Support, Water Infrastructure NSW

Water Group | Department of Planning and Environment
The Store, 6 Stewart Ave, Newcastle West NSW 2302
M 0417 626 567 | **E** alistair.drew@dpie.nsw.gov.au

www.dpie.nsw.gov.au

Our Vision: Together, we create thriving environments, communities and economies.

The Department of Planning and Environment acknowledges that it stands on Aboriginal land.
We acknowledge the traditional custodians of the land and we show our respect for elders past, present and emerging through thoughtful and collaborative approaches to our work, seeking to demonstrate our ongoing commitment to providing places in which Aboriginal people are included socially, culturally and economically.

From: Alyce Harrington-JHG <Alyce.Harrington@jhg.com.au>
Sent: Thursday, 25 May 2023 10:26 PM
To: Alistair Drew <alistair.drew@dpie.nsw.gov.au>
Cc: CAHILL, CHERYL <CHERYL.CAHILL@sydneywater.com.au>; Cameron Varricchio <CAMERON.VARRICCHIO@sydneywater.com.au>; Mira Segaran-JHG <Mira.Segaran@jhg.com.au>
Subject: Upper South Creek (SSI 8906189) CoA C4(a) - SWGCSP - Response re DPE Water comments

Good evening Alistair,

John Holland on behalf of Sydney Water would like to thank DPE Water for participating in the consultation process and providing comments for the Upper South Creek project.

Please see attached updated Surface Water & Groundwater CEMP Sub-plan and corresponding comment register for your information.

DPE Water

Please download the documents from the link provided, noting that the link is valid for your email address only. If others require access to the documents, please download them and distribute as required.

If you have any questions regarding this matter, please do not hesitate to 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

Appendix 5 – WaterNSW – Evidence of Consultation

From:	Alyce Harrington-JHG
To:	Justine Clarke
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(a) - Surface Water & Groundwater CEMP Sub-plan - for consultation (Water NSW)
Date:	Friday, 31 March 2023 3:49:30 PM
Attachments:	USCP-JHG-MPL-ENV-0001 Surface Water & Groundwater CEMP Sub-plan (Rev 03) clean and consolidated.pdf image001.png image002.png image003.png image004.png image005.png image006.png

---

Good afternoon Justine,

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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 Water NSW. A list of the plans and programs relevant to Water NSW is provided below.

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C13

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John Holland proposes to issue the relevant plans and program progressively, following review and approval by Sydney Water. As such, John Holland on behalf of Sydney Water, is please to present to Water NSW, the **Surface Water & Groundwater CEMP Sub-plan** (SWGCSP, C4(a)). Please note that the attached SWGCSP should be read in conjunction with the USC AWRC CEMP submitted in previous email correspondence.

It would be greatly appreciated if any comments regarding this submission are provided by close of business Tuesday 18 April 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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To:	Alyce Harrington-JHG
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:	WaterNSW response - Upper South Creek (SSI 8906189) CoA C4(a) - Surface Water & Groundwater CEMP Sub-plan - for consultation (Water NSW)
Date:	Monday, 17 April 2023 11:27:57 AM
Attachments:	image007.png image008.png image009.png image010.png image011.png image012.png image013.png WaterNSW response - Upper South Creek (SSI-8906189) – Surface Water & Groundwater CEMP Sub-plan.pdf

Hi Alyce

Thank you for allowing WaterNSW the opportunity to comment on this sub-plan.

Please find attached our response.

If you have any questions, please do not hesitate in contacting me.

Kind Regards

Justine Clarke
Catchment and Asset Protection Adviser

WaterNSW
Level 14, 169 Macquarie Street
PO Box 398
Parramatta NSW 2150
M: 0457 535 955
justine.clarke@waternsw.com.au
www.waternsw.com.au

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Sent: Friday, 31 March 2023 3:49 PM
To: Justine Clarke <Justine.Clarke@waternsw.com.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: ARK: Upper South Creek (SSI 8906189) CoA C4(a) - Surface Water & Groundwater CEMP Sub-plan - for consultation (Water NSW)

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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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17 April 2023

Contact: *Justine Clarke*
Telephone: *0457 535 955*
Our ref: *D2023/32705*

Alyce Harrington
John Holland Group
Level 3, 65 Pirrama Road
PYRMONT NSW 2009

Dear Ms Harrington,

Upper South Creek (SSI-8906189) – Surface Water & Groundwater CEMP Sub-plan

Thank you for your email dated 31 March 2023, requesting comments on the Construction Environmental Management Plan (CEMP) sub plan for the above project. WaterNSW understands that as per Conditions of Approval (CoA) for this SSI project, consultation on respective CEMP sub plans (C4 & C13) with government agencies including WaterNSW is required.

It is noted that the brine pipeline for the project will cross under (via HDD underbore) the WaterNSW Upper Canal corridor at Cecil Hills and that any changes in surface water flows directly from the AWRC site have the potential to impact on the Warragamba Pipelines, which is also critical water supply infrastructure, located 2.7km downstream. It is recognised that the CEMP and sub plans are to include mitigation or management measures concerning this interaction.

The key concerns for WaterNSW with regards to the construction of any new projects that directly impact on our lands or assets include:

- There should be no impact on water quality within the open waters of the Upper Canal at any stage of the development.
- No damage should occur to the water supply infrastructure at any stage of the development, including the stormwater structures currently serving the Upper Canal.
- 24 hour all weather access to the Upper Canal corridor must be retained or provided for WaterNSW staff and contractors.
- For security and safety purposes, there is to be no public access into the Upper Canal corridor at any time. If access is required by the proponent and/or their contractors for any purpose during the development process, a written access consent will be required from WaterNSW.
- The heritage values of the State Heritage listed Upper Canal must be taken into consideration and protected at all stages of the development.

Overall, WaterNSW supports the project and recognises Sydney Water and John Holland Groups commitment to addressing potential impacts.

WaterNSW has reviewed the subplan with detailed comments provided at Appendix 1. The advice is provided for your consideration and incorporation into the final report where required. WaterNSW requests continued consultation on the implementation of this plan and other sub plans as they relate to works directly impacting our lands or assets.

If you have any questions regarding this letter, please contact Justine Clarke at justine.clarke@waternsw.com.au.

Yours sincerely

CAMILLA EDMUNDS
Manager Environment and Catchment Protection

Appendix 1 – WaterNSW comments – USCAWRC – Surface Water and Groundwater Construction Sub-plan

With specific regard for surface water and groundwater impacts, we have reviewed the CEMP sub plan and provide the following comments:

- Section 5.3.4 Water Quality – No water quality summary is provided for Warragamba River. For completeness a summary should be included on the baseline water quality. Alternatively, the baseline monitoring sites on the Warragamba River can be removed from the subplan, to coincide with the removal of the E-flows pipeline from the project.
- Section 6.2 Surface Water Impacts – It is unclear how each of the construction impacts identified here (specifically table 6-1), will or have been mitigated in the CEMP sub-plan. A corresponding link to the mitigation location should be identified.
- Section 7 Surface and Groundwater Management Measures – WaterNSW supports the surface and groundwater management measures for phase 1 construction. Specifically, those measures that include erosion and sediment control, spill management, stockpile controls, rehabilitation, dewatering and trenchless crossing protections.
- Appendix B Drilling Fluid Management Plan – It is recognised that this appendix is not included in the report and will be developed in consultation with specialist pipelines contractors. WaterNSW request to be involved in the development and review of this plan as it relates to the underbore crossing of the Upper Canal. This will ensure site specific controls are considered and implemented. This document should be removed as an appendix, with a corresponding action included in the CEMP to develop the plan during detailed design.
- Appendix G Erosion and Sediment Control Procedure – WaterNSW support the ESC procedure, and request that as progressive Erosion and Sediment Control Plans (ESCP) are developed that a site specific ESCP be developed for the crossing of the Upper Canal by the brine pipeline.
- Other: Surface water flow monitoring – It is unclear how the sites water balance will be monitored pre and post construction. The CEMP sub-plan clearly identifies how water quality will be monitored (Appendix E), but not water quantity & flow. Additional advice and monitoring parameters is required around surface water flow volumes leaving the AWRC site, specifically as they have the potential to impact on downstream environments, including the Warragamba Pipelines.

  It is understood that operational AWRC discharges will be monitored as per CoA E119, with this plan to be developed prior to commencement of operation.

From:	Alyce Harrington-JHG
To:	Justine Clarke
Cc:	CAHILL, CHERYL; Cameron Varricchio; Mira Segaran-JHG
Subject:	RE: WaterNSW response - Upper South Creek (SSI 8906189) CoA C4(a) - Surface Water & Groundwater CEMP Sub-plan - for consultation (Water NSW)
Date:	Thursday, 25 May 2023 10:37:17 PM
Attachments:	image001.png image002.png image003.png image004.png image005.png image006.png image008.png image009.png

Good evening Justine,

John Holland on behalf of Sydney Water would like to thank WaterNSW for participating in the consultation process and providing comments for the Upper South Creek project.

Please see attached updated Surface Water & Groundwater CEMP Sub-plan and corresponding comment register for your information.

Water NSW

Please download the documents from the link provided, noting that the link is valid for your email address only. If others require access to the documents, please download them and distribute as required.

If you have any questions regarding this matter, please do not hesitate to 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

From: Justine Clarke <Justine.Clarke@waternsw.com.au>
Sent: Monday, April 17, 2023 11:26 AM
To: Alyce Harrington-JHG <Alyce.Harrington@jhg.com.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

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Subject: WaterNSW response - Upper South Creek (SSI 8906189) CoA C4(a) - Surface Water & Groundwater CEMP Sub-plan - for consultation (Water NSW)

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If you have any questions, please do not hesitate in contacting me.

Kind Regards

Justine Clarke
Catchment and Asset Protection Adviser

WaterNSW
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Thank you,

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Planning, Environment & Approvals Director
Upper South Creek

JOHN HOLLAND

Level 3, 65 Pirrama Road, Pyrmont NSW
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From:	Alyce Harrington-JHG
To:	"Justine Clarke"
Cc:	"CAHILL, CHERYL"; "Cameron Varricchio"; Mira Segaran-JHG
Subject:	RE: WaterNSW response - Upper South Creek (SSI 8906189) CoA C4(a) - Surface Water & Groundwater CEMP Sub-plan - for consultation (Water NSW)
Date:	Monday, 3 July 2023 5:31:00 PM
Attachments:	image002.png image003.png image004.png image005.png image006.png image007.png image008.png image009.png

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Good evening Justine,

I hope this email finds you well.

The Upper South Creek project is progressing towards the end of the assessment period of the project CEMP and sub-plans with the DPE post-approval assessment team.

We would like to confirm if there are any outstanding comments from WaterNSW regarding the Surface Water & Groundwater CEMP sub-plan (and accompanying construction monitoring programs) submitted May 25, 2023?

Please do not hesitate to contact me if you need anything further.

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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Catchment and Asset Protection Adviser

WaterNSW

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Thank you,

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Planning, Environment & Approvals Director
Upper South Creek

JOHN HOLLAND

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M. +61 409 633 908
E. Alyce.Harrington@jhg.com.au

Mira Segaran-JHG

From: Mira Segaran-JHG
Sent: Tuesday, 11 July 2023 11:55 AM
To: Justine Clarke; Alyce Harrington-JHG
Cc: CAHILL, CHERYL; Cameron Varricchio
Subject: RE: WaterNSW response - Upper South Creek (SSI 8906189) CoA C4(a) - Surface Water & Groundwater CEMP Sub-plan - for consultation (Water NSW)

Good afternoon Justine,

John Holland on behalf of Sydney Water would like to thank WaterNSW for participating in the consultation process and providing comments for the Upper South Creek project.

Please see attached updated Surface Water and Groundwater CEMP Sub-plan and corresponding comment register (including the additional comments in Appendix 1).

Water NSW

Please download the documents from the link provided, noting that the link is valid for your email address only. If others require access to the documents, please download them and distribute as required.

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

Kind Regards,

Mira Segaran
Sustainability & Environment Graduate
NSW/ACT

JOHN HOLLAND

Building D, 10 Bourke Street
Mascot NSW 2020
M. +61 459 954 529
E. mira.segaran@jhg.com.au
W. johnholland.com.au

From: Justine Clarke <Justine.Clarke@waternsw.com.au>
Sent: Tuesday, July 4, 2023 10:56 AM
To: Alyce Harrington-JHG <Alyce.Harrington@jhg.com.au>
Cc: CAHILL, CHERYL <CHERYL.CAHILL@sydneywater.com.au>; Cameron Varricchio <CAMERON.VARRICCHIO@sydneywater.com.au>; Mira Segaran-JHG <Mira.Segaran@jhg.com.au>
Subject: RE: WaterNSW response - Upper South Creek (SSI 8906189) CoA C4(a) - Surface Water & Groundwater CEMP Sub-plan - for consultation (Water NSW)

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If you have any questions, please do not hesitate in reaching out.

Ta Justine

Justine Clarke
Catchment and Asset Protection Adviser

WaterNSW
Level 14, 169 Macquarie Street
PO Box 398
Parramatta NSW 2150
M: 0457 535 955
justine.clarke@waternsw.com.au
www.waternsw.com.au

From: Alyce Harrington-JHG <Alyce.Harrington@jhg.com.au>
Sent: Monday, July 3, 2023 5:31 PM
To: Justine Clarke <Justine.Clarke@waternsw.com.au>
Cc: CAHILL, CHERYL <CHERYL.CAHILL@sydneywater.com.au>; Cameron Varricchio <CAMERON.VARRICCHIO@sydneywater.com.au>; Mira Segaran-JHG <Mira.Segaran@jhg.com.au>
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Good evening Justine,

I hope this email finds you well.

The Upper South Creek project is progressing towards the end of the assessment period of the project CEMP and sub-plans with the DPE post-approval assessment team.

We would like to confirm if there are any outstanding comments from WaterNSW regarding the Surface Water & Groundwater CEMP sub-plan (and accompanying construction monitoring programs) submitted May 25, 2023?

Please do not hesitate to contact me if you need anything further.

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

From: Alyce Harrington-JHG
Sent: Thursday, May 25, 2023 10:37 PM
To: Justine Clarke <Justine.Clarke@waternsw.com.au>
Cc: CAHILL, CHERYL <CHERYL.CAHILL@sydneywater.com.au>; Cameron Varricchio <CAMERON.VARRICCHIO@sydneywater.com.au>; Mira Segaran-JHG <Mira.Segaran@jhg.com.au>
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Water NSW

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If you have any questions regarding this matter, please do not hesitate to 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

From: Justine Clarke <Justine.Clarke@waternsw.com.au>
Sent: Monday, April 17, 2023 11:26 AM
To: Alyce Harrington-JHG <Alyce.Harrington@jhg.com.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: WaterNSW response - Upper South Creek (SSI 8906189) CoA C4(a) - Surface Water & Groundwater CEMP Sub-plan - for consultation (Water NSW)

Hi Alyce

Thank you for allowing WaterNSW the opportunity to comment on this sub-plan.

Please find attached our response.

If you have any questions, please do not hesitate in contacting me.

Kind Regards

Justine Clarke
Catchment and Asset Protection Adviser

WaterNSW
Level 14, 169 Macquarie Street
PO Box 398
Parramatta NSW 2150
M: 0457 535 955
justine.clarke@waternsw.com.au
www.waternsw.com.au

From: Alyce Harrington-JHG <Alyce.Harrington@jhg.com.au>
Sent: Friday, 31 March 2023 3:49 PM
To: Justine Clarke <Justine.Clarke@waternsw.com.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: ARK: Upper South Creek (SSI 8906189) CoA C4(a) - Surface Water & Groundwater CEMP Sub-plan - for consultation (Water NSW)

Good afternoon Justine,

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 Water NSW. A list of the plans and programs relevant to Water NSW is provided below.

C4

(a) Surface Water & Groundwater CEMP Sub-plan (USCP-JHG-MPL-ENV-0001) (SWGCSP)
(e) Noise & Vibration CEMP Sub-plan (USCP-JHG-MPL-ENV-0007) (NVCSP)
(g) Heritage CEMP Sub-plan (USCP-JHG-MPL-ENV-0006) (HCSP)

C13

(a) Surface Water Quality Construction Monitoring Program (Appendix E of the SWGCSP)
(b) Noise & Vibration Construction Monitoring Program (Appendix D of the NVCSP)

John Holland proposes to issue the relevant plans and program progressively, following review and approval by Sydney Water. As such, John Holland on behalf of Sydney Water, is please to present to Water NSW, the **Surface Water & Groundwater CEMP Sub-plan** (SWGCSP, C4(a)). Please note that the attached SWGCSP should be read in conjunction with the USC AWRC CEMP submitted in previous email correspondence.

It would be greatly appreciated if any comments regarding this submission are provided by close of business Tuesday 18 April 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.

Disclaimer

Mira Segaran-JHG

From: Alyce Harrington-JHG
Sent: Friday, 21 July 2023 4:38 PM
To: Justine Clarke
Cc: CAHILL, CHERYL; Cameron Varricchio; Mira Segaran-JHG
Subject: RE: WaterNSW response - Upper South Creek (SSI 8906189) CoA C4(a) - Surface Water & Groundwater CEMP Sub-plan - for consultation (Water NSW)
Attachments: SWGCSP Appendix B_Drilling Fluid Management Procedure (Rev 01)_clean.docx

Hi Justine,

No problem at all, apologies for missing your return call too.

Thank you so much for your response, I appreciate you taking to time to close this matter out.

I appreciate the comments on Appendix B also. Please note that we have since begun drafting a Drilling Fluid Management Plan and it will be refined and issued to relevant stakeholders, including WaterNSW, for review and comment in due course.

In the interim, please see attached the initial version of the Drilling Fluid Management Plan that the project has begun to prepare, noting that we'll reach out again with a subsequent revision once it has been progressed with relevant subcontractors.

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

Thanks,

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

From: Justine Clarke <Justine.Clarke@waternsw.com.au>
Sent: Friday, July 21, 2023 2:07 PM
To: Alyce Harrington-JHG <Alyce.Harrington@jhg.com.au>
Cc: CAHILL, CHERYL <CHERYL.CAHILL@sydneywater.com.au>; Cameron Varricchio <CAMERON.VARRICCHIO@sydneywater.com.au>; Mira Segaran-JHG <Mira.Segaran@jhg.com.au>
Subject: RE: WaterNSW response - Upper South Creek (SSI 8906189) CoA C4(a) - Surface Water & Groundwater CEMP Sub-plan - for consultation (Water NSW)

Hi Alyce

Sorry I missed your call earlier.

I can confirm that WaterNSW has no outstanding issues from the updated documentation and comments register. We appreciate you considering our comments and responding.

We do have a few comments on Appendix B, but they should not be tied to your approval from DPE, as this is a fluid document that will be updated with site specific requirements. The comments are more considerations for the drilling contractor to consider in their detailed construction documentation.

Could you please advise when you would need these comments by, or do you prefer to wait until the contractor is engaged for a more site specific discussion.

Regards

Justine Clarke

Catchment and Asset Protection Adviser

WaterNSW

Level [illegible] 169 Macquarie Street
PO Box 398
Parramatta NSW 2150
M: 0457 535 955
justine.clarke@waternsw.com.au
www.waternsw.com.au

From: Alyce Harrington-JHG <Alyce.Harrington@jhg.com.au>
Sent: Tuesday, July 18, 2023 9:44 AM
To: Justine Clarke <Justine.Clarke@waternsw.com.au>
Cc: CAHILL, CHERYL <CHERYL.CAHILL@sydneywater.com.au>; Cameron Varricchio <CAMERON.VARRICCHIO@sydneywater.com.au>; Mira Segaran-JHG <Mira.Segaran@jhg.com.au>
Subject: [EXTERNAL] RE: WaterNSW response - Upper South Creek (SSI 8906189) CoA C4(a) - Surface Water & Groundwater CEMP Sub-plan - for consultation (Water NSW)

Good morning Justine,

Hope you are well.

To follow up on the revised Surface Water & Groundwater CEMP sub-plan issued last week, we would like to confirm if there are any outstanding issues from WaterNSW?

Please do not hesitate to contact me if you need anything further.

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

From: Mira Segaran-JHG <Mira.Segaran@jhg.com.au>
Sent: Tuesday, July 11, 2023 11:55 AM
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Sustainability & Environment Graduate
NSW/ACT

JOHN HOLLAND

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M: 0457 535 955
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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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Justine Clarke
Catchment and Asset Protection Adviser

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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>
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Groundwater CEMP Sub-plan (SWGCSP, C4(a)). Please note that the attached SWGCSP should be read in conjunction with the USC AWRC CEMP submitted in previous email correspondence.

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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@jhg.com.au

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Appendix 6 - 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

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: • Horizontal directional drill (HDD) under Nepean River • HDD 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@jhg.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)
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/uppersouthcreek

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:	Mathew.Harland@wollondilly.nsw.gov.au; Nafizul.Akash@wollondilly.nsw.gov.au; bianca.klein@wollondilly.nsw.gov.au; Ibrahim Muharrem
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(a) - Surface Water & Groundwater CEMP Sub-plan - for consultation (WSC)
Date:	Friday, 31 March 2023 3:56:34 PM
Attachments:	USCP-JHG-MPL-ENV-0001 Surface Water & Groundwater CEMP Sub-plan (Rev 03) clean and consolidated.pdf image001.png image002.png image003.png image004.png image005.png image006.png

Good afternoon,

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) (SWGCSP)
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) (AQCSP)

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 **Surface Water & Groundwater CEMP Sub-plan** (SWGCSP, C4(a)). Please note that the attached SWGCSP should be read in conjunction with the USC AWRC CEMP submitted in previous email correspondence. The SWGCSP is the final CEMP sub-plan under the USC AWRC planning approval to be issued to WSC for consultation in accordance with CoA C4 and C13.

It would be greatly appreciated if any comments regarding this submission are provided by close of business Tuesday 18 April 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

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

JOHN HOLLAND

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Appendix 7 – 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

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

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:

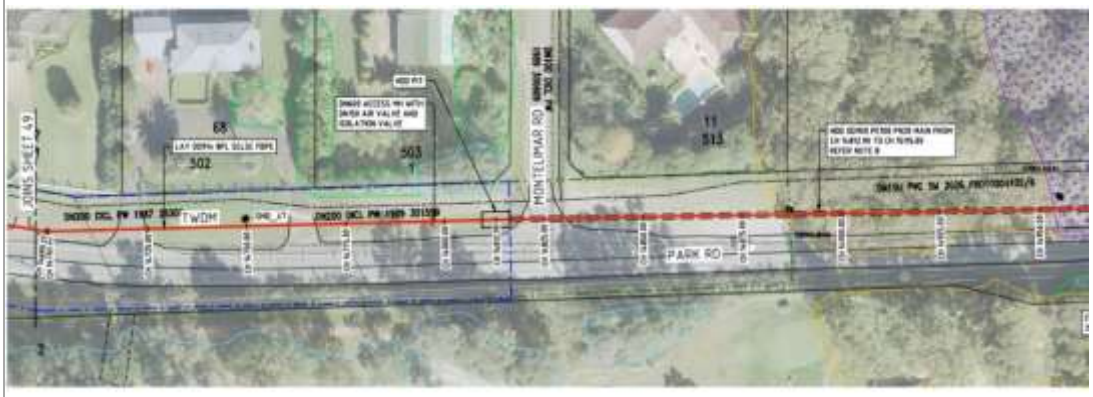
- Open trench to Luddenham Road
- The Northern Road HDD or boring
- Park Road, south side on the verge and working on a design to reduce impact on local traffic [threatened orchids are northern side]
- Jerry's creek crossing
- Nepean River – HDD under the river

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.

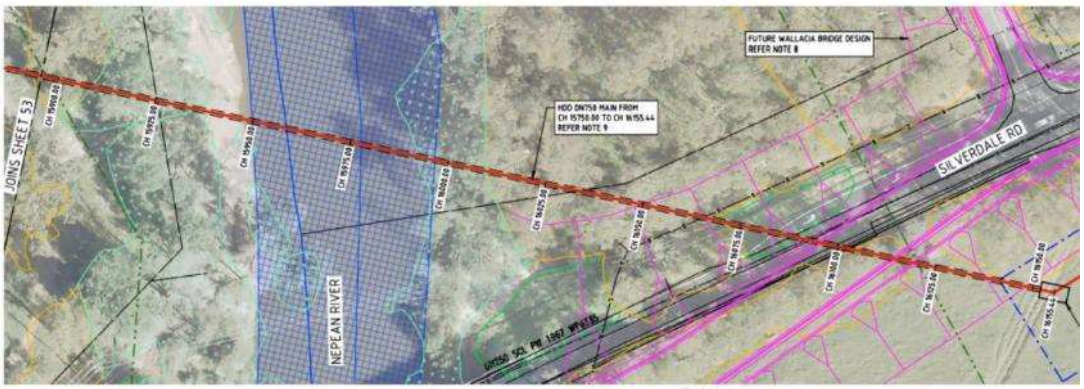
ACTION: AH and MR to speak with JV further about construction approach and vegetation removal near Shelley Road and Fowler Reserve.

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(a) - Surface Water & Groundwater CEMP Sub-plan - for consultation (PCC)
Date:	Friday, 31 March 2023 4:00:04 PM
Attachments:	USCP-JHG-MPL-ENV-0001 Surface Water & Groundwater CEMP Sub-plan (Rev 03) clean and consolidated.pdf image001.png image002.png image003.png image004.png image005.png image006.png

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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 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) (SWGCSP)
b. Flood Emergency Response CEMP Sub-plan (USCP-JHG-MPL-ENV-0002) (FERCSP)
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d. Biodiversity CEMP Sub-plan (USCP-JHG-MPL-ENV-0004) (BCSP)
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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 PCC, the **Surface Water & Groundwater CEMP Sub-plan** (SWGCSP, C4(a)). Please note that the attached SWGCSP should be read in conjunction with the USC AWRC CEMP submitted in previous email correspondence. The SWGCSP is the final CEMP sub-plan under the USC AWRC planning approval to be issued to PCC for consultation in accordance with CoA C4 and C13.

It would be greatly appreciated if any comments regarding this submission are provided by close of business Tuesday 18 April 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

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
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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@jhg.com.au

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

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

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- 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

JOHN HOLLAND

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E. Alyce.Harrington@jhg.com.au

Appendix 8 – 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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M. +61 409 633 908
E. Alyce.Harrington@jhg.com.au

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

IDescription / 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@jhg.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: Longitudual/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 Cowapasture 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(a) - Surface Water & Groundwater CEMP Sub-plan - for consultation (LCC)
Date:	Friday, 31 March 2023 4:03:48 PM
Attachments:	USCP-JHG-MPL-ENV-0001 Surface Water & Groundwater CEMP Sub-plan (Rev 03) clean and consolidated.pdf image001.png image002.png image003.png image004.png 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) (SWGCSP)
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) (AQCSP)

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 **Surface Water & Groundwater CEMP Sub-plan** (SWGCSP, C4(a)). Please note that the attached SWGCSP should be read in conjunction with the USC AWRC CEMP submitted in previous email correspondence. The SWGCSP is the final CEMP sub-plan under the USC AWRC planning approval to be issued to LCC for consultation in accordance with CoA C4 and C13.

It would be greatly appreciated if any comments regarding this submission are provided by close of business Tuesday 18 April 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

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

JOHN HOLLAND

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

From: Alyce Harrington-JHG
To: Mira Segaran-JHG
Subject: FW: Upper South Creek (SSI-8609189) - CEMP and Sub-plans consultation period
Date: Monday, 8 May 2023 2:31:47 PM
Attachments: image012.png
image013.png
image014.png
image015.png
image016.png
image017.png
AWRC CEMP - Liverpool City Council - Response(2).pdf

FYI

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

From: Jerard Tungcab <TungcabJ@liverpool.nsw.gov.au>
Sent: Monday, 8 May 2023 2:23 PM
To: Alyce Harrington-JHG <Alyce.Harrington@jhg.com.au>
Subject: RE: Upper South Creek (SSI-8609189) - CEMP and Sub-plans consultation period

Good Afternoon Alyce,

See attached Liverpool City Council's additional response to the Upper South Creek Advanced Water Recycling Centre AWRC. We appreciate *John Holland's* in consultation and engagement with this project.
Should you have further question, please do not hesitate to contact me.

Sincerely,

Jerard Tungcab
Strategic Planner

LIVERPOOL CITY COUNCIL

02 8711 7860 | | TungcabJ@liverpool.nsw.gov.au
Customer Service: 1300 36 2170 |
www.liverpool.nsw.gov.au

We acknowledge the traditional custodians of the land that now resides within Liverpool City Council's boundaries, the Darug and Dharawal nations and pay our respects to their Elders past, present and emerging.

From: Alyce Harrington-JHG <Alyce.Harrington@jhg.com.au>
Sent: Wednesday, April 26, 2023 4:45 PM
Subject: Upper South Creek (SSI-8609189) - CEMP and Sub-plans consultation period

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

JOHN HOLLAND

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

LIVERPOOL CITY COUNCIL

Contact: Jerard Tungcab
Ph: 02 8711 7860
Date: 8 May 2023

Alyce Harrignton
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

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	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. 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.
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	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: • 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;

	• 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	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. 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. 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. Note: A copy of the Traffic Control Plan shall accompany the Notice of Commencement to Liverpool City Council.
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	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. 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. 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).

I	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: • 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
Minimise fauna fatalities resulting from construction activities. Ensure no threatened species fatalities.	*Avoid fatalities to fauna resulting from construction activities. Ensure no threatened species fatalities.*
No disturbance to flora within the project boundary which is non-compliant with project approval conditions.	*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.*

No transfer of pathogen / disease from one project area to another	*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.*
No wilful pollution or sedimentation of aquatic ecosystems; threatened ecological communities or threatened species habitat.	*Ensure to avoid pollution or sedimentation of aquatic ecosystems; threatened ecological communities or threatened species habitat.*

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.

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CROATIAN

Ako ne razumijete ovo pismo/aplikaciju, molimo nazovite Sluzbu prevodilaca i tumaca (Translating and Interpreting Service - na broj 131 450) i zamolite ih da nazovu Opcinu (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 kbnnen, rufen Sie bitte den Telefon Dolmetscher Dienst (Telephone Interpreter Service) (131 450) an und !assen Sie sich vom Personal mit dem Gemeinderat (Council) in Verbindung setzen (1300 362 170). Geschaftsstunden sind von 8:30 bis 17:00 Uhr, montags bis freitags.

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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 ii Comune (telefono 1300 362 170). Orario d'ufficio: ore 8.30 -17.00, dal lunedi al venerdi.

KHMER

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MACEDONIAN

AKO He ro pa3fa1parn OBa m1cMo/anm1Kau,V1ja, Be MOnVIMe Aa ce jaBVITe BO TenecpOHCK8Ta npeB8AYB8'-IK8 cnY)Koa Ha 131 450 111 3aMonern r111 Aa cranar Bo K0HTaKT co OnWTVIH8T8 Ha 1300 362 170. Pa0OTHOTO BpeMe e 0A 8.30 48C0T Hayrpo AO 5.00 4aC0T nonnaAHe 0A noHeAenHVIK AO neTOK.

MALTESE

Jekk ma tifhimx din 1-ittra/applikazzjoni, jekk joghgbok cempel lis-Servizz ta' 1-Interpretu bit-Telefon (131 450) u itlobhom jikkuntattjaw il-Kunsill (1300 362 170). 11-hinijiet ta' 1-Ufficcju huma mit-8.30a.m. sal-5.00p.m., mit-Tnejn sal-Gimgha.

POLISH

Jesli nie rozumiesz tresci niniejszego pisma/podania, zadzwon do Telefonicznego Biura Tlumaczy (Telephone Interpreter Service) pod numer 131 450 I popros o telefoniczne skontaktowanie si z Radq Miejskq pod numerem 1300 362 170. Godziny urz dowania: 08.30-17.00 od paniedzialku do piqtku.

SERBIAN

AKO He pa3yMere OBO nV1CMO/annV1KaU,V1jy, MOnVIMO Bae Aa Ha3osere TenecpoHCKY npeBOAVlnaYKY cny)f(oy (131 450) VI 38M0nVITe VIX A8 KOHTaKrnpajy OnWTVIHY (1300 362 170}. PaAHO speMe je OA 8.30 yjyrpo AO 5.00 nonOP,He, OA noHeP,eJbK8 AO neTKa.

SPANISH

Si Ud. no entiende esta carta/solicitud, por favor llame al Servicio Telef6nico de Interpretes (131 450) y pfdales 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 muracaat1 anlayamazsarnz, lutfen Telefon Tercume Servisi'ne **(131** 450) telefon ederek Belediye ile (1300 362 170) ili kiye ge9melerini isteyiniz. Cal1 ma saatleri Pazartesi - Cuma gOnleri arasinda sabah saat 8:30 ile ak am 5:00 aras1d1r.

VIETNAMESE

N€!u kh6ng hi€!u thu/don nay, xin Quy Vi g9i cho Telephone Interpreter Service (Dich V Thong Djch Qua Oi$n Tho.;ii), so 131 450, va nhd h9 lien 19c vai Council (H(>i Dong), so 1300 362 170. Gid lam vi$c la 8 gio 30 sang di§n 5 gio 00 chi u. Thu Hai di§n Thu Sau.

Appendix 9 – Fairfield City Council – Evidence of Consultation

Upper South Creek

Advanced Water Recycling Centre and Pipelines

Surface Water & Groundwater CEMP Sub-Plan

Document No: USCP-JHG-MPL-ENV-0001
Revision No: 05

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 image005.png image006.png 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

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

IDescription / 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 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; ZHassan@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(a) - Surface Water & Groundwater CEMP Sub-plan - for consultation (FCC)
Date:	Friday, 31 March 2023 4:07:50 PM
Attachments:	USCP-JHG-MPL-ENV-0001 Surface Water & Groundwater CEMP Sub-plan (Rev 03) clean and consolidated.pdf image001.png image002.png image003.png image004.png image005.png image006.png

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Good afternoon,

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 Fairfield City Council (FCC). A list of the plans and programs relevant to FCC is provided below.

C4

a. Surface Water & Groundwater CEMP Sub-plan (USCP-JHG-MPL-ENV-0001) (SWGCSP)
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) (AQCSP)

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 **Surface Water & Groundwater CEMP Sub-plan** (SWGCSP, C4(a)). Please note that the attached SWGCSP should be read in conjunction with the USC AWRC CEMP submitted in previous email correspondence. The SWGCSP is the final CEMP sub-plan under the USC AWRC planning approval to be issued to FCC for consultation in accordance with CoA C4 and C13.

It would be greatly appreciated if any comments regarding this submission are provided by close of business Tuesday 18 April 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

From:	Alyce Harrington-JHG
To:	MShah@fairfieldcity.nsw.gov.au
Cc:	Zahid Hassan; Daniel Begnell; Darragh O"Brien-JHG; Mira Segaran-JHG
Subject:	RE: Upper South Creek (SSI 8906189) CoA C4(f) - Traffic & Transport CEMP Sub-plan - for consultation (FCC)
Date:	Monday, 3 April 2023 5:20:31 PM
Attachments:	image001.png image002.png image003.png image004.png image005.png image006.png image007.png image008.png image009.png image010.png

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Hi Mursaleen,

To follow up on Zahid's correspondence last week, please see below a list of plans and programs relative to the Upper South Creek AWRC Project that have been issued by John Holland to Fairfield City Council.

- 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 FCC from Wednesday 01 March 2023. It would be greatly appreciated if you could submit any comments available from those plans submitted approximately 4 weeks ago in 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@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: Zahid Hassan <ZHassan@fairfieldcity.nsw.gov.au>
Sent: Wednesday, 29 March 2023 9:11 AM
To: Alyce Harrington-JHG <Alyce.Harrington@jhg.com.au>
Cc: Mursaleen Shah <MShah@fairfieldcity.nsw.gov.au>; Daniel Begnell <DBegnell@fairfieldcity.nsw.gov.au>
Subject: RE: Upper South Creek (SSI 8906189) CoA C4(f) - Traffic & Transport CEMP Sub-plan - for consultation (FCC)

Good Morning Alyce

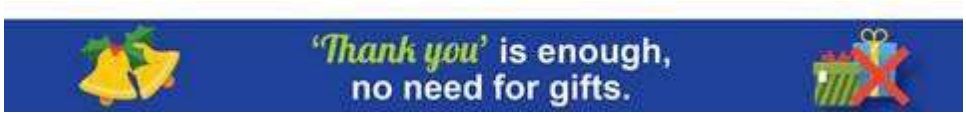
Could you please send the list of the plans and programs for the subject project to Mursaleen Shah whom I have copied in this email. I will provide comments relevant to infrastructure assets to him if required.

Regards,

Zahid Hassan
Asset Manager – Civil and Built | Asset Management
City Assets & Operations

PO Box 21, Fairfield NSW 1860
P 9725 0248 | M 0418 863 083

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



From: Alyce Harrington-JHG <Alyce.Harrington@jhg.com.au>
Sent: Tuesday, 28 March 2023 10:36 PM
To: Daniel Begnell <DBegnell@fairfieldcity.nsw.gov.au>; Mail Mail <mail@fairfieldcity.nsw.gov.au>; Zahid Hassan <ZHassan@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(f) - Traffic & Transport CEMP Sub-plan - for consultation (FCC)

Good evening,

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 Fairfield City Council (FCC). A list of the plans and programs relevant to FCC is provided below.

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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 **Traffic & Transport CEMP Sub-plan** (TTCSP, C4(f)). Please note that as there are a number of references to sections within the CEMP throughout the TTCSP, 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 Tuesday 13 April 2023.

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

Thank you,

Alyce Harrington
Planning, Environment & Approvals Director
Upper South Creek

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

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From:	Mursaleen Shah
To:	Alyce Harrington-JHG
Cc:	Zahid Hassan; Daniel Begnell; Darragh O"Brien-JHG; Mira Segaran-JHG
Subject:	RE: Upper South Creek (SSI 8906189) CoA C4(f) - Traffic & Transport CEMP Sub-plan - for consultation (FCC)
Date:	Tuesday, 4 April 2023 8:14:06 AM
Attachments:	image015.png image016.png image021.png image022.png image023.png image024.png image025.png image026.png image027.png image028.png image029.png image030.png

Hi Alyce

Council can provide comment on the documents that are marked yellow below. However, Traffic Team and Catchment Team need to see a copy of the document before a comment could be provided. Additionally, for CEMP to be reviewed, Council need to see a copy of the EIS/REF and any ancillary investigation undertaken to support the document(s).

I note, there are several questions regarding the proposed project. Those questions are primarily related to the impacts on public infrastructure, the process for the delivery of construction activities, and impacts on the community during construction and operation. It is yet to be determined how Council will respond to those questions.

Regards

Mursaleen Shah| Design Services Coordinator
Design Services | City Delivery
PO Box 21, Fairfield NSW 1860
M 0447 721 321
P 02 9725 0144

www.fairfieldcity.nsw.gov.au
mshah@fairfieldcity.nsw.gov.au

The Bluett Award
WINNER AR BLUETT MEMORIAL AWARD 2018
Most progressive council in NSW

FairfieldCity
Celebrating diversity

We acknowledge the Cabrogal of the Darug Nation who are the Traditional Custodians of this Land. We also pay our respect to the Elders both past, present and emerging of the Darug Nation.

From: Alyce Harrington-JHG <Alyce.Harrington@jhg.com.au>
Sent: Monday, 3 April 2023 5:20 PM
To: Mursaleen Shah <MShah@fairfieldcity.nsw.gov.au>
Cc: Zahid Hassan <ZHassan@fairfieldcity.nsw.gov.au>; Daniel Begnell <DBegnell@fairfieldcity.nsw.gov.au>; Darragh O'Brien-JHG <Darragh.O'Brien@jhg.com.au>; Mira Segaran-JHG <Mira.Segaran@jhg.com.au>
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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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Sent: Wednesday, 29 March 2023 9:11 AM
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Cc: Mursaleen Shah <MShah@fairfieldcity.nsw.gov.au>; Daniel Begnell <DBegnell@fairfieldcity.nsw.gov.au>
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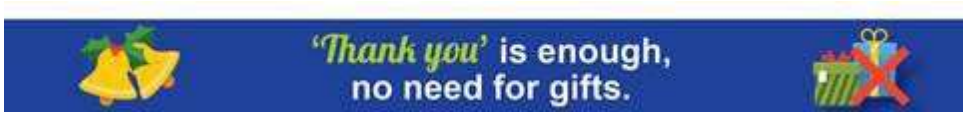
Regards,

Zahid Hassan
Asset Manager – Civil and Built | Asset Management
City Assets & Operations

PO Box 21, Fairfield NSW 1860
P 9725 0248 | M 0418 863 083

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



From: Alyce Harrington-JHG <Alyce.Harrington@jhg.com.au>
Sent: Tuesday, 28 March 2023 10:36 PM
To: Daniel Begnell <DBegnell@fairfieldcity.nsw.gov.au>; Mail Mail <mail@fairfieldcity.nsw.gov.au>; Zahid Hassan <ZHassan@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(f) - Traffic & Transport CEMP Sub-plan - for consultation (FCC)

Good evening,

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 Fairfield City Council (FCC). A list of the plans and programs relevant to FCC is provided below.

C4

a. Surface Water & Groundwater CEMP Sub-plan (USCP-JHG-MPL-ENV-0001) (SWGCSP)
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) (AQCSP)

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 **Traffic & Transport CEMP Sub-plan** (TTCSP, C4(f)). Please note that as there are a number of references to sections within the CEMP throughout the TTCSP, 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 Tuesday 13 April 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.

This email is intended for the addressee(s) named and may contain confidential and\or privileged information. If you are not the intended recipient, please delete it immediately and notify the sender. Any views expressed in this email, are those of the individual sender, except where the sender expressly and with authority, states them to be the view of Fairfield City Council.

From:	Mursaleen Shah
To:	Alyce Harrington-JHG
Cc:	Zahid Hassan; Daniel Begnell; Darragh O"Brien-JHG; Mira Segaran-JHG
Subject:	RE: Upper South Creek (SSI 8906189) CoA C4(f) - Traffic & Transport CEMP Sub-plan - for consultation (FCC)
Date:	Tuesday, 4 April 2023 8:18:31 AM
Attachments:	image002.png image003.png image008.png image009.png image010.png image011.png image012.png image013.png image014.png image015.png image016.png image017.png

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In addition to the email below, please note I am not a point of contact for this project.

Please use your appropriate point of contacts for your further emails or send it to Council's email address or phone number.

Mursaleen Shah| Design Services Coordinator
Design Services | City Delivery
PO Box 21, Fairfield NSW 1860
M 0447 721 321
P 02 9725 0144

www.fairfieldcity.nsw.gov.au
mshah@fairfieldcity.nsw.gov.au

We acknowledge the Cabrogal of the Darug Nation who are the Traditional Custodians of this Land.
We also pay our respect to the Elders both past, present and emerging of the Darug Nation.

From: Mursaleen Shah
Sent: Tuesday, 4 April 2023 8:14 AM
To: Alyce Harrington-JHG <Alyce.Harrington@jhg.com.au>
Cc: Zahid Hassan <ZHassan@fairfieldcity.nsw.gov.au>; Daniel Begnell <DBegnell@fairfieldcity.nsw.gov.au>; Darragh O'Brien-JHG <Darragh.O'Brien@jhg.com.au>; Mira Segaran-JHG <Mira.Segaran@jhg.com.au>
Subject: RE: Upper South Creek (SSI 8906189) CoA C4(f) - Traffic & Transport CEMP Sub-plan - for consultation (FCC)

Hi Alyce

Council can provide comment on the documents that are marked yellow below. However, Traffic Team and Catchment Team need to see a copy of the document before a comment could be provided. Additionally, for CEMP to be reviewed, Council need to see a copy of the EIS/REF and any ancillary investigation undertaken to support the document(s).

I note, there are several questions regarding the proposed project. Those questions are primarily related to the impacts on public infrastructure, the process for the delivery of construction activities, and impacts on the community during construction and operation. It is yet to be determined how Council will respond to those questions.

Regards

Mursaleen Shah| Design Services Coordinator
Design Services | City Delivery
PO Box 21, Fairfield NSW 1860
M 0447 721 321
P 02 9725 0144

www.fairfieldcity.nsw.gov.au
mshah@fairfieldcity.nsw.gov.au

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From: Alyce Harrington-JHG <Alyce.Harrington@jhg.com.au>
Sent: Monday, 3 April 2023 5:20 PM
To: Mursaleen Shah <MShah@fairfieldcity.nsw.gov.au>
Cc: Zahid Hassan <ZHassan@fairfieldcity.nsw.gov.au>; Daniel Begnell <DBegnell@fairfieldcity.nsw.gov.au>; Darragh O'Brien-JHG <Darragh.O'Brien@jhg.com.au>; Mira Segaran-JHG <Mira.Segaran@jhg.com.au>
Subject: RE: Upper South Creek (SSI 8906189) CoA C4(f) - Traffic & Transport CEMP Sub-plan - for consultation (FCC)

Hi Mursaleen,

To follow up on Zahid's correspondence last week, please see below a list of plans and programs relative to the Upper South Creek AWRC Project that have been issued by John Holland to Fairfield City Council.

- 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 FCC from Wednesday 01 March 2023. It would be greatly appreciated if you could submit any comments available from those plans submitted approximately 4 weeks ago in 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@jhg.com.au

From: Zahid Hassan <ZHassan@fairfieldcity.nsw.gov.au>
Sent: Wednesday, 29 March 2023 9:11 AM
To: Alyce Harrington-JHG <Alyce.Harrington@jhg.com.au>
Cc: Mursaleen Shah <MShah@fairfieldcity.nsw.gov.au>; Daniel Begnell <DBegnell@fairfieldcity.nsw.gov.au>
Subject: RE: Upper South Creek (SSI 8906189) CoA C4(f) - Traffic & Transport CEMP Sub-plan - for consultation (FCC)

Good Morning Alyce

Could you please send the list of the plans and programs for the subject project to Mursaleen Shah whom I have copied in this email. I will provide comments relevant to infrastructure assets to him if required.

Regards,

Zahid Hassan
Asset Manager – Civil and Built | Asset Management
City Assets & Operations

PO Box 21, Fairfield NSW 1860
P 9725 0248 | M 0418 863 083

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

From: Alyce Harrington-JHG <Alyce.Harrington@jhg.com.au>
Sent: Tuesday, 28 March 2023 10:36 PM
To: Daniel Begnell <DBegnell@fairfieldcity.nsw.gov.au>; Mail Mail <mail@fairfieldcity.nsw.gov.au>; Zahid Hassan <ZHassan@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(f) - Traffic & Transport CEMP Sub-plan - for consultation (FCC)

Good evening,

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 Fairfield City Council (FCC). A list of the plans and programs relevant to FCC is provided below.

C4

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b. Flood Emergency Response CEMP Sub-plan (USCP-JHG-MPL-ENV-0002) (FERCSP)
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d. Biodiversity CEMP Sub-plan (USCP-JHG-MPL-ENV-0004) (BCSP)
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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 **Traffic & Transport CEMP Sub-plan** (TTCSP, C4(f)). Please note that as there are a number of references to sections within the CEMP throughout the TTCSP, 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 Tuesday 13 April 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

This email is intended for the addressee(s) named and may contain confidential and\or

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

JOHN HOLLAND

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

Appendix 10 – 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 image004.png 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
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

From: Rama Sapkota-JHG <Rama.Sapkota@jhg.com.au>
Sent: Thursday, 30 March 2023 3:41 PM
To: Paul.Angel@cbcity.nsw.gov.au; Tim.IRELAND@cbcity.nsw.gov.au; Peter.Lay@cbcity.nsw.gov.au; michael.conway@cbcity.nsw.gov.au; Anna.Griggs@cbcity.nsw.gov.au; cameron.crawford@cbcity.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

From:	Alyce Harrington-JHG
To:	Tim Ireland; Paul.ANGEL@cbcity.nsw.gov.au; David.Lowery@cbcity.nsw.gov.au; Asad.Suman@cbcity.nsw.gov.au; David Milner
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(a) - Surface Water & Groundwater CEMP Sub-plan - for consultation (CBCC)
Date:	Friday, 31 March 2023 4:12:03 PM
Attachments:	USCP-JHG-MPL-ENV-0001 Surface Water & Groundwater CEMP Sub-plan (Rev 03) clean and consolidated.pdf image001.png image002.png image003.png image004.png image005.png image006.png

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Good afternoon all,

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 Canterbury-Bankstown City Council (CBCC). A list of the plans and programs relevant to CBCC is provided below.

C4

a. Surface Water & Groundwater CEMP Sub-plan (USCP-JHG-MPL-ENV-0001) (SWGCSP)
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) (AQCSP)

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 CBCC, the **Surface Water & Groundwater CEMP Sub-plan** (SWGCSP, C4(a)). Please note that the attached SWGCSP should be read in conjunction with the USC AWRC CEMP submitted in previous email correspondence. The SWGCSP is the final CEMP sub-plan under the USC AWRC planning approval to be issued to CBCC for consultation in accordance with CoA C4 and C13.

It would be greatly appreciated if any comments regarding this submission are provided by close of business Tuesday 18 April 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

From:	David Milner
To:	Alyce Harrington-JHG; Tim Ireland; Paul Angel; David Lowery; Asad Suman
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(a) - Surface Water & Groundwater CEMP Sub-plan - for consultation (CBCC)
Date:	Monday, 3 April 2023 8:40:14 AM
Attachments:	image007.png image012.png image014.png image015.png image016.png image017.png image018.png image019.png

Hi Alyce,

Please forward any further sub-plans only to me and I will distribute as required.

I will forward the Surface Water & Groundwater CEMP Sub-plan for comments and will advise the response.

Regards

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

From: Alyce Harrington-JHG <Alyce.Harrington@jhg.com.au>
Sent: Friday, 31 March 2023 4:12 PM
To: Tim Ireland <Tim.IRELAND@cbcity.nsw.gov.au>; Paul Angel <Paul.ANGEL@cbcity.nsw.gov.au>; David Lowery <David.Lowery@cbcity.nsw.gov.au>; Asad Suman <Asad.Suman@cbcity.nsw.gov.au>; David Milner <David.Milner@cbcity.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(a) - Surface Water & Groundwater CEMP Sub-

plan - for consultation (CBCC)

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Thank you,

Alyce Harrington
Planning, Environment & Approvals Director

Upper South Creek

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:	Tim Ireland; Paul.ANGEL@cbcity.nsw.gov.au; David.Lowery@cbcity.nsw.gov.au; Asad.Suman@cbcity.nsw.gov.au; David Milner
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(a) - Surface Water & Groundwater CEMP Sub-plan - for consultation (CBCC)
Date:	Friday, 31 March 2023 4:11:00 PM
Attachments:	USCP-JHG-MPL-ENV-0001 Surface Water & Groundwater CEMP Sub-plan (Rev 03) clean and consolidated.pdf image001.png image002.png image003.png image004.png image005.png image006.png

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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

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 CBCC, the **Surface Water & Groundwater CEMP Sub-plan** (SWGCSP, C4(a)). Please note that the attached SWGCSP should be read in conjunction with the USC AWRC CEMP submitted in previous email correspondence. The SWGCSP is the final CEMP sub-plan under the USC AWRC planning approval to be issued to CBCC for consultation in accordance with CoA C4 and C13.

It would be greatly appreciated if any comments regarding this submission are provided by close of business Tuesday 18 April 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

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
Subject: RE: Upper South Creek (SSI 8906189) - CEMP & sub-plans
Date: Tuesday, 18 April 2023 1:17:10 PM
Attachments: image001.png
image006.png
image008.png
image015.png
image016.png
image020.png
image021.png
image022.png
image023.png
image024.png
image025.png

Hi Alyce,

No comments on the Surface Water & Groundwater CEMP Sub-plan as per below.

Surface Water & Groundwater 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@cbcity.nsw.gov.au
www.cbcity.nsw.gov.au

From: David Milner
Sent: Wednesday, 5 April 2023 4:25 PM
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>
Subject: FW: Upper South Creek (SSI 8906189) - CEMP & sub-plans

Hi Alyce,

See comments received for the Traffic & Transport CEMP Sub-plan

Traffic & Transport CEMP Sub-plan
Comments from our Traffic team

Traffic & Transport CEMP Sub-plan , Document No: USCP-JHG-MPL-ENV-0005 has been reviewed. Note the following comments:

- There is no impact to our local roads , increasing the traffic in state roads within CBCITY will not result in detrimental impacts to traffic flow.
- The Sub-plan should be amended to state that in the case of any local road that will be used by a heavy vehicle for the purposes of this project , a road dilapidation report must be prepared (A copy of the road dilapidation report must be provided to Council within three weeks of completion of the survey).

Regards

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

From: David Milner
Sent: Thursday, 30 March 2023 4:40 PM
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@cbcity.nsw.gov.au>; Paul Angel <paul.angel@cbcity.nsw.gov.au>; David Lowery <David.Lowery@cbcity.nsw.gov.au>; Asad Suman <Asad.Suman@cbcity.nsw.gov.au>; Cameron Crawford <Cameron.Crawford@cbcity.nsw.gov.au>
Subject: RE: Upper South Creek (SSI 8906189) - CEMP & sub-plans

Hi Alyce,

Heritage CEMP Sub-plan:
Comments from our Urban Policy and Planning team:
There is no real impact on CBCity's heritage assets. The closest is the house at 7 Henry Lawson Drive, which is 40m away from the proposed works. I think the potential heritage impact on this item would be vibration from the works.

Section 8.6 that relates to vibration testing is very vague and does not really address or identify an adequate methodology for vibration testing, vibration values and mitigating measures. This really should be done as part of this report (added as an appendix perhaps).

Appendix B has been deleted. This would have been handy to view.

Regards

David Milner - Senior Infrastructure Services Officer
T 9707 9345

E David.Milner@cbcity.nsw.gov.au
www.cbcity.nsw.gov.au

@ourcbcity

From: David Milner
Sent: Thursday, 30 March 2023 3:04 PM
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@cbcity.nsw.gov.au>; Paul Angel <paul.angel@cbcity.nsw.gov.au>; David Lowery <David.Lowery@cbcity.nsw.gov.au>; Asad Suman <Asad.Suman@cbcity.nsw.gov.au>; Cameron Crawford <Cameron.Crawford@cbcity.nsw.gov.au>
Subject: RE: Upper South Creek (SSI 8906189) - CEMP & sub-plans

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@cbcity.nsw.gov.au
www.cbcity.nsw.gov.au

@ourcbcity

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@cbcity.nsw.gov.au>; Paul Angel <paul.angel@cbcity.nsw.gov.au>; David Lowery <David.Lowery@cbcity.nsw.gov.au>; Asad Suman <Asad.Suman@cbcity.nsw.gov.au>; Cameron Crawford <Cameron.Crawford@cbcity.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

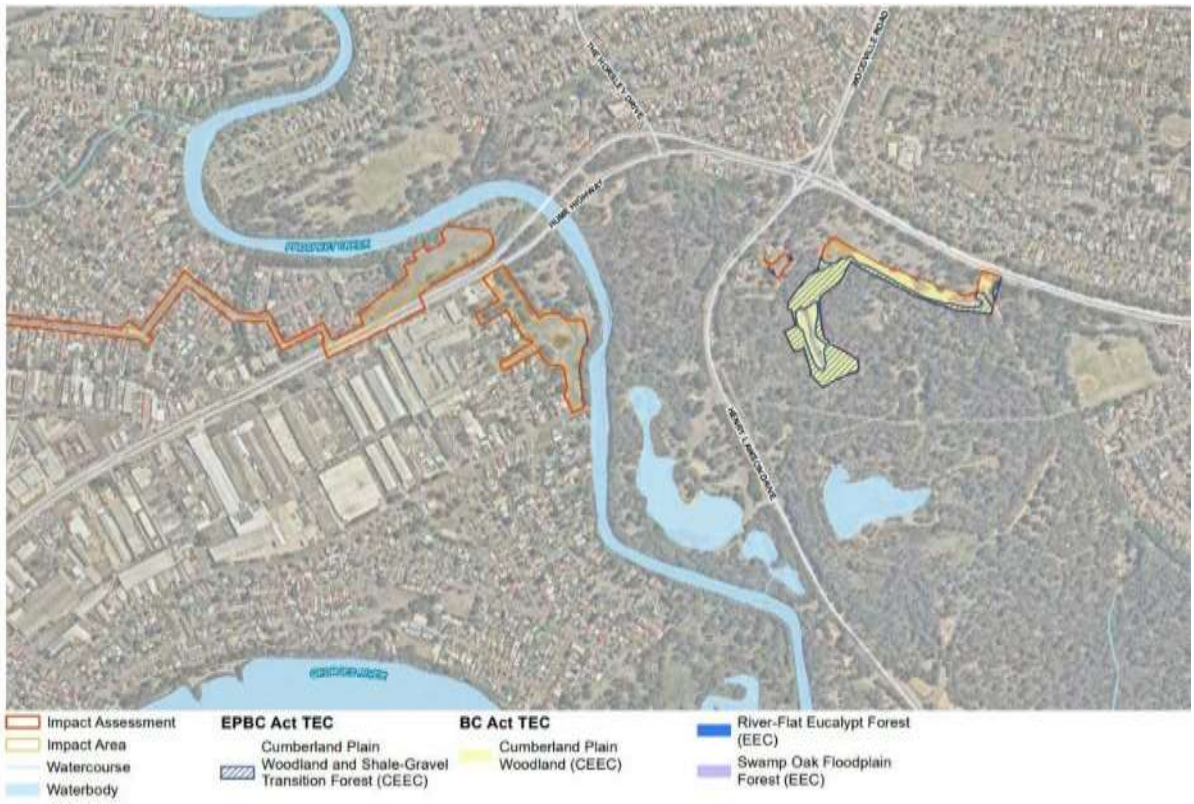
- Section 2.1 (context) reported as This Floor Emergency Response CEMP Sub-plan (FERCSP) should be amended as This Flood Emergency Response CEMP Sub-plan (FERCSP)
- Section 4 LEGISLATIVE AND GUIDANCE REQUIREMENTS reported Canterbury-Bankstown Council LGA, Georges River Floodplain Risk Management Study 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@cbcity.nsw.gov.au
www.cbcity.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@cbcity.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@cbcity.nsw.gov.au>; Paul Angel <Paul.ANGEL@cbcity.nsw.gov.au>; David Lowery <David.Lowery@cbcity.nsw.gov.au>; Asad Suman <Asad.Suman@cbcity.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 (AQCSP)
- Flood Emergency Response CEMP Sub-plan (FERCSP)
- Heritage CEMP Sub-plan (HCSP)
- Biodiversity CEMP Sub-plan (BCSP)
- Noise & Vibration CEMP Sub-plan (NVCSP)
- 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

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.

Appendix 11 – Consultation Summary Register

Upper South Creek - Consultation Register - Surface Water & Ground Water Sub Plan

Document	**Consultation Register**
Date Issued	**31/03/2023 (reissued on the 11/07/2023)**
	USCP-JHG-MPL-ENV-0001
Date Due	
Reviewer Name 1	DPE Water (Liz Rogers, Manager,
Reviewer Name 2	EPA (Daniel Burchmore), EPA (Trevor Wilson)
Reviewer Name 3	DPE Water (Dana Alderson, A/Senior Team
Reviewer Name 4	WaterNSW (Camilla Edmunds, Manager

Relevant Government Agency					**Upper South Creek - John Holland**		**Relevant Government Agency**			**Upper South Creek - John Holland**	
Agency	**Item**	**Condition**	**Requirement**	**Comments**	**Response Comments**	**By**	**Response (06.06.2023)**	**By**	**By**	**Response (10.07.2023)**	**By**
EHG	1	CoA C6(b)	Erosion and Sediment Control	EHG considers that the CEMP sub plan does not meet the requirements of Condition C6(b) as no Erosion and Sediment Control Plans (ESCPs) detailing the actual type, location and sizing of controls has been included.	CoA C6(b) requires that the SWGCSP include detail erosion and sediment controls to be implemented during construction, including as a minimum, measures in accordance with the publication 'Blue Book'. Section 7.5 of the SWGCSP summaries the project's intended approach to management of erosion and sediment control matters via the development of a Primary Erosion and Sediment Control (P-ESCP) to describe how erosion and sediment impacts will be controlled and managed during delivery of the work. Additional explanatory text has been included in the second paragraph of Section 7.5, confirming that this extends to the "type, location and sizing of controls", as raised in EHG's comment. As stated in Section 7.5 of the SWGCSP, the intent of the P-ESCP and the subsequent detailed and site-specific progressive ESCPs are to function as site-level, live documents and will be developed, reviewed and updated on an ongoing basis by the project team to reflect the current site conditions as required, in consultation with the project CPESC as is required under CoA E73.	Alyce Harrington	EHG's Round 2 comments on updated CEMP Sub-plan and comments register: EHG notes that only minor wording additions have been provided. There are no ESCP's provided in the document. EHG is of the view that at a minimum, the primary ESCP referred to in the CEMP sub-plan should be produced now and included in the CEMP sub-plan. EHG considers that the response does not meet the requirements of Condition C6, or the Technical guidance for Achieving Wianamatta South Creek Stormwater Management Targets.	Susan Harrison	Alyce Harrington		
EHG	2	CoA C6(a)	Erosion and Sediment Control	A separate ESCP(s) which outlines how the construction phase stormwater targets are achieved has not been provided, which is a requirement of the Technical guidance for Achieving Wianamatta South Creek Stormwater Management Targets (DPE, 2022) referred to in Condition C6(a). The submitted information does not contain suitable detail or calculations to illustrate how the stormwater targets will be achieved.	Section 7.5 of the SWGCSP includes the following: "...ESCPs will consider the construction phase stormwater quality targets in the draft Western Sydney Aerotropolis Development Control Plan – Phase 2 (October 2021) and the guidance provided in the Appendix K - Surface Water Impact Assessment (Aurecon, Arup, 2021d) of the EIS and the Technical Guidance for Achieving Wianamatta South Creek Stormwater Management Targets (DPE, 2022)." As the the P-ESCP and the subsequent detailed and site-specific progressive ESCPs are to function as site-level, live documents, they will not be contained in the high-level SWGCSP. They will be developed reviewed and updated on an	Alyce Harrington	EHG's Round 2 comments on updated CEMP Sub-plan and comments register: EHG notes that only minor wording additions have been provided. There are no ESCP's provided in the document. EHG is of the view that at a minimum, the primary ESCP referred to in the CEMP sub-plan should be produced now and included in the CEMP sub-plan. EHG considers that the response does not meet the requirements of Condition C6, or the Technical guidance for Achieving Wianamatta South Creek Stormwater Management Targets.	Susan Harrison	Alyce Harrington		
EHG	3	CoA E72 and E73	Erosion and Sediment Control	A revised CEMP sub plan which includes detailed ESCP(s) for each phase and area of works and which addresses the requirements of the Technical guidance for achieving Wianamatta–South Creek stormwater management targets (DPE, 2022). The ESCP(s) should be certified by a Certified Professional in Erosion and Sediment Control (CPESC) and specifically address the following:	Please refer to the project's response to EHG's comment regarding CoA C6(a) and (b).	Alyce Harrington	EHG's Round 2 comments on updated CEMP Sub-plan and comments register: None of the above required information has been provided.	Susan Harrison	Alyce Harrington		

EHG	a			Provide plans for each location and major phase of works, including clearing and grubbing, bulk earthworks (existing and final levels), civil works, and stabilisation/practical completion.	Please refer to the project's response to EHG's comment regarding CoA C6(a) and (b).	Alyce Harrington	EHG's Round 2 comments on updated CEMP Sub-plan and comments register: None of the above required information has been provided.	Susan Harrison	Alyce Harrington		
EHG	b			Identify the type of sediment basin and provide details for all functional components (e.g. forebay, level spreader, spillway, dosing system, flocculant type). Note that Type-A/B will likely be required to achieve the targets within the South Creek catchment.	Please refer to the project's response to EHG's comment regarding CoA C6(a) and (b).	Alyce Harrington	EHG's Round 2 comments on updated CEMP Sub-plan and comments register: None of the above required information has been provided.	Susan Harrison	Alyce Harrington		
EHG	c			Provide details of the proposed flocculant type, dose rate and corresponding settling time, based on jar testing of the soils present within the works areas.	Please refer to the project's response to EHG's comment regarding CoA C6(a) and (b).	Alyce Harrington	EHG's Round 2 comments on updated CEMP Sub-plan and comments register: None of the above required information has been provided.	Susan Harrison	Alyce Harrington		
EHG	d			Provide sediment basin calculations demonstrating compliance with the targets.	Please refer to the project's response to EHG's comment regarding CoA C6(a) and (b).	Alyce Harrington	EHG's Round 2 comments on updated CEMP Sub-plan and comments register: None of the above required information has	Susan Harrison	Alyce Harrington		
EHG	e			Provide catchments plans identifying the sub catchments for all major drainage and sediment controls for each phase of works.	Please refer to the project's response to EHG's comment regarding CoA C6(a) and (b).	Alyce Harrington	EHG's Round 2 comments on updated CEMP Sub-plan and comments register: None of the above required information has been provided.	Susan Harrison	Alyce Harrington		
EHG	f			Provide calculation tables and sizing/dimensions for all major controls during all phases of works.	Please refer to the project's response to EHG's comment regarding CoA C6(a) and (b).	Alyce Harrington	EHG's Round 2 comments on updated CEMP Sub-plan and comments register: None of the above required information has been provided.	Susan Harrison	Alyce Harrington		
EHG	g			Provide a construction sequence identifying the order and timing for both the implementation and decommissioning of all controls, relative to specific site activities/hold points.	Please refer to the project's response to EHG's comment regarding CoA C6(a) and (b).	Alyce Harrington	EHG's Round 2 comments on updated CEMP Sub-plan and comments register: None of the above required information has been provided.	Susan Harrison	Alyce Harrington		
EHG	h			Provide details on the timing, methods and performance requirements for stabilisation of each area of site disturbance.	Please refer to the project's response to EHG's comment regarding CoA C6(a) and (b).	Alyce Harrington	EHG's Round 2 comments on updated CEMP Sub-plan and comments register: None of the above required information has been provided.	Susan Harrison	Alyce Harrington		
EHG	i			Provide specific advice in relation to sodic/dispersive soil management – particularly in relation to excavated drainage controls.	Please refer to the project's response to EHG's comment regarding CoA C6(a) and (b).	Alyce Harrington	EHG's Round 2 comments on updated CEMP Sub-plan and comments register: None of the above required information has been provided.	Susan Harrison	Alyce Harrington		
EHG	j			Provide details on how external catchment flows will be managed around or through the works without becoming contaminated, including details for waterway crossings for the	Please refer to the project's response to EHG's comment regarding CoA C6(a) and (b).	Alyce Harrington	EHG's Round 2 comments on updated CEMP Sub-plan and comments register: None of the above required information has been provided.	Susan Harrison	Alyce Harrington		

EHG	4	CoA C13(a) and C14	Surface Water Construction Monitoring Program The focus of the monitoring program is on routine (dry weather) receiving water monitoring and to a lesser extent, wet weather monitoring. The routine (dry weather) monitoring is unlikely to detect any changes from background levels due to the impacts associated with the works being directly linked to rainfall, plus the variability in baseline data masking impacts. To be useful, monitoring needs to be linked to specific activities and times when impacts are likely to occur (i.e. during rainfall).	A revised surface water monitoring program which addresses the following: Include monitoring sites immediately upstream and downstream of all pipeline crossings of waterways/drainage lines and include trigger values based on the absolute change in water quality parameters at these locations relative to one another.	The project's pipeline construction methodology where crossing of a waterway / drainage channel is occurring, can be categorised as either trenched or trenchless. Trenched meaning via the use of conventional pipe-laying techniques and the excavation of a trench using machinery to place pipe; and trenchless meaning underground via the method of horizontal directional drilling (HDD). Another trenchless method employed by the project includes micro-tunnelling, however, this is not occurring at a waterway / drainage channel. Additional monitoring sites have been updated in the SW-CMP relative to the trenched crossing of waterways / drainage channels only. This is due to the trenchless crossings (via HDD) being under-bored at a significant depth below the surface of the ground and at most locations this is greater than 20m.	Alyce Harrington	EHG's Round 2 comments on updated CEMP Sub-plan and comments register: The comments register indicates that some of the crossings will be tunnel-bored while others will be trenched. While the CEMP sub-plan does mention tunnel-boring/horizontal directional drilling, it is unclear about which watercourse crossings will or won't use this trenchless technique. Currently the monitoring detail for trenched waterway crossings is incomplete as there are no 'assessment criteria' stated in the monitoring program even though that term is used as the basis are actions/intervention. It may be intended that these criteria are stated in Table 4-1 but it is unclear. It should be noted that if all waterway crossings are constructed using trenchless techniques, then the monitoring sites at the waterway crossings can be removed.	Susan Harrison	Alyce Harrington	Section 5.1.2 of the SW-CMP includes references to the trenched waterway crossings along the pipeline. Table 5.1-2 also lists these locations. Section 4.2.1 provides detail around the assessment criteria for trenched waterway crossings, specifically trigger values and the absolute change in water quality. The information provided in Table 5.1-2 has also been revised.	Alyce Harrington
EHG				A revised surface water monitoring program which addresses the following: Expand the acceptable values for monitoring sites to state the absolute values that must be achieved from controlled releases from storages such as batch sediment basins, pits and trenches (i.e. TSS 50mg/L, pH 6.5-8.5 etc).	At the commencement of construction, construction phase stormwater discharges will not be occurring from the project boundary. Construction water will preferentially used on site for the purpose of dust suppression and irrigation to ground or otherwise stored and/or disposed of in an appropriate and lawfull manner. As discussed in Section 7.6 of the SWGCSP, the project is currently in discussions with the EPA regarding construction-phase stormwater discharges off site and until such time as the matter is satisfactorily resolved with the EPA, the project's water management approach is to maintain and reuse water on site. The project acknowledges EHG's comments regarding the absolute vlaues to be achieved from controlled releases and will make the relevant amendments where required to the SWGCSP as EPL discussions with the EPA are finalised. The project can provide EHG with a copy of the SWGCSP for information following amendment of the plan.	Alyce Harrington	EHG's Round 2 comments on updated CEMP Sub-plan and comments register: The comments register indicates that there will be no discharge of any water from the project boundary during construction. EHG raises concern that this is not a resolved strategy and about the practicalities. There is no detail provided on how this could be achieved apart from references to dust suppression and land irrigation. It is also noted that the this claim conflicts directly with Figure 7.6-2 of the CEMP which predicts 14.4ML/yr runoff being discharged to Wianamatta South Creek during construction. EHG's previous comments therefore remain relevant.	Susan Harrison	Alyce Harrington	From the commencement of construction, the initial strategy is for no water to be discharged from site due to licensing constraints for which the project is currently in discussion with the EPA. The project would like to note that this is not a permanent solution however, this is the current strategy discussed with the project CPESC. EHG will note that the initial ESCP presented on the 03/07/23 incorporates this initial strategy to retain water on site. Figure 7.6-2 has been updated and now includes the following statement "Note: predicted volume relevant only once discharges from site during construction are permitted".	Alyce Harrington
EHG				A revised surface water monitoring program which addresses the following: Expand the methodology for event based (wet weather) monitoring and explain how samples will be collect and in-situ measurements undertaken when impacts are likely to occur (i.e. while rainfall is occurring, not post-event).	Additional information has been included in Section 5.3 Sample Methods of the Surface Water Quality Construction Monitoring Program (Appendix E of the SWGCSP). Additionally, information regarding event based (wet weather) monitoring has been included throughout the SWQ-CMP, including nominated wet weather sampling locations in the Figures section.	Alyce Harrington	EHG's Round 2 comments on updated CEMP Sub-plan and comments register: The updated information notes daily receiving water quality monitoring during sediment basin discharge but there are no details on whether this is during basin discharge or after it has ceased. 'Event triggered sampling' mentions 'significant rainfall' as a trigger but does not define this term (i.e., provide rainfall depth in mm) or provide any details of how	Susan Harrison	Alyce Harrington	This is subject to discussions with the project's CPESC as to whether the project implements Blue Book Sediment Basins or HES Basins. The initial ESCP provides detail for what will become the main OSD basin including a Design Rainfall Depth (R_2) value of 160.4mm. Section 7.5 of the SWGCSP (last bullet point) has been added to provide details on water quality monitoring during	Alyce Harrington

EHG				A revised surface water monitoring program which addresses the following: Expand the monitoring report to include allowance for HES basins which discharge during rainfall events (not as a controlled batch release post-event).	As discussed above, construction phase stormwater discharges will not be occurring from the project boundary. Construction water will preferentially used on site for the purpose of dust suppression and irrigation to ground or otherwise stored and/or disposed of in an appropriate and lawfull manner. As discussed in Section 7.6 of the SWGCSP, the project is currently in discussions with the EPA regarding construction-phase stormwater discharges off site and until such time as the matter is satisfactorily resolved with the EPA, the project's water management approach is to maintain and reuse water on site. The project acknowledges EHG's comments regarding the allowance for monitoring report requirements around HES basins and will make the relevant amendments where required to the SWGCSP as EPL discussions with the EPA are finalised. The project can provide EHG with a copy of the SWGCSP for information following amendment of the plan.	Alyce Harrington	EHG's Round 2 comments on updated CEMP Sub-plan and comments register: The comments register indicates that there will be no discharge of any water from the project boundary during construction. EHG raises concern that this is not a resolved strategy and about the practicalities. There is no detail provided on how this could be achieved apart from references to dust suppression and land irrigation. It is also noted that the this claim conflicts directly with Figure 7.6-2 of the CEMP which predicts 14.4ML/yr runoff being discharged to Wianamatta South Creek during construction. EHG's previous comments therefore remain relevant.	Susan Harrison	Alyce Harrington	From the commencement of construction, the initial strategy is for no water to be discharged from site due to licensing constraints for which the project is currently in discussion with the EPA. The project would like to note that this is not a permanent solution however, this is the current strategy discussed with the project CPESC. EHG will note that the initial ESCP presented on the 03/07/23 incorporates this initial strategy to retain water on site. Figure 7.6-2 has been updated and now includes the following statement "Note: predicted volume relevant only once discharges from site during construction are permitted".	Alyce Harrington
EHG	5	CoA E115	Suitably Qualified Expert(s) Suitably qualified expert(s) must agree to methods of construction of pipeline across waterways and through shallow aquifers, in consultation with relevant	As previously advised in its comments on the Biodiversity CEMP sub-plan, if possible EHG recommends that DPE (as the consent authority) engage an expert to undertake an independent review of the plans and subsequent inspection during	Noted.	Alyce Harrington	EHG's Round 2 comments on updated CEMP Sub-plan and comments register: EHG advises that this recommendation remains relevant.	Susan Harrison	Alyce Harrington	Noted.	Alyce Harrington
DPE Water	6	Recommendation prior to submitting for approval That the CEMP be updated to clarify construction water take volumes, licensing requirements and any additional water supply/take infrastructure. This is to include site water demands, surface water capture and all groundwater	Insufficient information has been provided to clearly understand the water take, licensing requirements and the ability to obtain any necessary water entitlement. The EIS refers to potential groundwater interference of 64ML in the Sydney Basin Central Groundwater Source, however WAL44469 which is referenced only has 30 units of entitlement. The ability to source the additional entitlement has not been demonstrated. A site water balance is required which summarises all site water demands, groundwater interception or surface water take and clearly show how all water take is to be accounted for or where an exemption may apply.	The EIS reference design anticipated up to 64ML of groundwater would need to be dewatered from the Sydney Basin Central Groundwater Source. We are currently in the detailed design phase and construction planning for the AWRC and the pipelines, as part of this we will minimise dewatering where possible and we will refine the site water balance and dewatering calculations. However, 64ML is currently still assumed. Sydney Water has purchased more groundwater entitlements from this groundwater water source under controlled allocation. A new WAL is being processed and will be issued for the entitlements of 180ML which is for a number of Sydney Water projects. Sydney Water is currently liaising with representatives from DPE Water to obtain a Miscellaneous Work (MW) number for USC CSSI project and this will be used to link the project to the new WAL. Once issued with the new WAL, the SWGCSP will be updated with the new WAL number. Furthermore, Sydney Water will be consolidating the new WAL with WAL44469. Additional text summarising this response (and status of WAL44469) has been included in Section 3.5.2 of the SWGCSP.	Alyce Harrington					

DPE Water	7	interferenc e.	Two exemptions to the requirement for a water access licence (WAL) are mentioned in Table 3-3. DPE Water advises that the exemption relating to road construction and maintenance (sch.4 cl 2 of the Water Management (General) Regulation 2018) would not apply to this project as it only applies to a road authority, which Sydney Water is not. The dust suppression WAL exemption in sch 4, cl 4 of the WM Reg 2018 however could apply as it is for	Table 3-3 has been updated by the removal of reference relating to road construction and maintenance.	Alyce Harrington						
DPE Water	8		No infrastructure (eg. pump) is mentioned to take water from the Nepean River or to meet site water demands. DPE Water advises that to be exempt from a water supply works approval under the Water Management Act 2000 (WMA 2000), these works must be assessed under the State Significant Infrastructure project or management plan assessment stages, or relevant approvals would need to be	The project will only be sourcing water from town / potable supply and will not be taking from waterways for the purpose of construction. Where required, works will be done in accordance with UMM WW16 with regards to dewatering temporary in-stream structures. This requirement is included in Table 7-1 as the projects management measure.	Alyce Harrington						
DPE Water	9	<u>Recomme ndation post approval</u> That the proponent ensure the relevant change of Water Access Licence (WAL) dealing application is completed with WaterNS W to nominate where the water is being taken from prior to the water take occurring.	WAL44469 is not currently linked to a work approval. Nominating the extraction point on the WAL is required to address offence provision 60D of the WMA 2000.	The project acknowledges the post approval recommendation regarding resolution of the WAL. Sydney Water is currently liaising with representatives from DPE Water to obtain a Miscellaneous Work (MW) number for USC CSSI project and this will be used to link the project to the new WAL (discussed above). Once issued with the new WAL, the SWGCSP will be updated with the new WAL number. Furthermore, Sydney Water will be consolidating the new WAL with WAL44469.	Alyce Harrington						
EPA	10	Surface Water Quality Constructio n Monitoring Program (SW-CMP)	It is somewhat unclear the frequency to which the EPA will be provided monitoring reports under this program. Will the EPA be provided with only the six-monthly CMR (as per page 122), or a report for each event listed on page 122 (i.e. routine sampling, event sampling, trigger level exceedances)? It is recommended that the EPA is at the least provided the trigger level/acceptable range exceedance reports	Reporting requirements in Section 7.3 of SW-CMP is in accordance with CoA C18. Request regarding trigger value exceedance report has been included in Section 7.3	Alyce Harrington						

EPA	11	SW-CMP	It is noted that the water quality monitoring locations around the treated/brine pipeline works are still to be determined (SW06 on page 114). The proposed monitoring locations (and trigger point parameters) should be provided to the EPA for consideration prior to any relevant construction works being undertaken at these locations. This is to ensure that water quality impacts for the works at these locations can be adequately characterised.	The project's pipeline construction methodology where crossing of a waterway / drainage channel is occurring, can be categorised as either trenched or trenchless. Trenched meaning via the use of conventional pipe-laying techniques and the excavation of a trench using machinery to place pipe; and trenchless meaning underground via the method of horizontal directional drilling (HDD). Another trenchless method employed by the project includes micro-tunnelling, however, this is not occurring at any of the project's waterway / drainage channel crossings. Additional monitoring sites have been updated in the SW-CMP relative to the trenched crossing of waterways / drainage channels only. This is due to the trenchless crossings (via HDD) being under-bored at a significant depth below the surface of the ground and at most locations this is greater than 20m. Additionally, trigger values have been included relative to these trenched crossings have also been included as well as an update to the surface water monitoring location figure. An updated SWQ-CMP has been provided in tracked changes for ease of review and identification of changes made.	Alyce Harrington						
EPA	12	SW-CMP	As noted in the document, various sections of this CEMP will need to be updated following John Holland's application for a licenced water discharge point in the coming months.	Noted and acknowledged	Alyce Harrington						
EPA	13	Groundwater Construction Monitoring Program (GW-CMP)	Same comments as per above surface water monitoring program regarding the frequency of reporting to the EPA.	Reporting requirements in Section 7.3 of GW-CMP is in accordance with CoA C18. Request regarding trigger value exceedance report has been included in Section 7.3	Alyce Harrington						
EPA	14	GW-CMP	Additional supporting information should be provided as to how the groundwater quality objective values listed in Tables 3-1 and 3-2 were determined to refine the list of analytes for groundwater monitoring and to set trigger values. As an example, the specific guideline in Table 3-1 that is used to calculate the ammonia trigger value (2.3 mg/L) is not specified. This is of particular importance as there are instances where the project trigger value is much higher than the acceptable range.	The list of analytes proposed for the GW-CMP is as per the recommendations made in the Groundwater Impact Assessment (EIS Appendix H). The groundwater trigger values weren't referenced but were sourced from the criteria presented in Appendix C Analytical Results Summary Tables of USC AWRC Groundwater Monitoring Event Report (Aurecon Arup, April 2022) (GME3 Report). The GME3 Report adopts the ANZG Default Value for 80% protection of freshwater species and the Wianamatta-South Creek Waterway Health Objectives (DPIE, 2020).	Alyce Harrington						

EPA	15	GW-CMP	The monitoring program does not appear to include consideration of groundwater contamination from pipeline construction works. Table 4-8 of the EIS Groundwater Impact Assessment identified a range of EPA notified contaminated sites within the vicinity of pipeline construction, and specifically identifies the pipeline construction works near Metro Service Station at Bonnyrigg as a moderate risk. Under Conditions of Approval E74 to E83, a site auditor will be engaged to provide oversight in assessing the risk and extent of contamination at these locations. In the event any issues are raised by the auditor regarding contaminated groundwater risks at specific pipeline construction locations, the monitoring program should be updated include relevant additional pipeline construction monitoring locations, and appropriate trigger guidelines/acceptance ranges at these locations should be determined based on baseline data undertaken as a priority.	Acknowledged. The project has prepared a draft Sampling and Quality Analysis Plan (SAQP) (one separately for the AWRC plant site and one for the pipelines scope of work), as required under CoA E77, with the support qualified contamination consultants Environmental Resource Management (ERM). The SAQP is currently being reviewed internally by the project's delivery team, prior to issuing to the project's EPA Accredited Site Audtor for contamination in accordance with CoA E74(c). The SAQP includes consideration of groundwater contamination from pipeline construction works. Review of existing information provided at the time of the EIS and site investigations undertaken for the purpose of furthering the design has initially suggested that groundwater is unlikely to be intercepted during construction works and as no beneficial uses of groundwater are proposed for the project (i.e. used for dust suppression etc.) the assessment of groundwater is not proposed to be undertaken at this time. Where groundwater is encountered during investigation works at depths that may result in construction groundwater management requirements or where groundwater is proposed for beneficial re-use, consideration to the assessment of	Alyce Harrington						
WaterNSW	16	The key concerns for WaterNSW with regards to the construction of any new projects that directly impact on our lands or assets include:	There should be no impact on water quality within the open waters of the Upper Canal at any stage of the development.	Additional section dedicated to Upper Canal has been added to table 7-1 of the SWGCSP. Specifically SWG40 has been created.	Alyce Harrington						
WaterNSW	17		No damage should occur to the water supply infrastructure at any stage of the development, including the stormwater structures currently serving the Upper Canal.	Additional section dedicated to Upper Canal has been added to table 7-1 of the SWGCSP. Specifically SWG41 has been created.	Alyce Harrington						
WaterNSW	18		24 hour all weather access to the Upper Canal corridor must be retained or provided for WaterNSW staff and contractors.	Additional section dedicated to Upper Canal has been added to table 7-1 of the SWGCSP. Specifically SWG42 has been created.	Alyce Harrington						
WaterNSW	19		For security and safety purposes, there is to be no public access into the Upper Canal corridor at any time. If access is required by the proponent and/or their contractors for any purpose during the development process, a written access consent will be required from WaterNSW.	Additional section dedicated to Upper Canal has been added to table 7-1 of the SWGCSP. Specifically SWG43 has been created.	Alyce Harrington						
WaterNSW	20		The heritage values of the State Heritage listed Upper Canal must be taken into consideration and protected at all stages of the development.	Additional section dedicated to Upper Canal has been added to table 7-1 of the SWGCSP. Specifically SWG44 has been created.	Alyce Harrington						
WaterNSW	21	Water Quality	No water quality summary is provided for Warragamba River. For completeness a summary should be included on the baseline water quality. Alternatively, the baseline monitoring sites on the Warragamba River can be removed from the subplan, to coincide with the removal of the E-flows pipeline from the project.	The project has descoped the E-flows pipeline and DPE has approved the modification. References to Warragamba River has been removed from the sub-plan.	Alyce Harrington						

WaterNSW	22	Surface Water Impacts	It is unclear how each of the construction impacts identified here (specifically table 6-1), will or have been mitigated in the CEMP sub-plan. A corresponding link to the mitigation location should be identified.	The structure of the document is such that Section 6 of the sub-plan directly discusses aspects and impacts only and directs the reader to Section 7 for the relevant controls and management measures. Adjusting Section 6 to include controls and management measures will be inconsistent with the format and intent of the document, a format that has been applied and the CEMP and all sub-plans of the project.	Alyce Harrington						
WaterNSW	23	Surface and Groundwater Management Measures	WaterNSW supports the surface and groundwater management measures for phase 1 construction. Specifically, those measures that include erosion and sediment control, spill management, stockpile controls, rehabilitation, dewatering and trenchless crossing protections.	Acknowledged and noted.	Alyce Harrington						
WaterNSW	24	Drilling Fluid Management Plan	It is recognised that this appendix is not included in the report and will be developed in consultation with specialist pipelines contractors. WaterNSW request to be involved in the development and review of this plan as it relates to the underbore crossing of the Upper Canal. This will ensure site specific controls are considered and implemented. This document should be removed as an appendix, with a corresponding action included in the CEMP to develop the plan during detailed design.	Acknowledged and noted. Additional comment has been added to Section 4 confirming this.	Alyce Harrington						
WaterNSW	25	Erosion and Sediment Control Procedure	WaterNSW support the ESC procedure, and request that as progressive Erosion and Sediment Control Plans (ESCP) are developed that a site specific ESCP be developed for the crossing of the Upper Canal by the brine pipeline.	Acknowledged and noted.	Alyce Harrington						
WaterNSW	26	Surface water flow monitoring	It is unclear how the sites water balance will be monitored pre and post construction. The CEMP sub-plan clearly identifies how water quality will be monitored (Appendix E), but not water quantity & flow. Additional advice and monitoring parameters is required around surface water flow volumes leaving the AWRC site, specifically as they have the potential to impact on downstream environments, including the Warragamba Pipelines.	A water balance study has been completed for the project and is detailed in EIS Appendix K Surface Water Assessment. Section 7.1.1 of EIS Appendix K concludes the flow patterns from the site would not be significantly altered due to the flat nature of the existing site (0.4 to 0.6%) and the proposed reference design grades (0.8%). Impacts to flood flows downstream would not be significant during the bulk earthworks phase and flood detention would not be required until hard surfaces are established. The water balance for the site under pre and post-construction conditions is detailed in Figure 7.1 of the SWGCSP, which has been revised to consider the final design to be constructed.	Alyce Harrington						
DPI Fisheries	27	N/A	N/A	No comments or feedback received from DPI Fisheries during the consultation period.	N/A						

Upper South Creek - Consultation Register - Surface Water & Ground Water Sub Plan

Document	Consultation Register
Date Issued	31/03/2023 (Reissued 24/07/2023)
Docu	USCP-JHG-MPL-ENV-0001
Date Due	

Reviewer Name 1	DPE Water (Liz Rogers, Manager, Assessments, Knowledge Division)
Reviewer Name 2	DPE Water (Rose-Anne Hawkeswood)
Reviewer Name 3	

RESPONSE AGREEMENT STATUS
O Open
C Closed

		Relevant Government Agency		Upper South Creek - John Holland		Relevant Government Agency (18-07-23		Upper South Creek - John Holland	
		Requirement	Comments	Response Comments	By	Response	By	Response Comments	By
		Recommendation prior to submitting for approval That the CEMP be updated to clarify construction water take volumes, licensing requirements and any additional water supply/take infrastructure. This is to include site water demands, surface water capture and all groundwat interference.	Insufficient information has been provided to clearly understand the water take, licensing requirements and the ability to obtain any necessary water entitlement. The EIS refers to potential groundwater interference of 64ML in the Sydney Basin Central Groundwater Source, however WAL44469 which is referenced only has 30 units of entitlement. The ability to source the additional entitlement has not been demonstrated. A site water balance is required which summarises all site water demands, groundwater interception or surface water take and clearly show how all water take is to be accounted for or where an exemption may apply.	The EIS reference design anticipated up to 64ML of groundwater would need to be dewatered from the Sydney Basin Central Groundwater Source. We are currently in th detailed design phase and construction planning for the AWRC and the pipelines, as part of this we will minimise dewatering where possible and we will refine the site water balance and dewatering calculations. However, 64ML is currently still assumed. Sydney Water has purchased more groundwater entitlements from this groundwater water source under controlled allocation. A new WAL is being processed and will be issued for the entitlements of 180ML which is for a number of Sydney Water projects. Sydney Water is currently liaising with representatives from DPE Water to obtain a Miscellaneous Work (MW) number for USC CSSI project and this will be used to link the project to the new WAL. Once issued with the new WAL, the SWGCSP will be updated with the new WAL number. Furthermore, Sydney Water will be consolidating the new WAL with WAL44469. Additional text summarising this response (and status of WAL44469) has been included in Section 3.5.2 of the SWGCSP.	Alyce Harrington	**Recommendation – Prior to Approval** The proponent should confirm water take volumes an licensing requirements including for site water demand, any surface water capture and all groundwater interference. **Explanation** Insufficient information has been provided to clearly understand the licensing requirements and take for the project. A site water balance should be provided summarising all site water demands, groundwater intercept or surface water take to clearly show all take can be accounted for under a water access licence (WAL) or where relevant when exemptions apply. The EIS mentioned potential groundwater interferenc with a take of 64 ML (57 ML for the Advanced Water Recycling Centre and 7 ML for the Brine pipeline and treated water pipeline) in the Sydney Basin Central Groundwater Source. The identified WA (WAL 44469) is noted to have been replaced by WAL 44810 through a consolidation dealing, and documents should be updated to reflect this change. The 30 ML held on this WAL is insufficient to cover potential take Figure 7.6-2 of the CEMP sub-plan lists take from the Nepean River, of which there is no mention of entitlement held, and at the EIS stage it was noted to only be a possibility of take and as such no infrastructure has been proposed to take this water.	Rose-Anne Hawkeswood	Figure 7.6-2 has been revised to remove reference to the taking of water from the Nepean River. As the Environmental-Flows Pipeline is no longer being constructed as part of the USC AWRC CEMP and sub-plans, this take of water from the Nepean River has been deleted.	Alyce Harrington
2			Two exemptions to the requirement for a water access licence (WAL) are mentioned in Table 3-3. DPE Water advises that the exemption relating to road construction and maintenance (sch.4 cl 2 of the Water Management (General) Regulation 2018) would not apply to this project as it only applies to a road authority, which Sydney Water is not. The dust suppression WAL exemption in sch 4, cl 4 of the WM Reg 2018 however could apply as it is for public authorities.	Table 3-3 has been updated by the removal of reference relating to road construction and maintenance.	Alyce Harrington				
3			No infrastructure (eg. pump) is mentioned to take water from th Nepean River or to meet site water demands. DPE Water advises that to be exempt from a water supply works approval under the Water Management Act 2000 (WMA 2000), these works must be assessed under the State Significant Infrastructure project or management plan assessment stages, or relevant approvals would need to be obtained separately.	The project will only be sourcing water from town / potable supply and will not be taking from waterways for the purpose of construction. Where required, works will be done in accordance with UMM WW16 with regards to dewatering temporary in-stream structures. This requirement is included in Table 7-1 as the projects management measure.	Alyce Harrington				
4		Recommendation post approval That the proponent ensure the relevant change of Water Access Licence (WAL) dealing application is completed with WaterNSW to nominate where the water is being taken from prior to the water take occurring.	WAL44469 is not currently linked to a work approval. Nominating the extraction point on the WAL is required to address offence provision 60D of the WMA 2000.	The project acknowledges the post approval recommendation regarding resolution of the WAL. Sydney Water is currently liaising with representatives fro DPE Water to obtain a Miscellaneous Work (MW) number for USC CSSI project and this will be used to link the project to the new WAL (discussed above). Once issued with the new WAL, the SWGCSP will be updated with the new WAL number. Furthermore, Sydney Water will be consolidating the new WAL with WAL44469.	Alyce Harrington	**Recommendation – Post Approval** The proponent must ensure that relevant nomination of work dealing applications for WALs proposed to account for water take by the project have been completed prior to the water take occurring. **Explanation** WAL 44469 was not linked to a work approval and the replacement licence WAL 44810 nominates a number of works which may or may not be associated with thi project.	Rose-Anne Hawkeswood	The project acknowledges the post approval recommendation regarding resolution of the WAL. Sydney Water is currently liaising with representatives from DPE Water to obtain a Miscellaneous Work (MW) number for USC CSSI project and this will be used to link the project to the new WAL (discussed above). Once issued with the new WAL, the SWGCSP will be updated with the new WAL number. Furthermore, Sydney Water will be consolidating the new WAL with WAL44469.	Alyce Harrington

5						**Recommendation – Prior to Approval** The proponent should confirm the approach mentioned at the RTS stage that the launch/retrieval sites for trenchless pipelines will be setback in accordance with the Guidelines for Controlled Activities on Waterfront Land – Riparian corridors, or will be located in previously cleared areas to minimise impacts on riparian corridors. **Explanation** It was noted by the applicant at the RTS stage that works will be setback in accordance with the Guidelines for Controlled Activities on Waterfront land – Riparian corridors or they will be within cleared areas so would not impact riparian vegetation. This plan only notes that it will be located beyond the top of the bank, so confirmation is required on the approach that will be applied. The Guidelines for Controlled Activities on Waterfront land are available at: https://www.dpie.nsw.gov.au/water/licensing-and-trade/controlled-activity-approvals	Rose-Anne Hawkeswood	The following text has been included in Section 7.15 of the SWGCSP: Lunch and retrieval pits will not be directly o waterfront land and at all trenchless crossings will be a minimum of 75 meters from any waterway.	Alyce Harrington

Upper South Creek - Consultation Register - Surface Water & Ground Water Sub Plan

Document	Consultation Register
Date Issued	31/03/2023
Docu	USCP-JHG-MPL-ENV-0001
Date Due	EHG (Susan Harrison, A/Senior Team Leader Planning)
Reviewer Name 2	EHG (Susan Harrison, A/Senior Team Leader Planning)
Reviewer Name 3	

Relevant Government Agency			Relevant Government Agency			Upper South Creek - John Holland	
Item	Condition	Requirement	Response (27.07.2023)		By	Response (03.08.2023)	By
1	CoA C6(b)	Erosion and Sediment Control	The ESCP covers only an initial phase of works and it is unclear how the controls will integrate or transition to later stages of works at the site. At least preliminary ESCPs, showing major sediment and drainage controls are required for all stages of works at the facility and for the pipeline construction (including waterway crossings).		Susan Harrison	Refer to the copy of presentation provided by JH and SWC on the 02/08/2023. Preparation of ESCP for the AWRC plant site is critical to achieving key testing and commissioning dates and as such, ESCPs are being prioritized for the AWRC plant site. ESCPs developed for pipelines will be consistent with requirements / controls established for AWRC, including compliance with: Managing Urban Stormwater: Soils & Construction (4th edition, Landcom 2004) ('Blue Book'), and (In the South Creek catchment) Technical Guidance for Achieving Wianamatta South Creek Stormwater Management Targets (DPE, 2022). Pipeline ESCPs for waterway crossings to be developed and finalised subject to closeout of trenched pipeline methodology and what controls and management measures best suit project-specific requirements, subject to CPESC and geomorphologist advice. Last week (27.07.2023) key members of the project delivery team from both John Holland and Sydney Water, together with relevant subject matter experts, facilitated the Pipeline Trenching Methodology and Risk Assessment Workshop for upcoming pipe installation activities. The scope included the trenched crossing of waterways (Cosgroves, Oaky and South). In addition to the specialist pipeline contractors attending: Carl Vincent (CPESC) was in attendance Greg Peters (Geomorphologist) was in attendance. ESCP will be developed and finalised subject to closeout of trenched pipeline methodology and what controls and management measures best suit project-specific requirements, subject to CPESC and geomorphologist advice.	Alyce Harrignton
2	CoA C6(a)	Erosion and Sediment Control	Issue: Erosion and Sediment Control The following feedback is provided in relation to the actual ESCP which has been submitted for the 'enabling works'. A revised ESCP is requested which addresses these comments:	There are no calculations directly relating how the strategy proposed will meet the construction-phase stormwater targets. As HES basins are not being proposed, water balance calculations are required to show how the use of the OSD and other sumps/basins and pumping strategies will achieve the targets. Critical information such as pumping rates, sizes of actual individual basins and dewatering timeframe for the OSD will need to be documented and used as the basis for the calculations.	Susan Harrison	Refer to the copy of presentation provided by JH and SWC on the 02/08/2023.	Alyce Harrignton
3	CoA E72 and E73	Erosion and Sediment Control		Land irrigation of treated water is proposed. What is the required infiltration rate for this to be successful based on full dewatering of the OSD basin within the required timeframe and how will this be feasible following a significant rain event which fills the OSD and when ground conditions will be already saturated? This appears to be a strategy which will only work intermittently, at best.	Susan Harrison	Refer to the copy of presentation provided by JH and SWC on the 02/08/2023. The project notes EHG's commentary on practicality of water management on site and the criticality of the EPL variation that is currently being prepared by the project. The remaining items below refelect talking points during the meeting on the 02/08/2023. Ample capacity in the OSD relative to area of disturbance. Preferentially water retained within the site be used for dust suppression and where necessary for construction purposes (e.g. to assist with compaction) EPL variation application to be submitted shortly to license the OSD as a construction sediment basin (with approved discharge point and criteria).	Alyce Harrignton

a				Furthermore, given the sodic/saline soils in the area, a soil assessment and land capacity assessment is required to be completed by a soil scientist to certify this approach is suitable, will not impact soil/groundwater conditions and the limitations on the approach.	Susan Harrison	CoA C4(c) - Soils & Contamination CEMP Sub-plan developed and endorsed by the project's EPA Accredited Site Auditor and addresses saline and sodic soils (Section 6.4). Salinity and sodicity potential and preliminary soil testing results undertaken as part of the EIS indicates a range of non-saline and non-sodic to moderately and high-level salinity and sodicity across the pipelines and AWRC site. Management measures include: Where detailed design indicates soils will be disturbed, the project will engage with a suitably qualified expert to assess excavated soils for salinity and sodicity. The timing and nature of the engagement will take into account the timing of the EPL variation to permit discharge of water from site, preferentially over irrigation to land. Pending outcome of any assessment undertaken, requirements will be incorporated into the CEMP and relevant sub-plans. Management of 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 where possible. If not possible to avoid excavation, they will not be reused within the project for landscaping or surface rehabilitation. Alternatively, potential treatment and on-site reuse will be further investigated	Alyce Harrignton
b				Gypsum is a slow-acting and difficult to deliver chemical for large basins. What testing has been conducted to determine likely settling rates and method of application?	Susan Harrison	Flexibility has been included in the example ESCP provided – "Gypsum at 30-50kg per 100m3 of water or other flocculant…" Gypsum is likely to be used for the smaller sub-basins to be established throughout the construction zone. However, more suitable alternatives (for example Alum) will be investigated to ensure that (given the size of the OSD), HES settling rates can be achieved. Jar testing will be undertaken to confirm the correct setting co-efficient is applied to the site, and by default, a conservative coefficient of 12,000 is proposed to be used.	Alyce Harrignton
c				No sizing of bunds/drains or basin spillways provided. Internal site catchment areas now shown.	Susan Harrison	Refer to the copy of presentation provided by JH and SWC on the 02/08/2023.	Alyce Harrignton
d				'Seeding' is inappropriate as the sole method to stabilise bunds if they are intended to act as immediate flow control devices.	Susan Harrison	In consultation with the project CPESC, ESCPs will reflect adaptability of controls. Where seeding of bunds may not be appropriate, the project CPESC will advise of alternative stabilization methods to implement (e.g. stabilized with geo-fabric material).	Alyce Harrignton
e				It is unclear where stockpiles will be placed and whether additional disturbance outside of the blue shaded area will occur – particularly during construction of the OSD.	Susan Harrison	Pending construction staging, stockpile locations and their stay / duration will vary. Stockpiles will be located within the construction area which includes the blue-shaded area in the example ESCP for Enabling Works provided, and for practicality reasons, will be confirmed onsite. Stockpiles will be managed in accordance with the Stockpile Management Protocol (Appendix A9 of the CEMP) and any other controls and constraints identified by the project CPESC and documented on the ESCP.	Alyce Harrignton
f				Final contours are not shown. This is required in order to understand how earthworks levels will change and influence controls as earthworks progress. Additional plans should be provided.	Susan Harrison	Refer to the copy of presentation provided by JH and SWC on the 02/08/2023.	Alyce Harrignton

4 a	CoA C13(a) and C14	Surface Water Construction Monitoring Program The focus of the monitoring program is on routine (dry weather) receiving water monitoring and to a lesser extent, wet weather monitoring. The routine (dry weather) monitoring is unlikely to detect any changes from background levels due to the impacts associated with the works being directly linked to rainfall, plus the variability in baseline data masking impacts. To be useful, monitoring needs to be linked to specific activities and times when impacts are likely to occur (i.e. during rainfall).	<u>Issue: Surface Water Monitoring Program</u> The surface water monitoring program requires further amendment to appropriately respond to specific activities and times when impacts are likely to occur (i.e., during rainfall). An unrealistic assumption of 'no off-site discharges' during the facility works seems to be impeding the above being achieved. Not discharging from the construction site is an aspirational rather than feasible target when the full range of possible conditions are considered.	The monitoring program continues to use 'acceptable range' values which provide scope for potentially significant pollution incidents to occur and not trigger action, if the waterway values stay below the acceptable range – which in some cases is significant. The 'acceptable values' should be updated to include a criteria that 10% increase between upstream and downstream monitoring locations is not acceptable.	Susan Harrison	Tables 4.2-1 and 4.2-2 of the SW construction monitoring program has been updated to include a criteria that a 10% increase between upstream and downstream monitoring locations is not acceptable. Note that an additional comment has been included to state that this criteria will only be implemented until sufficient pre-construction baseline data has been obtained and utilized to inform existing conditions and variability within the waterway.	Alyce Harrignton
b							
c				Ambient (dry weather) monitoring for pipeline crossings is appropriate if there is baseflow. For other locations, dry weather monitoring offers little/no benefit and would provide a false impression of good environmental performance, as impacts are linked to rainfall. Justify or remove routine monthly monitoring at sites where there is no baseflow.	Susan Harrison	Section 5.4.2 of the SW construction monitoring program has been updated. Note that ambient (dry weather) monitoring has been maintained at the AWRC Plant site (at South Creek) as there is baseflow in this waterway year round.	Alyce Harrignton
				There is still insufficient detail on wet weather sampling/monitoring, with daily sampling noted within the watercourse when sediment basins are discharging and additional sampling when 20mm of rainfall is recorded. This still fails to recognise that discharges may be of short duration and explain how representative samples of site discharges will be obtained.	Susan Harrison	Where reasonable and safe access permits, samples will also be obtained that are representative of discharges from site of a short duration. Collection of wet weather monitoring samples will be consistent with the sampling methodology outlined in Section 5.3 and outcomes reported in accordance with Section 7.	Alyce Harrignton
				Expand the acceptable values for monitoring sites to state the absolute values that must be achieved from controlled releases from storages such as batch sediment basins, pits and trenches (i.e., TSS 50mg/L, pH 6.5-8.5 etc.	Susan Harrison	Section 4.1 states that project acceptable values have been obtained (preferentially) using baseline data for the relevant waterways. Where this is not possible, (and is indicated in the notes provided under Tables 4.2-1 and 4.2-2) relevant water quality guideline values have been used.	Alyce Harrignton
d				Expand the monitoring report to include allowance for HES basins which discharge during rainfall events (not as a controlled batch release post-event).	Susan Harrison	Section 5.4.3 of the SW construction monitoring program has been expanded to include allowance for HES basins.	Alyce Harrignton

Appendix D: Tannin Management

Appendix D – Tannin Management

Purpose

The purpose of this document is to describe how John Holland proposes to manage the generation and discharge of tannin leachate from the use of cleared vegetation and mulch filters for erosion and sediment control on the Project.

Relevant Guidelines

Industry guidelines relevant to the management of tannin leachate generation during the construction phase of the Project include:

- DPIE (2019) Fact Sheet: About Blackwater. Water oxygen levels and native fish populations.
- NSW EPA (2016). Guidance on the resource recovery order and exemption for mulch.

Environmental Aspects & Impacts

Key construction activities that could result in tannin generation include:

- Clearing and grubbing
- Removal of native vegetation
- Stockpiling of vegetation mulch
- Use of mulch filters for erosion and sediment control
- Use of vegetation mulch for surface soil cover (erosion control)

Potential impacts of tannins from construction activities include:

- Increase in Biological Oxygen Demand (BOD)
- Change in water colour
- Reduced visibility and light penetration in receiving aquatic environment
- Change in pH
- Decrease in dissolved oxygen within aquatic environment leading to fish kills
- Chemical impacts on sensitive aquatic environments.

Sensitive Receiving Environments

The Project encompasses a wide area, including the AWRC site, pipeline corridors and access roads which require clearance of vegetation, earthworks and stockpiling. Tannin leachate from clearing and mulching requires management of potential discharging to near site drainage pathways resulting in eutrophication, reduced water pH and visual aesthetic issues.

Vegetation Mulch Management

Planning & Works Staging

Clearing and grubbing works will be staged with the amount of mulch to be generated identified prior to commencement. Staging of chipping, stump grinding or mulching activities will be planned by site managers so as to reduce the volume of mulch to be managed in an area at any one time. Once the volume of excess mulch to requirements has been quantified plans can then be made to dispose of this material off site.

Other general considerations when planning and staging works are as follows:

- mulch stockpile sites will be established with appropriate controls in place before the main site clearing activities commence. Such controls would include tannin leachate collection measures such as bunds
- vegetation mulching operations will be staged to ensure that mulch can be progressively moved to elevated, or otherwise suitable, stockpile locations. It is preferred that mulch is transferred to a stockpile or reused on the day of mulching wherever practical
- plan to reuse mulch progressively so to reduce the time that mulch is concentrated in stockpile locations and potentially generating large amounts of tannin leachate
- other forms of bulk offsite mulch disposal (e.g. to Council parkland or a development site) must be assessed to ensure waste management provisions (detailed in the WRUCSP) and EPA resource recovery orders and exemptions are adhered to.
- excess mulch can be managed by donation to public authorities (e.g. Councils or National Parks and Wildlife Service) or by community giveaway. Materials proposed for re-use off site must be managed in accordance with the NSW EPA (2016), The Mulch Exemption 2016 and The Mulch Order 2016. Testing and material classification is required by the Order to ensure that:
  - the mulch does not contain asbestos, engineered wood products, preservative treated or coated wood residues, or physical contaminants, including but not limited to glass, metal, rigid plastics, flexible plastics, or polystyrene;
  - the mulch is ready for land application; and
  - the processor must not supply mulch that contains any weed, disease or pest to a consumer for land application in an environmentally sensitive area.
- Re-use of mulch shall be planned carefully, with record keeping, and subject to additional weed management and pathogen controls, as required by the BCSP (Appendix B4 of the CEMP) and waste management requirements detailed in the WRUCSP.

Mulch Stockpile Location and Management

- Mulch stockpile sites will be established on elevated ground wherever possible
- Stockpile sites with a storage duration less than 1 month will be established at least 20 metres away from any watercourse, including flood prone areas
- Stockpile sites with a storage duration of more than 1 month will be established at least 50 metres away from any watercourse, including flood prone areas
- Fit for purpose diversions of upslope run on water will be installed around mulch stockpiles to prevent water from entering the stockpile site
- Stockpiles must be arranged to minimise any damage to natural vegetation and trees
- Stockpiles must be monitored and turned over regularly to avoid spontaneous combustion
- Mulch in excess of the quantity required for landscape planting or re-use as an erosion control measure must not be stockpiled on the Construction Site.

Stockpile Management for High-risk Sites

- Mulch stockpiles for high tannin generating vegetation types (e.g. *Melaleuca* species) will incorporate an impermeable bund using soil or similar to capture stockpile leachate or tannin impacted water. Bunds will be a minimum of 300 millimetres high. All bunded stockpiles that are planned to be in place for a period longer than 1 month must include a lined discharge point (spillway) for overflow in extreme rainfall events
- Stockpiles established on sloping sites must have upslope diversion bunds installed to divert stormwater runoff around stockpiles
- Tannin impacted water will be pumped out of bunded stockpiles containing high tannin generating vegetation types within 5 days of the end of a rainfall event to maintain the storage capacity. This water should be used for on-site purposes including dust suppression and landscape watering
- Bunded stockpiles must be inspected within 24 hours of cessation of any rainfall event greater than 10 mm to ensure tannin impacted water does not overflow.

Monitoring and Response

- The site will be regularly monitored for the generation of tannins arising from vegetation mulch. Such monitoring will be carried out as part of daily supervisor or weekly environmental inspections
- Tannin impacted areas can be readily identified visually as dark coloured ponded water. Site staff will be trained to identify and report potential tannin impacts to the site supervisors or environment team
- Tannin management practices will be reviewed regularly (in line with CEMP revision frequency) to prevent the generation of tannins in identified problem areas; and
- DPI (Fisheries) (1800 043 536) is to be immediately notified of any fish kills in the vicinity of the works.

Appendix E: Surface Water Quality Construction Monitoring Program

Upper South Creek
Advanced Water Recycling Centre and Pipelines

Surface Water & Groundwater
CEMP Sub-Plan

Appendix E - Surface Water Quality Construction Monitoring Program

Recommend Documents to be Read in Conjunction

This monitoring program is to be read in conjunction with the Construction Environmental Management Plan (USCP-JHG-MPL-ENV-0008), Soils & Contamination CEMP Sub-plan (USCP-JHG-MPL-ENV-0003) and Biodiversity CEMP Sub-plan (USCP-JHG-MPL-ENV-0004).

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 lettering commencing at Revision A. Revision letters shall commence at Rev. A, B etc.

Date	Rev	Details Of Change	Section	Prepared By	Reviewed & Approved By
14/02/2023	01	Initial draft for John Holland and SWC review	All	RL / ML	AH
31/03/2023	02	Updated to incorporate SWC final comments	All	RL / ML	AH
25/05/2023	03	Updated to incorporate ER and agency comments	All	RL / ML / WC	AH
13/06/2023	04	Update to incorporate ER and agency comments	All	MS	AH
11/07/2023	05	Update to incorporate DPE review comments	All	MS / AH	AH
21/07/2023	06	Updated to incorporate DPE review comments	All	MS / AH	AH
2/08/2023	07	Updated to address DCCEEW comments	Section 5.2, Section 7	CC / AH	AH
03/08/2023	08	Updated to address EHG comments	All	MS / AH	AH
22/08/2023	A	Issued for construction	All	MS	DOB
12/01/2024	B	Updated to include revised information following EPL variation approval and updated monitoring requirements	All	MS	AH
10/04/2024	C	Updated to include revised information following EPL variation	All	RM	AH
07/01/2025	D	Annual review and update	All	RM	AH

Table of Contents

1.0 INTRODUCTION 4
1.1 Objectives 4
1.2 Scope of this Program 4
1.3 Project Environmental Assessments and Background 4
1.3.1 Aquatic Ecosystem Assessment (EIS Appendix H) 4
1.3.2 Surface Water Impact Assessment (EIS Appendix K) 5

2.0 CONSULTATION 6
2.1 Legislative and Guidance Requirements 6
2.1.1 Minister's Conditions of Approval 6

3.0 WATER QUALITY GUIDELINES 7
3.1 ANZG Guidelines 7
3.2 Wianamatta - South Creek Stormwater Management Targets 7
3.3 Baseline Data 8
3.3.1 South Creek 8
3.3.2 Kemps Creek 9
3.3.3 Badgerys Creek 9
3.3.4 Nepean River 9

4.0 PROJECT MONITORING PARAMETERS, ACCEPTABLE RANGES AND TRIGGER VALUES. 13
4.1 Project Acceptable Ranges 13
4.2 Project Trigger Values 13
4.2.1 Trigger Values and the Absolute Change in Water Quality at Pipeline Locations 14

5.0 SAMPLE METHODOLOGY 16
5.1 Sample Locations 16
5.1.1 AWRC 16
5.1.2 Pipelines 18
5.2 Parameters 18
5.3 Sample Methods 19
5.3.1 Sampling Equipment 19
5.3.2 Field Measurements 19
5.3.3 Sample Handling 20
5.3.4 QA/QC 20
5.4 Sample Frequency and Duration 20
5.4.1 Monitoring Duration 20
5.4.2 Routine Sampling 20
5.4.3 Event Triggered Sampling 21
5.5 Trigger Value Exceedances 21
5.5.1 Identified from Field Results 21

5.5.2 Identified from Laboratory Results 21
5.6 Data Analysis 22

6.0 PROJECT RESPONSE AND ACTIONS 23
6.1 Project Trigger Value and Acceptable Range Exceedance 23

7.0 REPORTING 24
7.1 Report Format 24
7.2 Review and Improvement 24
7.3 Reporting Frequency and Submission 24

8.0 RESPONSIBILITIES 25

9.0 REFERENCES 26

Tables

Table 2.1-1 Minister's Conditions of Approval 6
Table 3.2-1 Construction phase stormwater quality targets 8
Table 3.3-1 Baseline water quality data – field parameters 10
Table 3.3-2 Baseline water quality data – nutrients 11
Table 4.2-1 Adopted Water Quality Assessment Criteria (AWRC) 14
Table 4.2-2 Adopted Water Quality Assessment Criteria (Pipelines) 14
Table 5.1-1 Surface Water Quality Monitoring Locations (AWRC) 16
Table 5.1-2 Surface Water Quality Monitoring Locations (pipelines) 18
Table 6.1-1 Project responses to Project trigger level and acceptable range exceedances 23
Table 7.3-1 SWQ-CMP Responsibilities 25

Figures

Figure 3.3-1 Baseline Monitoring Location Map Source: Figure 8-1 in the EIS (Aurecon Arup, September 2021)
Figure 5.1-1 Surface water construction monitoring locations (AWRC)

1.0 Introduction

This Surface Water Construction Monitoring Program (SWQ-CMP) forms part of the Surface Water and Groundwater CEMP Sub-plan (SWGCSP) for the Upper South Creek Advanced Water Recycling Centre (AWRC) and Pipelines Project (the project).

This monitoring program has been prepared to address the Ministers Conditions of Approval (CoA) requirements (C13-C18) for a Surface Water Quality Construction Monitoring Program, and any the conditions contained within the Environmental Protection License (EPL) 21800 John Holland (JH) has obtained for the project.

1.1 Objectives

The objective of this SWQ-CMP is to establish a robust surface water quality monitoring program utilising Specific, Measurable, Achievable, Realistic and Timely (SMART) principles for construction of the Project, including:

- Preconstruction monitoring to support establishment of a baseline data set;
- Identify if impacts of water quality are occurring as the result of construction activities;
- Trigger additional mitigation measures where the results of the monitoring indicate unacceptable project impacts; and
- Demonstrate compliance with legal and other monitoring requirements, including water quality criteria and/or targets for the project.

1.2 Scope of this Program

The scope of this program is to document the monitoring activities required for surface water quality to support the construction phase of the project. The program does not address the operational phase of the project. Requirements for groundwater monitoring are outlined in Annexure F of the SWGCSP. The following points outline the key tasks for this program:

- Outlines consultation to be undertaken in relation to the SWQ-CMP;
- Outline the monitoring requirements documented in the project EIS, and Amendment reports;
- Provide a summary of baseline data available to the project prior to commencement of construction, and identify requirements for collection of supplementary baseline data to be obtained and when;
- Conduct pre-commencement site inspections to ground truth monitoring locations and access suitability;
- Outlines the site specific surface water quality monitoring and sample regime, including:
  - Sample locations;
  - Parameters to be monitored;
  - Sample methods;
  - Sample frequencies (routine and event based);
  - Monitoring duration;
  - Assessment Criteria;
  - Analysis methods;
  - Reporting requirements and record keeping; and
- Documents procedures to identify and implement additional mitigation measures where the results of the monitoring indicate unacceptable project impacts.

1.3 Project Environmental Assessments and Background

A comprehensive project description, including staging of the project, is outlined in Sections 1.1 to 1.3 of the CEMP. Figures 1-1 and 1-2 in the CEMP include an overview of the Project site and associated pipelines. The specialist assessment reports contained within the EIS provide recommendations for surface water monitoring during the construction phase and are summarised in the following sections.

1.3.1 Aquatic Ecosystem Assessment (EIS Appendix H)

Section 8 recommends the following monitoring regime:

- continuation of Sydney Water's existing program with additional monitoring in the Nepean River around Glenbrook Ck to establish baseline conditions.

1.3.2 Surface Water Impact Assessment (EIS Appendix K)

Section 9 recommends the following monitoring regime:

- Supplementary pre-construction baseline monitoring data could be considered at the three identified AWRC site drainage lines. The monitoring would be undertaken after periods of increased rainfall (i.e. >40mm in a 24-hr period).
- Construction phase monitoring would be undertaken by the contractor (JH) and include:
- All discharges of potentially sediment laden stormwater at:
  - AWRC site drainage line 1
  - AWRC site drainage line 2
  - AWRC site drainage line 3
  - additional stormwater control facilities (e.g. sediment retention ponds) that drain directly to South Creek
  - additional stormwater control facilities (e.g. sediment retention ponds) that drain directly to Kemps Creek
  - additional stormwater control facilities (e.g. sediment retention ponds) that drain directly to other waterways along the pipelines and discharge structures.
- The contractor (JH) is also responsible for regular inspection, monitoring and maintenance of erosion and sediment control structures (e.g. sediment fences) to be undertaken in accordance with the Blue Book and other Erosion and Sediment Control Plan guidance. In addition, the contractor (JH) would be responsible for inspections immediately prior to and following rainfall events and rectifications to be made as required.

2.0 Consultation

The following consultation relevant to this SWQ-CMP is required by the CoA for the project:

C13	The following Construction Monitoring Programs must be prepared in consultation with the relevant government agencies identified for each to compare actual performance of construction of Stage 1 of the CSSI against the performance predicted in the documents listed in Condition A1 or in the CEMP: (a) surface water quality - Agencies to be consulted: EPA, EHG, DPE Water, DPI Fisheries, Water NSW and relevant council(s)

Consultation requirements for the SW-CMP will be undertaken concurrently with the Surface Water & Groundwater CEMP Sub-plan, as permitted under CoA C18 whereby, the project has incorporated the relevant construction monitoring program into a relevant CEMP sub-plan where it exists. Government agencies to be consulted with under CoA C4 for the SWGCSP also addressed the consultation requirements for the SW-CMP under C13. An CoA A9 Consultation Summary Report will be prepared and will be available in Appendix G of the SWGCSP to address consultation of both documents.

This SWQ-CMP will be endorsed by the ER and then submitted to the Planning Secretary for approval no later than one (1) month before the commencement of construction, or where construction is staged, no later than one month before the commencement of each stage. Construction must not commence until this construction monitoring program has been approved by the Planning Secretary and all relevant baseline data for the specific construction activity has been collected.

Note, this monitoring program has been prepared and reviewed by a suitable qualified person as defined in the ISC V2.1 manual.

2.1 Legislative and Guidance Requirements

2.1.1 Minister's Conditions of Approval

Table 2.1-1 Minister's Conditions of Approval

Condition	Condition Requirement	Document Reference
C14	Each Construction Monitoring Program (CMP) must have consideration of SMART principles and provide: *a. details of baseline data available;* *b. details of baseline data to be obtained and when;* *c. details of all monitoring of the project to be undertaken;* *d. the parameters of the project to be monitored;* *e. the frequency of monitoring to be undertaken;* *f. the location of monitoring;* *g. the reporting of monitoring results and analysis results against relevant criteria;* *h. details of the methods that will be used to analyse the monitoring data;* *i. procedures to identify and implement additional mitigation measures where the results of the monitoring indicate unacceptable project impacts; and* *j. any consultation to be undertaken in relation to the monitoring programs*	Section 3.3 Section 4 Section 5
C15	The CMP(s) 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 2
C16	Construction must not commence until the relevant CMP(s) have been approved by the Planning Secretary and all relevant baseline data for the specific construction activity has been collected.	Section 2
C17	The CMP(s), as approved, including any minor amendments approved by the ER, must be implemented for the duration of construction and for any longer period set out in the monitoring program or specified by the Planning Secretary, whichever is the greater.	Section 2
C18	The results of the CMP(s) must be submitted to the Planning Secretary, and relevant regulatory agencies, for information in the form of a Construction Monitoring Report at the frequency identified in the relevant CMP.	Section 2

3.0 Water Quality Guidelines

This section summarises the current guidelines relevant to surface water considerations for the Project as per the nationally developed guidelines for water quality outlined in the National Water Quality Management Strategy (NWQMS – Australian Government Department of Agriculture and Water Resources 2018) are summarised in Table 3.1-1 below.

Table 3.1-1 Assessment Guidelines

Environmental Value	Relevant Guideline
Ecosystems / Health Screening Levels	• DPE (2022) Technical guidance for achieving Wianamatta South Creek stormwater management targets; • ANZG 2018. Australian and New Zealand Guidelines for Fresh and Marine Water Quality. Australian and New Zealand Governments and Australian state and territory governments, Canberra ACT, Australia; • NEPC (2013). National Environment Protection (Assessment of Site Contamination) Measure 1999 as amended 2013; and • CRC CARE (2011). Technical Report 10: Health screening levels for petroleum hydrocarbons in soil and groundwater.
Groundwater	• NSW EPA (2007). Guidelines for the Assessment and Management of Groundwater Contamination. • Australian Government (2013) Guidelines for Groundwater Quality Protection in Australia
Drinking Water	• HMRC, NRMMC (2011) Australian Drinking Water Guidelines Paper 6 National Water Quality Management Strategy. National Health and Medical Research Council, National Resource Management Ministerial Council, Commonwealth of Australia, Canberra.
Recreational Use	• National Health and Medical Research Council (2008). Guidelines for managing risks in recreational water.
Rural land uses	• NWQMS (2000). Rural land uses and water quality (historical guidelines).
Effluent Irrigation	• NSW EPA (2004) Use of effluent by irrigation.

3.1 ANZG Guidelines

The Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZG, 2018) provides users with a step-by-step approach to protect the community values of waterways.

The ANZG (2018) provide Default Guideline Values (DGVs) for four (4) levels of protection categorised by the percent of species possibly affected, being 80%, 90%, 95% or 99% of species. Where DGVs are not available, reference is made against the former ANZECC (2000) Trigger Values (TV). Based on the site history of rural land use and disturbance, this plan recommends assessment for aquatic ecosystems based on the 95 per cent of species level of protection.

Where the project EPL, conditions of consent or the relevant EIS planning documents (detailed in CoA A1) do not dictate limits, this program has adopted the assessment criteria considered most appropriate for the contaminants of concern, based on the receiving freshwater environments and the historical level of disturbance at the project area.

3.2 Wianamatta - South Creek Stormwater Management Targets

Construction phase stormwater quality targets are provided for development sites >2,500 m^2.

The targets are provided to strengthen provisions in the Blue Book for controlling sediment during the construction phase of the development and provide advice to achieve compliance. The requirements of the Western Sydney Aerotropolis Development Control Plan Phase 2 2022 (WSA DCP) have been incorporated in Table 3.2-1 below alongside the Wianamatta-South Creek stormwater management targets for completeness.

Table 3.2-1 Construction phase stormwater quality targets

Parameter	The Technical Guidance for achieving Wianamatta-South Creek stormwater management targets (reduction in mean annual load from unmitigated development) & DWSADCP 2021 (Section 9.6.2 PO1-PO5)	Draft Western Sydney Aerotropolis Development Control Plan 2021 (Section 4.3.2 PO1)
Total suspended solids (TSS), pH and chlorine	All exposed areas greater than 2,500 m^2 are to be provided with sediment controls that are designed, implemented and maintained to a standard that would achieve treatment of at least 80% of the average annual runoff volume of the contributing catchment (i.e. 80% hydrological effectiveness) to 50 mg/L TSS or less, and pH in the range (6.5–8.5). No release of coarse sediment is permitted for any construction or building site. Sites less than 2,500 m^2 are required to comply with the requirements of the Blue Book. It's noted that a TSS/NTU correlation has been completed which determined that 50mg/L TSS is equivalent to an NTU of 36.45. The discharge criteria for pH is between 6.8 and 8.5. The discharge criteria following completion of hydrostatic testing for chlorine is 0.5mg/L. This discharge criteria has been provided in EPL 21800 and in Appendix A – Dewatering procedure.	90% reduction (minimum) in mean annual load from unmitigated development.
Oil, litter and waste contaminants	No release of oil, litter or waste contaminants	No release of oil, litter or waste contaminants.
Stabilisation	Prior to completion of works for the development, and prior to removal of sediment controls, all site surfaces are to be effectively stabilised including all drainage systems. An effectively stabilised surface is defined as one that does not or is not likely to result in visible evidence of soil loss caused by sheet, rill or gully erosion or lead to sedimentation and water contamination.	Prior to completion of works for the development, and prior to removal of sediment controls, all site surfaces must be effectively stabilised including all drainage systems. An effectively stabilised surface is defined as one that does not,or is not likely to, result in visible evidence of soil loss caused by sheet, rill or gully erosion or lead to sedimentation water contamination.

Source: Table 2 DPE (2022) Technical guidance for achieving Wianamatta South Creek stormwater management targets; and Western Sydney Aerotropolis Development Control Plan 2022 Phase 2.

3.3 Baseline Data

Baseline water quality data has been obtained and reviewed prior to commencement of site works to establish background conditions, identify any contaminants of potential concern, and establish assessment criteria to refine the SWQ-CMP.

Further to the baseline data identified in the project EIS, Sydney Water has collected baseline water quality data at the following water courses and locations proximal to the Project area as shown in Figure 3.3-1:

- South Creek: Site IDs NS45, NS44 and NS35;
- Kemps Creek: Site ID NS450;
- Badgerys Creek: Site ID NS440;
- Nepean River: Site IDs N67, N64, N66A, N66B and N66; and

A summary of the baseline data 20th percentile values and 80th percentile values is presented in Table 3.3-1 for field parameters and Table 3.3-2 for nutrients.

Based on the baseline dataset the following water quality observations have been made:

3.3.1 South Creek

Reported potential hydrogen (pH), conductivity and ammonia for the monitoring period fall within the project guideline values. Reported exceedances of turbidity and dissolved oxygen (DO) may likely be attributed to differential periods of stream flow

with high turbidity as a result of high flows and low flows resulting in low DO values. Nutrient values are consistently reported in exceedance of the guidelines which is consistent with the stream setting and proximity to urban and rural areas.

3.3.2 Kemps Creek

Reported pH and ammonia for the monitoring period fall within the project guideline values. Reported exceedances of turbidity, conductivity and DO may likely be attributed to differential periods of stream flow with high turbidity as a result of high flows and low flows resulting in low DO values and increased conductivities. Nutrient values are consistently reported in exceedance of the guidelines which is consistent with the stream setting and proximity to urban and rural areas.

3.3.3 Badgerys Creek

Reported pH, conductivity and ammonia for the monitoring period fall within the project guideline values. Reported exceedances of turbidity and dissolved oxygen DO may likely be attributed to differential periods of stream flow with high turbidity as a result of high flows and low flows resulting in low DO values. Nutrient values are consistently reported in exceedance of the guidelines which is consistent with the stream setting and proximity to urban and rural areas.

3.3.4 Nepean River

Reported pH, DO, conductivity, turbidity and ammonia for the monitoring period fall within the project guideline values. As with the above creeks nutrient values are consistently reported in exceedance of the guidelines which is consistent with the stream setting and proximity to urban and rural areas.

From review of the data made available at the time of preparing this SWQ-CMP, the following deficiencies have been identified:

- No total dissolved solids (TDS) data has been reported; and
- No analysis for ortho phosphate / reactive phosphorus has been undertaken.

A variation to the on-going Sydney Water baseline monitoring program was made in 2022 in consultation with the EPA to:

- relocate the current downstream (water quality) monitoring sites, closer to the proposed discharge pipes (about 50m)
- add two new monitoring sites, including N61 - Nepean River, upstream of Glenbrook Ck)
- add more analytes upstream and downstream of discharge points for a better understanding of the impact. This will include extra metals (copper, manganese and zinc) and other analytes (chlorine residual) will be collected at five monitoring sites upstream and downstream of discharge points (NS45, NS44B, NS44A, N66C and N66A).

The Sydney Water baseline monitoring will continue into post-commissioning monitoring for a period of two years after the completion of project. Data collected will also be available to verify or cross reference against the data collected under this SWQ-CMP.

Table 3.3-1 Baseline water quality data – field parameters

Water Course	Parameter	pH		DO (%)		EC (µS/cm)		Turbidity (NTU)	
	ANZECC Guideline:	6.5 - 8.5		85 - 110		125 - 2200		6 - 50	
	Sampling Location	20th %ile	80th %ile	20th %ile	80th %ile	20th %ile	80th %ile	20th %ile	80th %ile
South Creek	NS45 March 2020 to January 2023	7.28	7.5	66.9	83.1	825	1526	19	140
	NS44 March 2020 to January 2023	7.338	7.786	75.36	101.2	840.4	1370.4	40	120
	NS35 March 2020 to January 2023	7.31	7.58	72.7	88.9	747	1300	32	120
Kemps Creek	NS450 March 2020 to January 2023	7.41	7.59	65.9	87.1	1041	2390	8.2	59
Badgerys Creek	NS440 March 2020 to January 2023	7.18	7.34	52.6	83.8	767	1506	7.2	60
Nepean River	N67 July 2017 to January 2023	7.19	7.61	88.9	99.9	286.2	421.4	5.72	12
	N64 March 2020 to January 2023	7.428	7.664	95.3	105.8	191.4	375.4	4.12	12
	N66A June 2020 to January 2023	7.09	7.57	92.1	99.2	257	431	5	17
	N66B June 2020 to January 2023	7.13	7.64	96.2	99.9	272	439	4.8	16
	N66 March 2020 to January 2023	7.244	7.63	98.32	101.8	248	407.2	4.02	17.6

Table 3.3-2 Baseline water quality data – nutrients

Water Course	Parameter	Ammonia (mg/L)		Oxidised Nitrogen (mg/L)		Total Nitrogen (mg/L)		Total Phosphorus (mg/L)		Chlorophyll-a (mg/m^3)	
	ANZECC Guideline:	0.9		0.04		0.35		0.025		-	
	Sampling Location	20th %ile	80th %ile	20th %ile	20th %ile	80th %ile	80th %ile	20th %ile	80th %ile	20th %ile	80th %ile
South Creek	NS45 March 2020 to January 2023	0.02	0.31	0.61	2.75	1.67	4.46	0.206	0.459	5.16	35
	NS44 March 2020 to January 2023	0.01	0.08	0.02	1.50	1.24	2.68	0.111	0.289	10.04	53.38
	NS35 March 2020 to January 2023	0.01	0.08	0.16	1.36	0.99	2.30	0.083	0.221	4.8	44.46
Kemps Creek	NS450 March 2020 to January 2023	0.01	0.05	1.10	4.50	2.12	5.66	0.446	0.903	3.14	22
Badgerys Creek	NS440 March 2020 to January 2023	0.02	0.12	0.03	0.70	0.81	1.99	0.063	0.273	2.4	18.58
Nepean River	N67 July 2017 to January 2023	0.01	0.05	0.41	1.17	0.81	1.55	0.016	0.034	3.8	12.4
	N64 March 2020 to January 2023	0.01	0.03	0.43	1.30	0.79	1.63	0.013	0.023	1.88	11.74
	N66A June 2020 to January 2023	0.01	0.15	0.54	1.50	0.91	1.86	0.017	0.065	3.14	11.78
	N66B June 2020 to January 2023	0.01	0.16	0.53	1.49	0.88	1.73	0.015	0.058	3	10.8
	N66 March 2020 to January 2023	0.01	0.06	0.59	1.59	0.91	1.87	0.016	0.045	2.18	10.88

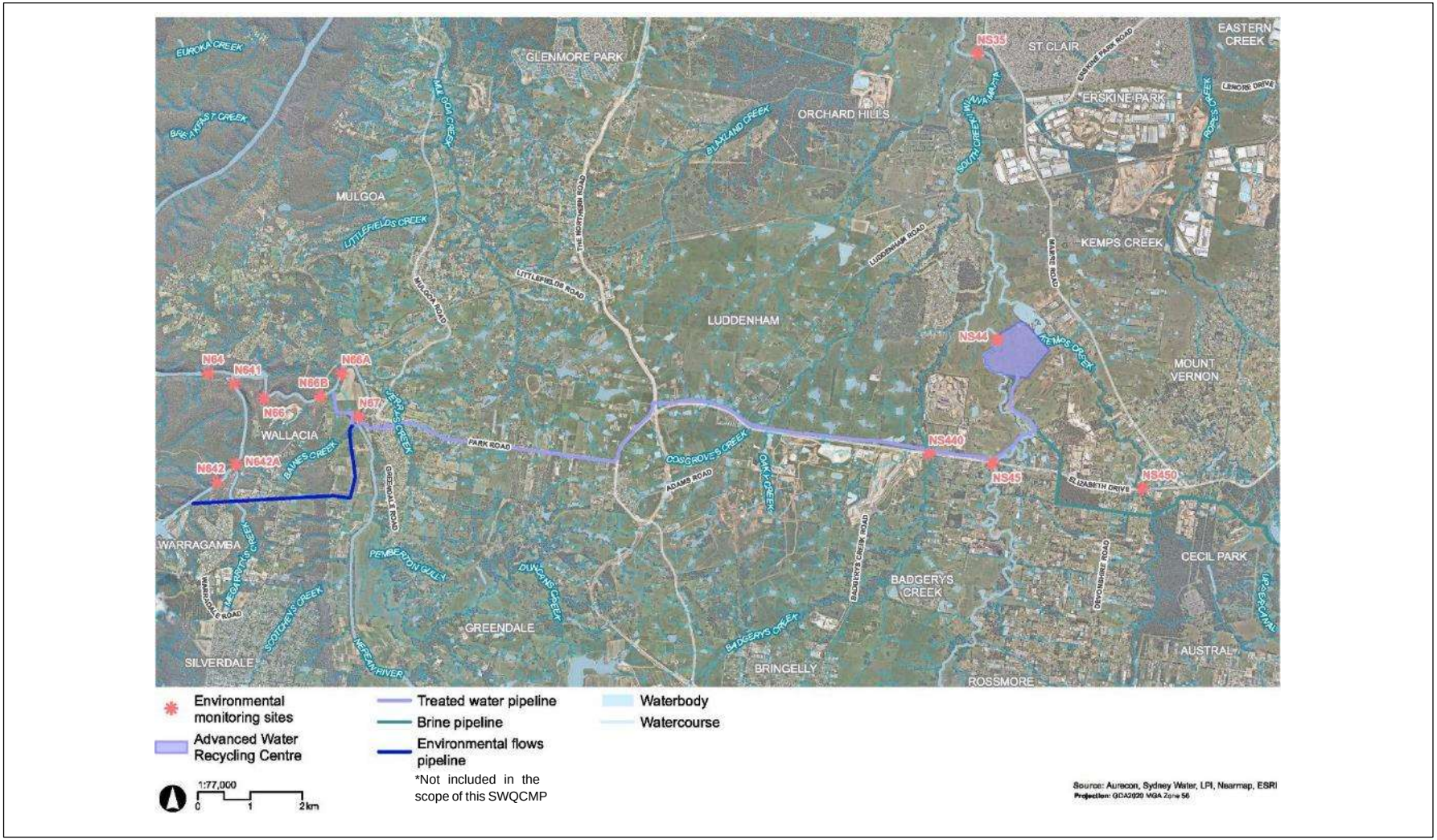


Figure 3.3-1 Baseline Monitoring Location Map Source: Figure 8-1 in the EIS (Aurecon Arup, September 2021)

4.0 Project Monitoring Parameters, Acceptable Ranges and Trigger Values

The monitoring parameters, acceptable ranges and trigger values to be adopted for the project are set out in Table 4-1 below. The monitoring parameters included in this SWQ-CMP are those which have the potential to be affected by the project and associated activities. Where site-specific baseline data is available for a relevant parameter, the project acceptable range is based on these vales. Where site-specific baseline data is not available, the project acceptable range is based off analyses of the following sources:

1. Water NSW baseline water quality data
2. WQOs (OEH 2018) and ANZECC Guidelines (ANZECC, 2000)
3. Technical Guidance *for Achieving Wianamatta South Creek Stormwater Management Targets (DPE, 2022)*

Water quality monitoring and testing requirements associated with dewatering activities, including sediment basins, are detailed in the SWGCSP Appendix A – Dewatering Procedure.

4.1 Project Acceptable Ranges

Acceptable ranges for the various water quality parameters to be monitored by the project have been derived by analysis of the available baseline data and are site-specific. Acceptable ranges are used by this SWQ-CMP to set the absolute upper and lower limits for the respective parameters so as to inform and guide the project in terms of responses and reporting when either end of this range is exceeded. The relationship between the project's acceptable ranges and trigger values are such that the latter are set to alert the project when water quality is approaching the absolute limit for a particular parameter/s and that pre-emptive action should be taken to avoid an exceedance of the acceptable range for the site based on trends from baseline datasets. Where site-specific baseline data is not available for a relevant parameter, the project acceptable range is based on corresponding WQOs and ANZECC Guideline values.

The reasons for the selection of, or justifications for any deviations from, the WQOs and ANZECC Guideline values by the project acceptable ranges have been explained in Section 3.0 above. Response actions following exceedance of a project acceptable range for any water quality parameter will depend on the specific parameter and are discussed in Section 6.0.

4.2 Project Trigger Values

Trigger values are values for a set water quality parameter, that when exceeded would indicate the likelihood of a potential environmental problem and so trigger some form of action, to ensure any exceedances are addressed promptly, their true causes rapidly identified, and/or their likelihood minimised. The ANZECC Guidelines describe a process for users to set site-specific trigger values based on local environmental conditions which considers factors such as the variability of the particular ecosystem or environment, soil type, rainfall and level of expected exposure to contaminants based on project activities. Similar to project acceptable ranges, the project trigger values have been determined using this process and the existing site-specific water quality datasets to date.

The reasons for the selection of, or justifications for any deviations from, the WQOs and ANZECC Guideline values by the Project trigger values have been explained in Section 3.0 above. Response actions following exceedance of a Project trigger value for any water quality parameter will depend on the specific parameter and are discussed in Section 6.0.

Table 4.2-1 Adopted Water Quality Assessment Criteria (AWRC)

Water Course	Physicochemical parameter **Note – applicable to the construction phase only**	Project Acceptable Range	Project Trigger Value	
			Lower Level	Upper Level
South Creek	Water pH	6.77 – 8.34	7.28	7.79
	Turbidity (NTU)	0 – 310	0	140
	Dissolved Oxygen (%)	47.25 – 131.2	66.9	101.2
	Conductivity (µS/cm)	352.95 – 2104.25	747	1526
	Total Suspended Solids (TSS) (mg/L) *	0-50	-	40
Kemps Creek	Water pH	6.79 – 7.83	7.41	7.59
	Turbidity (NTU)	0 – 168.5	0	59
	Dissolved Oxygen (%)	41.88 – 97.31	52.6	83.8
	Conductivity (µS/cm)	346.51 – 4117.8	1041	2390
	Total Suspended Solids (TSS) (mg/L) *	0-50	-	40
Badgerys Creek	Water pH	6.98 – 7.66	7.18	7.34
	Turbidity (NTU)	0 – 577.7	0	60
	Dissolved Oxygen (%)	26.15 – 101.02	52.6	83.8
	Conductivity (µS/cm)	356.68 – 2777.8	767	1506
	Total Suspended Solids (TSS) (mg/L) *	0 - 50	-	40

*No baseline data available. Project acceptable range and triggers values are based on the ANZG 80% protection of freshwater species, including ecosystem type (lowland river).

Note – a 10% increase between upstream and downstream monitoring locations is not acceptable and requires action be taken consistently with Section 4.1 of this SW-CMP. This 10% criteria is applicable until sufficient pre-construction monitoring data has been obtained and utilised to inform existing condition and variability within the waterway.

4.2.1 Trigger Values and the Absolute Change in Water Quality at Pipeline Locations

Surface water monitoring locations along the pipeline will occur immediately upstream and downstream of the pipeline crossings identified in Table 5.1-2. Trigger values are based on the absolute change in water quality parameters at the location of the upstream sample point compared to the downstream sample point, with the assessment of water quality results in accordance with the adopted screening criteria (ANZG 80% protection of freshwater species):

- Upstream of crossing AND downstream of crossing LESS THAN assessment criteria will result in no further action;
- Upstream of crossing AND downstream of crossing GREATER THAN assessment criteria undertake further investigation and sampling as required, with reference to Section 5.5.1; and
- Upstream of crossing LESS THAN assessment criteria AND downstream of crossing GREATER THAN assessment criteria = undertake further investigation and sampling as required, with reference to Section 5.5.1.

Table 4.2-2 Adopted Water Quality Assessment Criteria (Pipelines)

Water Course	Physicochemical parameter **Note – applicable to the construction phase only**	Project Acceptable Range	Project Trigger Value	
			Lower Level	Upper Level
South Creek	Water pH	6.77 – 8.34	7.28	7.79

	Turbidity (NTU)	0 – 310	0	140
	Dissolved Oxygen (%)	47.25 – 131.2	66.9	101.2
	Conductivity (µS/cm)	352.95 – 2104.25	747	1526
	Total Suspended Solids (TSS) (mg/L) *	0-50	-	40
Oaky Creek*	Water pH	6.5 – 8.0	6.8	7.7
	Turbidity (NTU)	0 – 50	0	40
	Dissolved Oxygen (%)	85 - 110	90	105
	Conductivity (µS/cm)	125 – 2200	300	2000
	Total Suspended Solids (TSS) (mg/L)	0-50	-	40
Cosgroves Creek*	Water pH	6.5 – 9.0	6.8	7.7
	Turbidity (NTU)	0 – 50	0	40
	Dissolved Oxygen (%)	85 – 110	90	105
	Conductivity (µS/cm)	125 – 2200	300	2000
	Total Suspended Solids (TSS) (mg/L)	0-50	-	40
Nepean River	Water pH	6.78 – 8.32	7.09	7.66
	Turbidity (NTU)	0 – 58.9	0	17.6
	Dissolved Oxygen (%)	79.41 – 114.9	88.9	105.8
	Conductivity (µS/cm)	148.95 – 540.8	191.4	439
	Total Suspended Solids (TSS) (mg/L) *	0 - 50	-	40
Kemps Creek	Water pH	6.79 – 7.83	7.41	7.59
	Turbidity (NTU)	0 – 168.5	0	59
	Dissolved Oxygen (%)	41.88 – 97.31	52.6	83.8
	Conductivity (µS/cm)	346.51 – 4117.8	1041	2390
	Total Suspended Solids (TSS) (mg/L) *	0-50	-	40

*No baseline data available. Project acceptable range and triggers values are based on the ANZG 80% protection of freshwater species, including ecosystem type (lowland river).

Note – a 10% increase between upstream and downstream monitoring locations is not acceptable and requires action be taken consistently with Section 4.1 of this SW-CMP. This 10% criteria is applicable until sufficient pre-construction monitoring data has been obtained and utilised to inform existing condition and variability within the waterway.

5.0 Sample Methodology

5.1 Sample Locations

During construction, monitoring is required to be undertaken upstream and downstream of the works. Upstream sampling must be undertaken as close to, but outside of, the area of influence of the project. Downstream monitoring samples must be undertaken within influence of the discharge of the project where there is sufficient mixing to show the representative impact of any site discharge on the receiving waters, unless this is not possible due to safety issues or if suitable sampling sites are not available.

5.1.1 AWRC

The sampling sites proposed for the project are identified in Figure 5.1-1 below. These monitoring locations have been selected to identify potential water quality impacts on receiving waterways. The sampling sites have been selected outside of the construction footprint, up gradient and down gradient of the project. When the sample is collected on site, work health and safety issues must be taken into consideration in obtaining the sample. This is particularly important prior to and during high rainfall and flooding events. At relevant sampling locations, access will also be subject to landowners' consent for the purpose of obtaining samples.

A total of seven (7) surface water quality monitoring sites and one (1) surface water gauging site will be established for the AWRC site, in addition to the baseline and ongoing monitoring at sites conducted under Sydney Water to provides baseline and operational data for the project. Two of the seven surface water monitoring sites at the AWRC site are nominated for the purpose of wet weather sampling in response to the event triggered sampling requirements discussed in Section 5.4.3.

Table 5.1-1 Surface Water Quality Monitoring Locations (AWRC)

Site Code	Site Description	Easting	Northing
SW01	AWRC site drainage line 1 located downgradient of the site.	33.85518	150.77018
SW02	AWRC site drainage line 2 located downgradient of the site. These locations will only be sampled if there is a damage to the perimeter berm.	33.85543	150.77852
SW03	AWRC site drainage line 3 located downgradient of the site.	33.85406	150.77011
SW04	Additional stormwater control facilities (e.g. sediment ponds) that drain directly to South Creek (to be confirmed based on construction plans) located adjacent the upgradient watershed boundary.	33.85966	150.76794
SW05	Additional stormwater control facilities (e.g. sediment ponds) that drain directly to Kemps Creek. (to be confirmed based on construction plans) located downgradient of the site. These locations will only be sampled if there is a damage to the perimeter berm.	33.85251	150.77414
SW06a	AWRC wet weather sampling only In receiving water above the confluence of site water discharge point (location is indicative and subject to accessibility and safety of sampler). If sampling from this point is not possible, the alternative point SW06c can be used.	33.854340	150.769619
SW06b	AWRC wet weather sampling only In receiving water below the confluence of site water discharge point, but upstream of the AWRC site boundary (location is indicative and subject to accessibility and safety of sampler). If sampling from this point is not possible, the alternative point SW06d can be used.	33.855140	150.769275
SW06c	Alternative AWRC wet weather sampling only Only required if samples from SW06a are not possible. In receiving water above the confluence of site water discharge point (location is indicative and subject to accessibility and safety of sampler)	33.859645	150.768084
SW06d	Alternative AWRC wet weather sampling only Only required if samples from SW06b are not possible. In receiving water below the confluence of site water discharge point, but upstream of the AWRC site boundary (location is indicative and subject to accessibility and safety of sampler).	33.860121	150.769525
SW07	South Creek surveyed stream level gauging point to confirm groundwater flow direction if AWRC_MW04 groundwater drawdown criteria is exceeded.	33.855140	150.769275

Figure 5.1-1 Surface water construction monitoring locations (AWRC) (indicative only and subject to detailed site conditions)

5.1.2 Pipelines

Surface water quality monitoring sites have been nominated for the pipelines relative to the trenched crossing of relevant waterways / drainage channels as detailed in Table 5.1-2. This is due to the trenchless crossings (via HDD) being under-bored at a significant depth below the surface of the ground and at most locations this is greater than 20m with no interaction with surface waters. Table 5.1-2 and Figure 5.1-2 detail these sampling locations; sampling parameters will be via in-situ field measurements only and are included in Section 5.2; and trigger values have been included in Section 4.2.1.

Table 5.1-2 Surface Water Quality Monitoring Locations (pipelines)

Site Code	Site Description	Easting (U - Upstream)	Northing (U - Upstream)	Easting (D – Downstream)	Northing (D – Downstream)
-	Trenched waterway crossings:				
SW08	Treated Water Pipeline - South Creek (chainage 1425m)	33.87081°S	150.77605°E	33.87055°S	150.77582°E
SW09	Treated Water Pipeline – Oaky Creek (chainage 6975m)	33.86925°S	150.72136°E	33.86874°S	150.72123°E
SW10	Treated Water Pipeline – Cosgroves Creek (chainage 7300m)	33.86892°S	150.71777°E	33.86814°S	150.71807°E
SW11	Treated Water Pipeline – Nepean River (chainage 7300m)	-33.860897°S	150.631652°E	-33.861198°S	150.631137°E
SW12	Brine – Drainage line adjacent to Kemps Creek	-33.885556°	150.802226°	-33.885494°	150.801923°

Figure 5.1-2 – Surface water monitoring locations for pipelines

5.2 Parameters

Water sampling will be complemented by visual inspection of the site conditions. In-situ field measurements of the following parameters will be recorded using a calibrated water quality meter at each monitoring site:

- Visual and olfactory indicators (colour, turbidity, odour, sheen, discolouration, free phase liquids, foaming, stressed or dead flora and / or fauna (for example, fish kills);
- Water Temperature (°C);
- pH;
- Electrical Conductivity (µS/cm);
- Dissolved Oxygen (%); and
- Turbidity (NTU).

Representative grab samples will be obtained and submitted to a NATA laboratory for analysis of the following parameters:

- pH;
- salinity as Electrical Conductivity (µS/cm);
- turbidity (NTU); and
- Total Suspended Solids (mg/L).

5.3 Sample Methods

Water quality sampling is to be conducted in accordance with:

- NSW EPA (2022). Approved Methods for the Sampling and Analysis of Water Pollutants in NSW;
- Australian Standard 5667.1:1998 Water Quality – Sampling Guidance on the design of sampling programs, sampling techniques and the preservation and handling of samples;
- Australian Standard 5667.6:1998 Water Quality - Sampling Guidance on sampling of rivers and streams.

Sample containers, chain of custody forms and any required consumables should be obtained prior to sampling from the NATA accredited facility conducting the laboratory analysis. Sample containers will be labelled, with a unique site code, collector's name, date and time. Additional details required by the laboratory facility and chain of custody form are also to be completed. Guidance as to recommendations and requirements for each sample type (i.e. preservatives and holding periods) should be sought from the laboratory conducting the analysis. Where sample preservatives are required, these should be applied in accordance with the laboratory guidelines. Where sample containers already contain preservatives, care must be taken to avoid overfilling or washing out the vessel. Samples must be delivered to the laboratory within the defined holding period. All sample containers for each monitoring site should be filled. Where coolers and ice bricks are supplied, the bricks should be frozen, and samples chilled on collection.

5.3.1 Sampling Equipment

Sampling devices (such as extendable poles, buckets and nets) will be made of materials that do not contaminate, interact with or disturb the sample. Sampling devices will be cleaned between samples to avoid potential cross-contamination and sample containers will be clean; free of contaminants; and made of material chosen according to its interaction with the analyte of interest and the relevant standard (for example, glass, polyethylene, polypropylene or a fluoropolymer (such as polytetrafluoroethylene / PTFE)).

5.3.2 Field Measurements

Water quality meters should be maintained and calibrated according to manufacturer's instructions to ensure the accuracy of the results. Calibration records for water quality meters should be kept on file. The water quality meter probe should be fully submersed and parameter values allowed to stabilise before records are taken, noting that values such as dissolved oxygen are likely to fluctuate around a point and not fully stabilise. Additional detail is summarised below for the purpose of obtaining and handling a sample:

- Immerse a sample bottle by hand (or with sampling pole) to just below the surface (typically 0.25 to 0.50 m depth) and hold the sampler downstream of where the sample is to be collected. If the sampler's hand is covered with a plastic disposable glove, then any contribution from surface films is avoided.
- The sampling equipment should be rinsed at least twice in the water prior to obtaining the sample.
- The sample should be taken away frow the edge targeting an area of high turbulence to avoid sampling of stagnant water.
- If sampling from a low flowing or shallow water body, as practically possible try not to disturb the bottom of the water body.
- Where impractical or for safety reasons a sample cannot be collected directly using a pole, sampling from a bucket may be adopted.

- Field readings can be either taken in-situ from the water body or a grab sample taken and tested within 15 minutes of collection.
- Sampling may be done from the shore or by standing in shallow water. This is subject to safe accessibility of the water source.

5.3.3 Sample Handling

A field record will be completed which describes the field conditions (for example, weather, flow, clarity, etc), sample locations, sampling methods and handling and storage methods, field numbers, date, time, and the identity of sampler.

Quality control procedures will be adhered to, in general compliance with the recommendations of the ANZG/ANZECC. In summary, these include measures such as:

- Sample containers will be provided by the laboratory appropriate for the required analysis;
- Use of powder free nitrile gloves;
- Use of disposable equipment or decontamination between samples;
- Population of a field record noting site conditions;
- Field descriptions of flow; clarity, colour and adjacent site conditions;
- Chain of Custody (CoC) forms listing all samples collected and tests required will be prepared for each batch and submitted to the laboratory.
- Samples will be submitted to a NATA accredited laboratory, accredited for the analyses requested.

5.3.4 QA/QC

As with baseline studies undertaken, ongoing surface water quality monitoring will be subject to the following QAQC sampling regime to be applied for each round of monitoring undertaken:

- Intra laboratory blind duplicate;
- Inter laboratory duplicate;
- Rinsate Blank

All QA/QC samples are to be tested for the same analytical suite as their associated primary samples in accordance with the NEPM (2013). QA/QC samples are to be undertaken once for every 10 samples.

5.4 Sample Frequency and Duration

5.4.1 Monitoring Duration

This SWQ-CMP will be implemented prior to commencement of construction on site and continue until the date of Final Completion (which is the completion of construction). Surface water monitoring will cease at each location only when all construction works with the potential to impact down-gradient water quality have ceased and all exposed/disturbed areas are satisfactorily stabilised as determined by the CPESC.

5.4.2 Routine Sampling

Routine monitoring shall be undertaken:

- AWRC Plant
  As there is a baseflow at South Creek, ambient (dry weather) sampling will occur once per month when there is no rainfall; and increasing to daily in the receiving watercourse where rainfall results in sediment basin discharge.

- AWRC Pipelines
  At pipeline monitoring locations nominated in Table 5.1-2 and where there is baseflow, ambient (dry weather) sampling will occur once per month during and immediately following trenching activities and subject to confirmation from CPESC that stabilisation has been achieved as required.

Ideally, where multiple monitoring events occur in a month, these will be conducted to capture data both before a discharge and after a discharge.

This programmed monthly monitoring will be supplemented by specific wet weather or incident response monitoring, as described in Section 5.4.3.

5.4.3 Event Triggered Sampling

Additional water quality monitoring will be undertaken in response to unplanned events, such as significant rainfall, incidents, substantiated complaints or exceedance of project acceptable ranges or HES basins which discharge during rainfall events (not as a controlled batch release post rainfall event), to gain an understanding of changes to prevailing conditions or impacts to water quality under such circumstances. Event triggered sampling at relevant pipeline monitoring locations nominated in Table 5.1-2, will only occur during the trenching of the waterway and in accordance with the trigger values nominated in Section 4.2.1.

At least one wet weather monitoring event should be undertaken following a substantial rainfall event, defined as greater than 20 millimetres recorded over the course of a 24-hour period. Where reasonable and safe access permits, samples will also be obtained that are representative of discharges from site of a short duration. Wet weather monitoring will provide context for the effects of increased flows and stormwater influences on water quality. Collection of wet weather monitoring samples will be consistent with the sampling methodology outlined in Section 5.3 and outcomes reported in accordance with Section 7. If prolonged periods of rainfall occur additional sampling events are recommended until a cessation of overland runoff from the site. Wet weather monitoring should be undertaken in accordance with the above-described protocol and with a standard report to follow. This report should include a record of any sediment basin discharges during or following the event, due to overflows or planned dewatering.

Should incidents with the potential to impact upon water quality occur, such as sediment basin discharges or fuel spills, post incident monitoring and reporting should be undertaken to identify whether any of the project trigger values or objectives have been exceeded. The accompanying brief report should include a record of any sediment basin dewatering or refuelling undertaken at the time (e.g. pump or refuelling permit).

5.5 Trigger Value Exceedances

In addition to the analysis of water quality trends at and between monitoring sites under this SWQ-CMP, potential water quality issues or impacts will be identified through the exceedance of project trigger values or acceptable ranges. Where exceedances are observed either in the field or upon receipt of laboratory results, these will be investigated immediately upon their discovery using the processes outlined in Sections 5.5.1 and 5.5.2. Such investigations will allow the project to ascertain rapidly whether the exceedance is likely to be a result of project construction or not, and to carry out response actions if required. The effectiveness of construction measures including handling of exceedances and interpretation of associated monitoring result will be completed by a suitable qualified professional as defined in the ISC V2.1 manual.

5.5.1 Identified from Field Results

During water quality sampling, only the field-collected monitoring data can be used to identify trigger value or acceptable range exceedances immediately. Samplers will have ready access to the project's trigger levels and acceptable ranges for all parameters, given these values will be pre-filled in a column of the water quality sampling field sheet. In the case where a measurement is taken for a site, and the value recorded exceeds the trigger value for that parameter, then a rapid targeted assessment will be made by the sampler which notes potential influencing factors, such as the project's activities, weather conditions, water clarity, surface conditions, the presence of any observable oils or grease and changes in site conditions since the last sample was collected. Additional grab sampling upstream may be undertaken to assist with the rapid targeted assessment.

In line with the relevant reporting procedure set out in Section 7.0, this information will then be used by the sampler to complete a trigger value exceedance report using a standalone template established for the project. Following this report, the Environment Manager will also be contacted, and the exceedance report forwarded for consideration and response actions by the project (if required), including all reporting requirements set out in Section 7.0.

5.5.2 Identified from Laboratory Results

Exceedances of trigger values or acceptable ranges for those Project water quality monitoring parameters that must be analysed at a laboratory can only be identified when results are received from the laboratory. As such, interrogation of the laboratory results for any exceedances will be carried out as the first component of the water quality data analysis process, and on the same day as laboratory results are received. In the case where a value recorded by the laboratory exceeds the trigger value for that parameter, then a rapid targeted assessment will be made of the water quality sampling field sheet completed during the respective monitoring event, looking at aspects including weather conditions, water clarity, surface conditions, the presence of any observable oils or grease and changes in site conditions since the last sample was collected.

In line with the relevant reporting procedure set out in Section 7.0, this information will then be used to complete a trigger value exceedance report using a standalone template established for the project. Following this report, the Environment Manager will also be contacted, and the exceedance report forwarded for consideration and response actions by the project (if required), including all reporting requirements set out in Section 7.0.

5.6 Data Analysis

Data analysis of results will commence on the same day as the water quality monitoring event and will include a comparison and interpretation of the field-collected water quality values against the acceptable ranges set out in Table 4.2-1, and against the baseline and other water quality datasets. Importantly, the data analysis will also provide for comparison of overall results between sampling sites and within sampling sites for the project parameters (i.e. upstream to downstream variations). The key outputs will take the form of graphs and charts which will be optimised to best display the specific comparison dataset or parameter for seamless inclusion in reports and easy interpretation by the reader.

It should be noted that if a project trigger value exceedance has already been identified in the field or within results which are received from the laboratory, then the processes outlined in Sections 5.5.1 and 5.5.2, and any further response actions or reporting requirements related to those exceedances will take precedence over standard data analysis as detailed in this section. Standard data analysis will also occur for all collected water samples when results are received from the laboratory.

The standard data analysis process will require all water quality monitoring results to be entered into the project water quality monitoring spreadsheet and each parameter to be plotted to analyse any trends at and between SWQ-CMP monitoring sites. This level of analysis will also assist with the determination of any site-specific relationships between the range of water quality parameters to be monitored for the project.

For parameter-specific analyses, graphs will also include line bars which represent the acceptable ranges, and the Project trigger values for the specific parameter. Graphs which are presented in this format will be included in all reports related to exceedances of trigger values and/or acceptable ranges for the respective parameter/s.

Data analysis of the water quality monitoring results by the Project Environment team will also have the capacity to identify actual or potential ambient water problems which may be attributable to the project, such as elevated levels of turbidity which are unrelated to rainfall or storm events. This level of data analysis will focus on spatial comparisons of the water quality results in question to determine whether project construction is a likely cause. For example, are exceedances or trends recorded across multiple locations or only in close proximity to the project? Such problem identification will guide the project in the further assessment and management of water quality problems which are confirmed as attributable to the project.

6.0 Project Response and Actions

Exceedances of the project trigger values, or acceptable range values will initiate the actions set out in Table 6.1-1 below and will initially involve further examination of the monitoring results to ascertain whether the exceedance may be a result of natural prevailing conditions or due to project construction. The exceedance levels and relevant parameters will also be recorded and displayed in the associated report (refer Section 7.0).

6.1 Project Trigger Value and Acceptable Range Exceedance

Where a project trigger value exceedance is identified in the field or within results which are received from the laboratory then the processes outlined in Sections 5.5.1 and 5.5.2 will be carried out immediately. Response actions to be implemented by the project are described in Table 6.1-1 below. Note, interpretation of all monitoring results will be undertaken by a suitable qualified person as defined in ISC V2.1 manual.

Table 6.1-1 Project responses to Project trigger level and acceptable range exceedances

Exceedance Scenario	Corrective Action	Timing
1. Project trigger level exceeded – Deemed <u>not attributable</u> to Project	1. Continue monitoring in line with SWQ-CMP frequencies 2. Reporting as required in accordance with the trigger value exceedance form (refer Section 5.5.1).	N/A
2. Project trigger level exceeded – Deemed attributable to Project	1. Inform Project team. 2. Assess all relevant work practices and environmental controls - **Direct changes or install additional controls as required** 3. Carry out additional field monitoring following 2., only at site/s where exceedance observed 4. Carry out additional sample collection (if reqd.) following 2., only at site/s where exceedance observed 5. If parameter/s observed to drop below trigger level/s after 3. or 4. continue monitoring in line with SW-CMP frequencies. 6. If parameter/s continue to rise and exceed acceptable range action Exceedance Scenario 4 7. Reporting as required in accordance with the trigger value exceedance form (refer Section 5.5.1).	Until parameter/s return to below Project trigger level/s or Exceedance Scenario 4 is actioned.
3. Project acceptable range exceeded – Deemed not attributable to Project	1. Continue monitoring in line with SWQ-CMP frequencies 2. Reporting as required including completion of water quality monitoring record and communicate to the project management team.	N/A
4. Project acceptable range exceeded – Deemed attributable to Project	1. Inform Project team, including Sydney Water representatives 2. If underway, stop work in all areas with potential to impact surface waters 3. Assess all relevant work practices, environmental controls and locate the source of the problem causing exceedance - **Direct changes or install additional controls as required** 4. Carry out additional field monitoring following 3., only at site/s where exceedance observed 5. Carry out additional sample collection (if reqd.) following 3., only at site/s where exceedance observed 6. If parameter/s observed to drop below trigger level/s after 4. or 5. continue monitoring in line with SWQ-CMP frequencies. 7. If parameter/s continue to rise stop all in-water works and all relevant work practices until the source of the exceedance has been located and rectified.	Until parameter/s return to below Project trigger level/s.

Exceedance Scenario	Corrective Action	Timing
	8. Reporting as required. Note that for project acceptable range exceedances that are attributable to the project, these will be managed and reported in accordance with Section 3.7 of the CEMP (Emergency & Incident Planning).	

7.0 Reporting

7.1 Report Format

The SWQ-CMP reports are to include the following information:

- Date, time, personnel, and location of collection of sample result.
- Weather within 24hrs and at time of sampling;
- Physical observations (colour, clarity, sheen, odour, discolouration, free phase liquids or foaming of the water);
- Evidence of stressed or dead flora and / or fauna;
- Records of site activities at the time of sampling, including description of any discharge events, contamination events, complaints, and activities or observations which may influence water quality;
- Comparison of results against project criteria and previous results;
- Photographic record of site conditions;
- Field measurements;
- Equipment calibration records;
- NATA laboratory Chain of Custody (COC) and Certificates of Analysis (COA).
- Details of any follow up activities required or undertaken.

This information will be maintained on site with project records.

7.2 Review and Improvement

An adaptive management approach is to be employed in respect of the works forming part of this SWQ-CMP. This approach involves an integrated process of monitoring, reviewing and then responding to the relative water quality conditions surrounding the project footprint to identify any alterations to the monitoring or impact mitigation measures that may be required to ensure that the objectives of the SWQ-CMP are achieved.

7.3 Reporting Frequency and Submission

The results of the SWQ-CMP must be submitted to the Planning Secretary, and relevant regulatory agencies, for information in the form of a Construction Monitoring Report (CMR). CMR will be submitted six-monthly to Planning Secretary and relevant agencies using a reporting form generated by the project.

A monitoring report will be prepared after each event to review compliance, including:

- Routine sampling (Section 5.4.2)
- Event triggered sampling (Section 5.4.3)
- Trigger value exceedances (field results and laboratory results (Section 5.5)

A summary of the monitoring results shall be included within the routine (i.e. monthly) reports provided to the Sydney Water and the ER. A copy of the trigger value exceedance report will be provided to the EPA for information. As detailed in the SWGCSP Appendix A – Dewatering Procedure, environmental monitoring data required by EPL 21800 will made available to the public within 14 days of obtaining the data.

8.0 Responsibilities

Responsibilities for each task within the water quality monitoring program are defined in Table 7.3-1 below.

Table 7.3-1 SWQ-CMP Responsibilities

Task	Responsibility
Implementation of the surface water quality construction monitoring program	JH Environmental Manager / JH Construction Manager
Field monitoring and report preparation	JH Environment Manager / Project Environmental Scientist / Specialists (as required)
Provision of reports to the *Planning Secretary*, and relevant *regulatory agencies* and relevant Authorities	JH Environment Manager
Investigation & reporting of exceedances of adopted assessment criteria	JH Environment Manager / Project Environmental Scientist / Specialists (as required)

9.0 References

ANZECC 2000. Australian Water Quality Guidelines for Fresh and Marine Waters. National Water Quality Management Strategy. Australian and New Zealand Environment and Conservation Council, Canberra.

ANZG (2018). Australian and New Zealand Guidelines for Fresh & Marine Water Quality.

Australian Government (2022). National Health & Medical Research Council. National Resource Management Ministerial Council. National Water Quality Strategy. Australian Drinking Water Guidelines 2011 (v3.8 updated 2022).

Australian Standard AS/NZS 5667.1 1998 – Water quality – Sampling - Guidance on the design of sampling programs, sampling techniques and the preservation and handling of samples.

EPA (2013) Requirements for publishing pollution monitoring data

Landcom 2004. Managing urban stormwater: soils and construction 'Blue Book'. Volume 1, 4th edition, Sydney.

NSW EPA 2022. Approved Methods for the Sampling and Analysis of Water Pollutants in NSW. ISBN 978 1 922447 38 8.

Appendix F: Groundwater Construction Monitoring Program

Upper South Creek

Advanced Water Recycling Centre and Pipelines

Surface Water & Groundwater

CEMP Sub-plan

Appendix F - Groundwater Construction Monitoring Program

Recommend Documents to be Read in Conjunction

This monitoring program is to be read in conjunction with the Construction Environmental Management Plan (USCP-JHG-MPL-ENV-0008), Soils & Contamination CEMP Sub-plan (USCP-JHG-MPL-ENV-0003) and Biodiversity CEMP Sub-plan (USCP-JHG-MPL-ENV-0004).

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 lettering commencing at Revision A. Revision letters shall commence at Rev. A, B etc.

Date	Rev	Details Of Change	Section	Prepared By	Reviewed & Approved By
14/02/2023	01	Initial draft for John Holland and SWC review	All	RL / ML	AH
31/03/2023	02	Updated to incorporate SWC final comments	All	RL / ML	AH
25/05/2023	03	Updated to incorporate ER and agency comments	All	RL / ML / WC	AH
13/06/2023	04	Updated to incorporate ER comments	All	MS	AH
11/07/2023	05	Updated to incorporate DPE review comments	All	MS / AH	AH
24/07/2023	06	Updated to incorporate DPE review comments	All	MS / AH	AH
02/08/2023	07	Updated to address DCCEEW comments	All	CC / AH	AH
22/08/2023	A	Issued for construction	All	MS	DOB
12/01/2024	B	Minor update to Section 5.1 and 7.3	Section 5.1 and 7.3	RM	AH

Table of Contents

1.0 INTRODUCTION 4
1.1 Objectives 4
1.2 Scope of this Program 4
1.3 Project Background 4
1.3.1 Groundwater Impact Assessment (EIS Appendix H) 5
2.0 CONSULTATION 6
3.0 GROUNDWATER QUALITY GUIDELINES 7
3.1 ANZG Guidelines 7
3.2 Wianamatta - South Creek Stormwater Management Targets 8
3.3 Baseline Data 8
4.0 PROJECT MONITORING PARAMETERS, ACCEPTABLE RANGES AND TRIGGER VALUES. 12
4.1 Project Acceptable Ranges 12
4.2 Project Trigger Values 12
5.0 SAMPLE METHODOLOGY 15
5.1 Sample Locations 15
5.2 Parameters 18
5.3 Sample Methods 18
5.3.1 Field Measurements 19
5.3.2 Sample Handling 19
5.3.3 QAQC 19
5.4 Monitoring Frequency and Duration 19
5.4.1 Monitoring Duration 19
5.4.2 Routine Monitoring 19
5.4.3 Event Triggered Sampling 20
5.5 Trigger Value Exceedances 20
5.5.1 Identified from Field Results 21
5.5.2 Identified from Laboratory Results 21
5.6 Data Analysis 21
6.0 PROJECT RESPONSE AND ACTIONS 22
6.1 Project Trigger Value Exceedance 22
7.0 REPORTING 23
7.1 Report Format 23
7.2 Review and Improvement 23
7.3 Reporting Frequency and Submission 23
8.0 RESPONSIBILITIES 24
9.0 REFERENCES 25

LIST OF TABLES, FIGURES & APPENDICES

TABLES

Table 3-1 Assessment Guidelines 7
Table 3-2 Construction phase stormwater quality targets 8
Table 3-3: Initial Screening Results - Bringelly Shale 9
Table 3-4: Initial Screening Results - Alluvial/residual soils 10
Table 4-1 Adopted Groundwater Quality Assessment Criteria 13
Table 5-1: Summary of existing groundwater monitoring wells at the AWRC site 16
Table 6-1 Project responses to Project trigger level and acceptable range exceedances 22
Table 8-1 GW-CMP Responsibilities 24

FIGURES

Figure 3-1 Baseline Monitoring Location Map (Source Aurecon 2022)

1.0 Introduction

This Groundwater Construction Monitoring Program (GW-CMP) forms part of the Surface Water and Groundwater CEMP Sub-plan (SWGCSP) for the Upper South Creek Advanced Water Recycling Centre (AWRC) and Pipelines Project (the project).

This monitoring program has been prepared to address the Ministers Conditions of Approval (CoA) requirements (C13-C18) for a Groundwater Construction Monitoring Program, and any relevant conditions of the Environmental Protection License John Holland will obtain for the project.

1.1 Objectives

The objective of this GW-CMP is to establish a robust groundwater quality monitoring program utilising Specific, Measurable, Achievable, Realistic and Timely (SMART) principles for construction of the Project, including:

- Preconstruction monitoring to support establishment of a baseline data set;
- Identify if impacts of groundwater water quality are occurring as the result of construction activities;
- Trigger additional mitigation measures where the results of the monitoring indicate unacceptable project impacts; and
- Demonstrate compliance with legal and other monitoring requirements, including groundwater quality criteria and/or targets for the project.

1.2 Scope of this Program

The scope of this program is to document the activities required for groundwater monitoring to support the construction phase of the project. The plan does not address the operational phase of the project. Requirements for surface water quality monitoring are outlined in Annexure E of the SWGCSP. The following points outline the key tasks for this program:

- Outlines consultation to be undertaken in relation to the GW-CMP;
- Outline the monitoring requirements documented in the project EIS, and Amendment reports;
- Provide a summary of baseline data available to the project prior to commencement of construction, and identify requirements for collection of supplementary baseline data to be obtained and when;
- Conduct pre-commencement site inspections to ground truth monitoring locations and access suitability;
- Outlines the site specific surface water quality monitoring and sample regime, including:
  - Sample locations;
  - Parameters to be monitored;
  - Sample methods;
  - Sample frequencies (routine and event based);
  - Monitoring duration;
  - Assessment Criteria;
  - Analysis methods;
  - Reporting requirements and record keeping; and
- Documents procedures to identify and implement additional mitigation measures where the results of the monitoring indicate unacceptable project impacts.

1.3 Project Background

A comprehensive project description, including staging of the project, is outlined in Sections 1.1 to 1.3 of the CEMP. Figures 1-1 and 1-2 in the CEMP include an overview of the Project site and associated pipelines. The specialist assessment reports contained within the EIS provide recommendations for monitoring during the construction phase and are summarised in the following sections.

1.3.1 Groundwater Impact Assessment (EIS Appendix H)

Section 9 identifies the following mitigation measures with regard to potential impacts resulting from induced drawdowns from required dewatering activities, reducing the availability of groundwater for GDEs and surrounding groundwater users at the AWRC Site:

- Develop a risk-based approach to assess drawdowns and impacts to South Creek during construction at the AWRC. This approach should include:
    - Monitoring the difference in elevation between South Creek and groundwater levels to verify the predicted drawdowns and assess the magnitude of impacts to South Creek;
    - Identify trigger values to assess if groundwater elevations between the bioreactor and South Creek drop below the water elevation in South Creek for a sustained period. For example, if a drawdown greater than 1.5 m is observed in MW04, this would indicate a flow reversal at the riverbed is occurring (based on surveyed elevation of water levels in South Creek and the simulated pre-development groundwater levels indicated in Figure 7-2). The 1.5 m drawdown trigger at MW04 is based on the surveyed water level of 34 mAHD (observed on 7th July 2020) and the modelled groundwater level of 35.4 mAHD midway between the eastern bioreactor and South Creek.

Section 10 recommends the following monitoring regime:

Monitoring should incorporate pre-construction monitoring of groundwater conditions to form a baseline dataset to which the construction and operational monitoring data could be compared against. The baseline dataset would assist in developing site-specific action levels and responding to any identified impacts during construction and operation.

The groundwater monitoring program will include monitoring of groundwater levels and water quality sampling for the following general water quality indicators:

- Field measured physiochemical parameters (electrical conductivity, pH, turbidity, temperature, dissolved oxygen and redox potential);
- Total dissolved solids (TDS);
- Total suspended solids (TSS);
- Nutrients (including ammonia, nitrate, nitrite, total nitrogen and total phosphorous);
- Major ions (chloride, sulfate, sodium, potassium, magnesium, calcium, carbonate and bicarbonate); and
- Other contaminants/ toxicants of concern where applicable (e.g. heavy metals, hydrocarbons, biological constituents etc. See soils and contamination specialist report for further details).

The frequency, locations and water quality indicators for groundwater monitoring would be confirmed during detailed design.

Reporting of groundwater level and quality monitoring against site-specific guideline values should be conducted after each monitoring event throughout the establishment of the baseline dataset, during construction and during operation.

2.0 Consultation

The following consultation relevant to this GW-CMP is required by the CoA for the project:

C13 The following Construction Monitoring Programs must be prepared in consultation with the relevant government agencies identified for each to compare actual performance of construction of Stage 1 of the CSSI against the performance predicted in the documents listed in Condition A1 or in the CEMP:
(a) groundwater – Agencies to be consulted: EPA and DPE Water.

Consultation requirements for the GW-CMP will be undertaken concurrently with the Surface Water & Groundwater CEMP Sub-plan, as permitted under CoA C18 whereby, the project has incorporated the relevant construction monitoring program into a relevant CEMP sub-plan where it exists. Government agencies to be consulted with under CoA C4 for the SWGCSP also addressed the consultation requirements for the GW-CMP under C13. A CoA A9 Consultation Summary Report will be prepared and will be available in Appendix C of the SWGCSP to address consultation of both documents.

This GW-CMP will be endorsed by the ER and then submitted to the Planning Secretary for approval no later than one (1) month before the commencement of construction, or where construction is staged, no later than one month before the commencement of each stage. Construction must not commence until this construction monitoring program has been approved by the Planning Secretary and all relevant baseline data for the specific construction activity has been collected.

Note, this monitoring program has been prepared and reviewed by a suitable qualified person as defined in the ISC V2.1 manual.

2.1 Legislative and Guidance Requirements

2.1.1 Minister's Conditions of Approval

Table 2-1 Minister's Conditions of Approval

Condition	Condition Requirement	Document Reference
C14	Each Construction Monitoring Program (CMP) must have consideration of SMART principles and provide: *a. details of baseline data available;* *b. details of baseline data to be obtained and when;* *c. details of all monitoring of the project to be undertaken;* *d. the parameters of the project to be monitored;* *e. the frequency of monitoring to be undertaken;* *f. the location of monitoring;* *g. the reporting of monitoring results and analysis results against relevant criteria;* *h. details of the methods that will be used to analyse the monitoring data;* *i. procedures to identify and implement additional mitigation measures where the results of the monitoring indicate unacceptable project impacts; and* *j. any consultation to be undertaken in relation to the monitoring programs*	Section 3.3 Section 4 Section 5
C15	The CMP(s) 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 2
C16	Construction must not commence until the relevant CMP(s) have been approved by the Planning Secretary and all relevant baseline data for the specific construction activity has been collected.	Section 2
C17	The CMP(s), as approved, including any minor amendments approved by the ER, must be implemented for the duration of construction and for any longer period set out in the monitoring program or specified by the Planning Secretary, whichever is the greater.	Section 2
C18	The results of the CMP(s) must be submitted to the Planning Secretary, and relevant regulatory agencies, for information in the form of a Construction Monitoring Report at the frequency identified in the relevant CMP.	Section 2

3.0 Groundwater Quality Guidelines

The sections below summarise the current guidelines relevant to groundwater considerations for the project as per the nationally developed guidelines for water quality outlined in the National Water Quality Management Strategy (NWQMS). A summary of these is presented in Table 3-1 below.

Table 3-1 Assessment Guidelines

Environmental Value	Relevant Guideline
Ecosystems / Health Screening Levels	• DPE (2022) Technical guidance for achieving Wianamatta South Creek stormwater management targets; • ANZG 2018. Australian and New Zealand Guidelines for Fresh and Marine Water Quality. Australian and New Zealand Governments and Australian state and territory governments, Canberra ACT, Australia; • NEPC (2013). National Environment Protection (Assessment of Site Contamination) Measure 1999 as amended 2013; and • CRC CARE (2011). Technical Report 10: Health screening levels for petroleum hydrocarbons in soil and groundwater.
Groundwater	• NSW EPA (2007). Guidelines for the Assessment and Management of Groundwater Contamination. • Australian Government (2013) Guidelines for Groundwater Quality Protection in Australia
Drinking Water	• HMRC, NRMMC (2011) Australian Drinking Water Guidelines Paper 6 National Water Quality Management Strategy. National Health and Medical Research Council, National Resource Management Ministerial Council, Commonwealth of Australia, Canberra.
Recreational Use	• National Health and Medical Research Council (2008). Guidelines for managing risks in recreational water.
Rural land uses	• NWQMS (2000). Rural land uses and water quality (historical guidelines).
Effluent Irrigation	• NSW EPA (2004) Use of effluent by irrigation.

3.1 ANZG Guidelines

The Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZG;2018) provides users with a step-by-step approach to protect the community values of waterways.

The ANZG (2018) provide Default Guideline Values (DGVs) for four (4) levels of protection categorised by the percent of species possibly affected, being 80%, 90%, 95% or 99% of species. Where DGVs are not available reference is made against the former ANZECC (2000) Trigger Values (TV). Based on the site history of rural land use and disturbance this plan recommends assessment for aquatic ecosystems based on the 95 per cent of species level of protection.

Where the project EPL conditions of consent or the relevant EIS planning documents (detailed in CoA A1) do not dictate limits, this program has adopted the assessment criteria considered most appropriate for the contaminants of concern, based on the receiving freshwater environments and the historical level of disturbance at the project area.

3.2 Wianamatta - South Creek Stormwater Management Targets

Construction phase stormwater quality targets are provided for development sites >2,500 m^2.

The targets are provided to strengthen provisions in the Blue Book for controlling sediment during the construction phase of the development and provide advice to achieve compliance.

Table 3-2 Construction phase stormwater quality targets

Parameter	Target
Total suspended solids (TSS) and pH	All exposed areas greater than 2,500 m^2 are to be provided with sediment controls that are designed, implemented and maintained to a standard that would achieve treatment of at least 80% of the average annual runoff volume of the contributing catchment (i.e. 80% hydrological effectiveness) to 50 mg/L TSS or less, and pH in the range (6.5–8.5). No release of coarse sediment is permitted for any construction or building site. Sites less than 2,500 m^2 are required to comply with the requirements of the Blue Book.
Oil, litter and waste contaminants	No release of oil, litter or waste contaminants
Stabilisation	Prior to completion of works for the development, and prior to removal of sediment controls, all site surfaces are to be effectively stabilised including all drainage systems. An effectively stabilised surface is defined as one that does not or is not likely to result in visible evidence of soil loss caused by sheet, rill or gully erosion or lead to sedimentation and water contamination.

Source: Table 2 DPE (2022) Technical guidance for achieving Wianamatta South Creek stormwater management targets.

3.3 Baseline Data

Baseline groundwater quality monitoring events were conducted by Aurecon at the AWRC site on the 31st of August 2021 (during dry conditions), 12th November 2021 (during wet conditions) and 14th March 2022 (during significantly wet conditions).

Figure 3-1 shows the baseline monitoring location for groundwater. The following parameters/analytes were tested for:

- Field measured physio-chemical parameters (pH, turbidity, electrical conductivity, redox, temperature, dissolved oxygen) in additional to observed visible characteristics and/or odours.
- Total dissolved solids (TDS).
- Nutrients (including ammonia, nitrate, nitrite, total nitrogen and total phosphorous).
- Major ions (chloride, sulfate, sodium, potassium, magnesium, calcium, carbonate and bicarbonate).
- Heavy metals (As, Cd, Cr, Cu, Pb, Hg, Ni and Zn) and polycyclic aromatic hydrocarbons (PAHs).

A summary of the initial screening results presented by Aurecon (2022), grouped into the previously defined hydrostratigraphic units, are provided below in Table 3-3 for Bringelly Shale (MW01, MW02D, MW03D, MW05D and MW07D) and Table 3-4 for

Alluvial/ residual soils (MW02S, MW03S, MW04, MW05S, MW06 and MW07S).

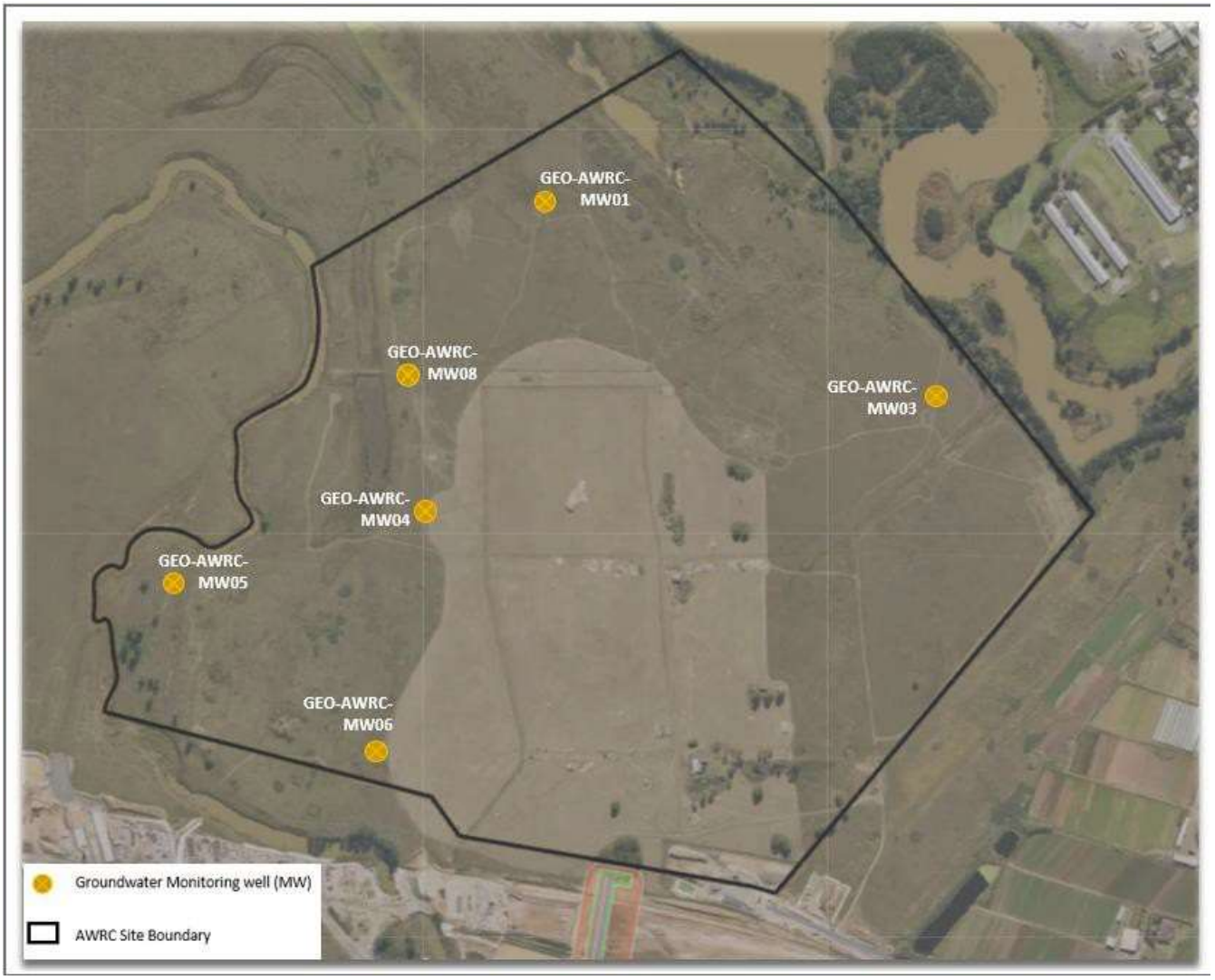


Figure 3-1 shows the distribution of monitoring bores across the AWRC area. Monitoring sites MW02, MW03, MW05 and MW07 are nested piezometers and have both an alluvial/residual (suffix S) and Bringelly Shale (suffix D) monitoring bore at each mapped location. MW07 and MW02 has been decommissioned due to works taking place in close proximity.

It is noted that only three (3) rounds of sampling have been undertaken on the AWRC project to provide a baseline of groundwater quality and occurrence at the project site. As such, John Holland will undertake additional rounds of monitoring to develop a more robust baseline dataset prior to the commencement of construction.

Table 3-3: Initial Screening Results - Bringelly Shale

Parameter	Number of Bores	Sample Size	Lowest Recorded Value	Highest Recorded Value	Mean	Groundwater Quality Objective Value
Groundwater Elevation (mAHD)	5	14	34.27	37.39	35.778	-
Dissolved Oxygen (ppm)	5	14	**0.65**	**6.32**	**3.432**	7 – 11
EC Field Measurement (µs/cm)	5	14	195.6	**20241**	**6855.743**	<2200
pH Field Measurement (pH units)	5	14	**6.42**	7.83	7.009	6.5 – 8.5
Redox Potential Field Measurement (mV)	5	14	-24.5	190.4	56.886	-
Temperature (°C)	5	14	15.5	21.3	19.300	-
Alkalinity (total) as CaCO3 (mg/L)	5	14	21	850	318.429	-
Ammonia as N (mg/L)	5	14	<0.01	**3.3**	0.913	<2.3
Hardness as CaCO3 (filtered) (mg/L)	5	14	59	3410	1241.857	-
Nitrate (as N) (mg/L)	5	14	0.01	9.76	1.088	-
Nitrite (as N) (mg/L)	5	14	<0.01	<0.01	<0.01	-
Nitrogen (Total) (mg/L)	5	14	**0.6**	**11.8**	**2.721**	<0.5
Phosphorus (mg/L)	5	9	0.04	0.29	0.118	<0.5
Reactive Phosphorus as P (Orthophosphate as P) (mg/L)	5	14	<0.01	0.29	0.108	-
TDS (mg/L)	5	14	182	**17100**	**6169.071**	<1500
Barium (filtered) (mg/L)	5	14	0.022	57.8	6.122	-
Beryllium (filtered) (mg/L)	5	14	<0.001	<0.001	<0.001	-
Cobalt (filtered) (mg/L)	5	14	**0.003**	**0.072**	**0.021**	<0.0014
Manganese (filtered) (mg/L)	5	14	0.017	**24**	2.607	<3.6
Selenium (filtered) (mg/L)	5	14	<0.01	<0.01	<0.01	<0.0034
Vanadium (filtered) (mg/L)	5	14	**0.01**	**0.01**	**0.010**	<0.006
Boron (filtered) (mg/L)	5	14	<0.05	<0.05	<0.05	-
Arsenic (filtered) (mg/L)	5	14	0.001	0.015	0.005	<0.36
Cadmium (filtered) (mg/L)	5	14	<0.0001	0.0002	0.0001	<0.0008
Chromium (III+VI) (filtered) (mg/L)	5	14	<0.001	0.01	0.005	<0.04
Copper (filtered) (mg/L)	5	14	0.002	**0.01**	**0.005**	<0.0025
Lead (filtered) (mg/L)	5	14	<0.001	**0.014**	**0.006**	<0.0094
Mercury (filtered) (mg/L)	5	14	<0.0001	<0.0001	<0.0001	<0.0054
Nickel (filtered) (mg/L)	5	14	0.002	**0.028**	0.011	<0.017
Zinc (filtered) (mg/L)	5	14	0.005	**0.18**	**0.070**	<0.031
PAHs (Sum of total) (µg/L)	5	14	<0.5	<0.5	<0.5	<0.01

Table 3-4: Initial Screening Results - Alluvial/residual soils

Parameter	Number of Bores	Sample Size	Lowest Recorded Value	Highest Recorded Value	Mean	Groundwater Quality Objective Value
Groundwater Elevation (mAHD)	6	17	34.26	37.926	36.582	-
Dissolved Oxygen (ppm)	6	17	**1.4**	8.38	**3.512**	7 – 11
EC Field Measurement (µs/cm)	6	17	117.3	**25974**	**6833.471**	<2200
pH Field Measurement (pH units)	6	17	**5.74**	8.04	6.848	6.5 – 8.5
Redox Potential Field Measurement (mV)	6	17	-13.2	138.2	73.694	-
Temperature (°C)	6	17	15.5	23.2	19.359	-
Alkalinity (total) as CaCO3 (mg/L)	6	17	23	418	106.412	-
Ammonia as N (mg/L)	6	15	0.01	0.48	0.087	<2.3
Hardness as CaCO3 (filtered) (mg/L)	6	17	8	3530	731.529	-
Nitrate (as N) (mg/L)	6	17	0.02	9.36	1.115	-
Nitrite (as N) (mg/L)	6	17	<0.01	0.01	0.010	-
Nitrogen (Total) (mg/L)	6	17	0.4	**11**	**2.393**	<0.5
Phosphorus (mg/L)	6	11	0.02	**2.15**	0.468	<0.5
Reactive Phosphorus as P (Orthophosphate as P) (mg/L)	6	17	<0.01	0.43	0.138	-
TDS (mg/L)	6	17	59	**18500**	**5042.765**	<1500
Barium (filtered) (mg/L)	6	17	0.037	0.725	0.176	-
Beryllium (filtered) (mg/L)	6	17	0.001	0.001	0.001	-
Cobalt (filtered) (mg/L)	6	17	0.001	**0.113**	**0.025**	<0.0014
Manganese (filtered) (mg/L)	6	17	0.021	**11.2**	2.431	<3.6
Selenium (filtered) (mg/L)	6	17	<0.01	<0.01	<0.01	<0.0034
Vanadium (filtered) (mg/L)	6	17	**0.01**	**0.03**	**0.023**	<0.006
Boron (filtered) (mg/L)	6	17	0.09	0.11	0.100	-
Arsenic (filtered) (mg/L)	6	17	0.001	0.005	0.003	<0.36
Cadmium (filtered) (mg/L)	6	17	**0.0001**	**0.0013**	0.0005	<0.0008
Chromium (III+VI) (filtered) (mg/L)	6	17	0.002	**0.022**	0.009	<0.04
Copper (filtered) (mg/L)	6	17	0.001	**0.021**	**0.007**	<0.0025
Lead (filtered) (mg/L)	6	17	0.002	**0.016**	0.007	<0.0094
Mercury (filtered) (mg/L)	6	17	<0.0001	<0.0001	<0.0001	<0.0054
Nickel (filtered) (mg/L)	6	17	0.003	**0.032**	0.010	<0.017
Zinc (filtered) (mg/L)	6	17	0.013	**0.471**	**0.079**	<0.031
PAHs (Sum of total) (µg/L)	6	17	<0.5	<0.5	<0.5	<0.01

Based on the results of the baseline groundwater monitoring program, Aurecon presented the following conclusions:

Groundwater quality data showed exceedances of the adopted groundwater quality objectives for various metals (copper, manganese, lead, cadmium, nickel, zinc), ammonia (as N), electrical conductivity, total nitrogen, total phosphorus and pH.

The source of the exceedances for various metals, such as Mn, are likely background derived and attributable to the natural soil landscape/geology at the site (i.e. from the Wianamatta Shale), rather than anthropogenic contamination. The source of exceedances for nutrients (ammonia, nitrogen and phosphorus) are likely attributable to the site's history of agricultural land usage and the application of fertilisers.

Based on an initial screening of groundwater quality outlined above, the wastewater generated from dewatering activities at the AWRC site is unlikely to be suitable for discharge into a receiving surface water body (e.g. South Creek) or stormwater collection system without treatment.

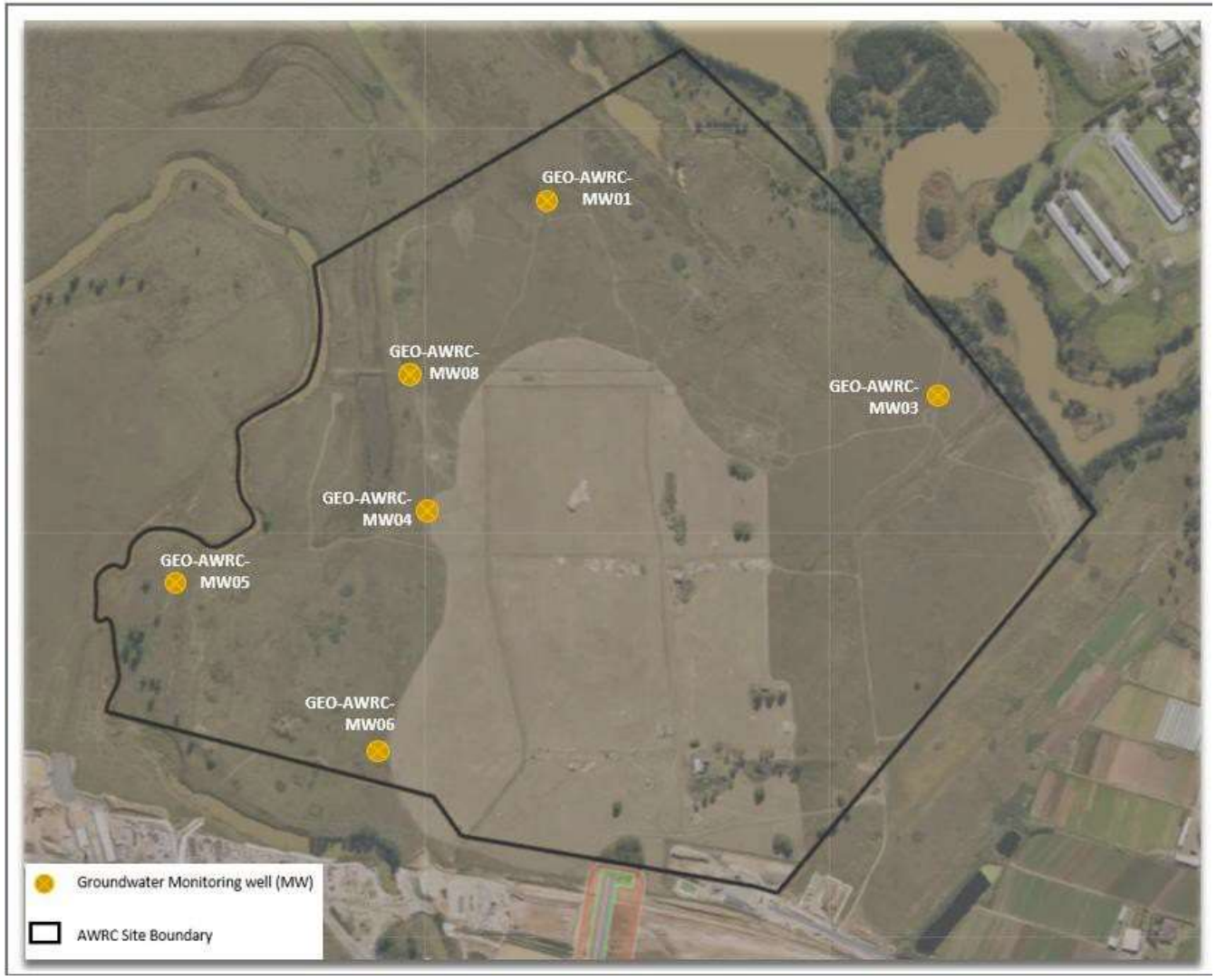


Figure 3-1 Monitoring Location Map (also to be implemented during construction)

4.0 Project Monitoring Parameters, Acceptable Ranges and Trigger Values

The monitoring parameters, acceptable ranges and trigger values to be adopted for the project are set out in Table 4-1 below. The monitoring parameters included in this GW-CMP are those which have the potential to be affected by the project and associated activities. Groundwater monitoring parameter for the project are derived from baseline data as summarised in Section 3.3.

4.1 Project Acceptable Ranges

Acceptable ranges for the various groundwater quality parameters to be monitored by the project have been derived by analysis of the available baseline data and are site-specific. Acceptable ranges are used by this GW-CMP to set the absolute upper (80th percentile) and lower limits (20th percentile) for the respective parameters so as to inform and guide the project in terms of responses and reporting when either end of this range is exceeded. The relationship between the project's acceptable ranges and trigger values are such that the latter are set to alert the project when groundwater quality is approaching the absolute limit for a particular parameter/s and that pre-emptive action should be taken to avoid an exceedance of the acceptable range for the site based on trends from baseline datasets.

The reasons for the selection of, or justifications for any deviations from, the WQOs and ANZECC Guideline values by the project acceptable ranges have been explained in Section 3.0 above. Response actions following exceedance of a project acceptable range for any groundwater quality parameter will depend on the specific parameter and are discussed in Section 7.0.

4.2 Project Trigger Values

Trigger values are values for a set groundwater quality parameter, that when exceeded would indicate the likelihood of a potential environmental problem and so trigger some form of action, to ensure any exceedances are addressed promptly, their true causes rapidly identified, and/or their likelihood minimised. The ANZECC Guidelines describe a process for users to set site-specific trigger values based on local environmental conditions which considers factors such as the variability of the particular ecosystem or environment, soil type, rainfall and level of expected exposure to contaminants based on project activities. Similar to project's acceptable ranges, the project trigger values have been determined using this process and the existing site-specific water quality datasets to date.

The reasons for the selection of, or justifications for any deviations from, the WQOs and ANZECC Guideline values by the project trigger values have been explained in Section 3.0 above. Response actions following exceedance of a Project trigger value for any groundwater quality parameter will depend on the specific parameter and are discussed in Section 3.0.

Table 4-1 Adopted Groundwater Quality Assessment Criteria

Hydrostratigraphic Unit	Physicochemical parameter Note – applicable to the construction phase only	Project Acceptable Range	Project Trigger Value	
			Lower Level	Upper Level
Alluvial / residual soils	Depth to Water (mbTOC)	MW04 <1.5m deviation from minimum recorded baseline value	n/a	n/a
	pH	5.74 – 8.04	6.158	7.292
	Electrical conductivity (µs/cm)	117.3 – 25974	570.2	14700
	Suspended Solids (TSS) (mg/L)	0 - 50	n/a	n/a
	Dissolved oxygen (% Saturation)	1.4 – 8.38	1.718	4.98
	Total Dissolved Solids (TDS)	59 - 18500	386.4	14660
	Ammonia (mg/L)	0.01 – 0.48	0.02	0.094
	Total Phosphorus (mg/L)	0.2 – 2.15	0.03	0.686
	Total Nitrogen (mg/L)	0.4 - 11	0.56	3.4
	Arsenic (filtered) (mg/L)	0.001 – 0.005	0.0014	0.0042
	Cadmium (filtered) (mg/L)	0.0001 – 0.0013	0.0001	0.00098
	Chromium (filtered) (mg/L)	0.002 – 0.022	0.0028	0.0188
	Copper (filtered) (mg/L)	0.001 – 0.021	0.003	0.015
	Lead (filtered) (mg/L)	0.002 – 0.016	0.0028	0.0136
	Mercury (filtered) (mg/L)	<0.0001		<0.0001
	Nickel (filtered) (mg/L)	0.003 – 0.032	0.004	0.0152
	Zinc (filtered) (mg/L)	0.013 – 0.471	0.017	0.0976
	Polycyclic Aromatic Hydrocarbons (PAHs) (µg/L)	<0.5	-	<0.5
Bringelly Shale	pH	6.42 – 7.83	6.59	7.49
	Electrical conductivity (µs/cm)	195.6 – 20241	811	19426.5
	Suspended Solids (TSS) (mg/L)	0 - 50	n/a	n/a
	Dissolved oxygen (% Saturation)	0.65 – 6.32	1.12	5.03
	Total Dissolved Solids (TDS)	182 – 17100	697	13400
	Ammonia (mg/L)	0.01 – 3.3	0.052	1.684
	Total Phosphorus (mg/L)	0.04 – 0.29	0.048	0.246
	Total Nitrogen (mg/L)	0.6 – 11.8	0.7	3.3
	Arsenic (filtered) (mg/L)	0.001 – 0.015	0.0016	0.0084
	Cadmium (filtered) (mg/L)	<0.0001	-	<0.0001
	Chromium (filtered) (mg/L)	<0.001 – 0.01	0.0014	0.0092

Hydrostratigraphic Unit	Physicochemical parameter Note – applicable to the construction phase only	Project Acceptable Range	Project Trigger Value	
			Lower Level	Upper Level
	Copper (filtered) (mg/L)	0.002 – 0.01	0.002	0.0092
	Lead (filtered) (mg/L)	<0.001 – 0.014	0.002	0.014
	Mercury (filtered) (mg/L)	<0.0001		<0.0001
	Nickel (filtered) (mg/L)	0.002 – 0.028	0.004	0.0192
	Zinc (filtered) (mg/L)	0.005 – 0.18	0.02	0.13
	Polycyclic Aromatic Hydrocarbons (PAHs) (µg/L)	<0.5		<0.5

5.0 Sample Methodology

5.1 Sample Locations

During construction, monitoring is required to be undertaken within the AWRC site monitoring bores installed during geotechnical investigations in July 2020 (Aurecon, 2020). The monitoring well network consists of eleven (14) wells installed at seven (8) locations, which includes six (6) sets of paired shallow and deep wells. A summary of the existing groundwater monitoring wells is provided below in Table 5-1 with locations depicted in Figure 3-1.

Sampling and water level monitoring of the AWRC bores through the construction stage and further on to the operation of the facility is essential to identify potential changes to groundwater quality and groundwater flow direction and mitigate potential impacts. If an existing groundwater installation is required to be decommissioned to meet project construction needs, consideration would be given to the installation of a replacement bore suitably constructed to inform groundwater level and quality in the same hydrostratigraphic unit.

In accordance with UMM GW02, groundwater monitoring wells MW04 and MW08 are installed mid-way between South Creek and the north-western boundary of the AWRC site. These wells are understood to be a nested piezometer pair with one well targeting the shallow alluvial/residual profile and one well targeting the deeper Bringelly Shale hydrostratigraphic unit. A staff gauge is also to be installed in an appropriate pool of South Creek to verify the existing surface water and groundwater connectivity and assist in developing a risk-based approach to managing groundwater impacts at the site.

A total of 3 groundwater monitoring sites (including the 2 indicated in the paragraph immediately above) is established for the project for the purpose of monitoring during construction, excluding the baseline and ongoing monitoring at sites conducted under Sydney Water to provide baseline and operational data for the project. The project may nominate an existing bore hole(s) located at the AWRC site to obtain samples for the purpose of this construction monitoring program. Their precise location will be determined as the detailed design of the AWRC site progresses and will be in consultation with the construction team, environmental team and groundwater specialists engaged by the project to nominate the appropriate location in accordance with relevant requirements (CoA, UMMs, etc).

In accordance with UMM GW12 John Holland's (JH) design team has undertaken geotechnical investigations to identify any additional measures required to prevent groundwater seepage into the pipeline trench at the Upper Canal. John Holland has consulted with Water NSW in relation to the proposed under-bore at this location and is currently in the detailed design phase, incorporating relevant requirements from Water NSW as part of the theoretical settlement calculations prior to being issued to Water NSW for review. Of the geotechnical investigations completed to date for the purpose of furthering the design in proximal to Upper Canal, no groundwater was detected and the depth of bedrock at this location is approximately 1.8m below ground level (mbgl). At this location, the under-bore is proposed to be 16m below the Upper Canal. Given the depth of bedrock, the subsequent risk of settlement and groundwater seepage is considered to be low.

Potential surface water – groundwater linkages around key watercourses continues to be investigated by the JH design team through the undertaking of geotechnical investigations, including borehole drilling and seismic testing. Similar to the construction approach to Upper Canal, JH propose to under-bore key waterway crossings, including Nepean River and Prospect Creek to ensure that these crossings occur in sound bedrock and avoid any potential interactions between surface waters and groundwater.

Table 5-1: Summary of existing groundwater monitoring wells at the AWRC site

Monitoring Well ID	Easting	Northing	Ground Elevation (mAHD)	Top of Casing Elevation (mAHD)	Location Description	Screened Interval	Screened Material Description	Targeted Hydrostratigraphic Unit
AWRC_ MW01	293922.34	6251905.16	37.154	37.10	North of the AWRC site, mid-way between South Creek and Kemps Creek	11.4 - 14.4	Claystone, sandstone, coal.	Upper Wianamatta Group (weathered/fractured Bringelly Shale)
AWRC_MW02D (decommissioned)	293957.24	6251760.59	38.111	38.13	Well pairing adjacent to the northern boundary of the AWRC site (deeper well).	10.0 - 17.5	Claystone, sandstone.	Upper Wianamatta Group (weathered/fractured Bringelly Shale)
AWRC_MW02S (decommissioned)	293956.33	6251761.00	38.111	38.13	Well pairing adjacent to the northern boundary of the AWRC site (shallower well).	5.5 - 8.5	Sandy clay	Unconsolidated Quaternary alluvium and residual / regolith soils
AWRC_MW03D	294412.94	6251662.78	37.924	37.97	Well pairing east of the AWRC site, towards Kemps Creek (deeper well).	9.3 - 12.3	Claystone, sandstone.	Upper Wianamatta Group (weathered/fractured Bringelly Shale)
AWRC_MW03S	294412.37	6251662.41	37.924	37.99	Well pairing east of the AWRC site, towards Kemps Creek (shallower well)	3.0 - 6.0	Clayey sand, clayey sandy gravel, silty clay.	Unconsolidated Quaternary alluvium and residual / regolith soils
AWRC_MW04	293791.88	6251518.90	39.120	39.11	Adjacent to the western boundary of the AWRC site.	5.9 - 7.4	Gravelly sandy clay, sandy silty clay	Unconsolidated Quaternary alluvium and residual / regolith soils
AWRC_MW04D (nominated borehole installed)	293791.88	6251518.90	39.071	39.07	Adjacent to the western boundary of the AWRC site.	12.0 - 21.0	Siltstone, sandstone	Upper Wianamatta Group (weathered/fractured Bringelly Shale)

AWRC_MW05D	293469.19	6251417.88	36.150	36.19	Well pairing west of the AWRC site, towards South Creek (deeper well).	8.2 - 11.2	Claystone	Upper Wianamatta Group (weathered/fractured Bringelly Shale)
AWRC_MW05S	293468.17	6251417.73	36.150	36.24	Well pairing west of the AWRC site, towards South Creek (shallower well).	3.0 - 6.0	Sandy clay, clayey gravel, sandy gravelly clay.	Unconsolidated Quaternary alluvium and residual / regolith soils
AWRC_ MW06	293727.84	6251197.57	37.660	37.65	Adjacent to the south-western boundary of the AWRC site.	3.0 - 6.0	Sandy clay, sandy gravelly clay, gravelly clay	Unconsolidated Quaternary alluvium and residual / regolith soils
AWRC_MW07D (decommissioned)	293922.78	6251154.83	40.667	40.63	Well pairing in the southern portion of the AWRC site (deeper well).	10.3 - 19.3	Claystone, sandstone, coal.	Upper Wianamatta Group (weathered/fractured Bringelly Shale)
AWRC_MW07S (decommissioned)	293922.97	6251154.16	40.667	40.63	Well pairing in the southern portion of the AWRC site (shallower well).	5.5 - 8.5	Clayey sandy gravel	Unconsolidated Quaternary alluvium and residual / regolith soils
AWRC_MW08D (nominated borehole installed)	293737.44	3748301.91	37.611	37.60	Adjacent to the western boundary of the AWRC site.	11.8 – 20.8	Siltstone, sandstone	Upper Wianamatta Group (weathered/fractured Bringelly Shale)
AWRC_MW08S (nominated borehole installed)	293737.44	3748301.91	37.210	37.19	Adjacent to the western boundary of the AWRC site.	3.0-6.0	Sandy clay	Upper Wianamatta Group (weathered/fractured Bringelly Shale)

5.2 Parameters

Water sampling to be complemented by visual inspection of the site conditions. Field measurements of the following parameters will be recorded using a calibrated water quality meter and interface probe at each monitoring site:

- Visual and olfactory indicators (colour, turbidity, odour, sheen, discolouration, free phase liquids, foaming waters);
- Evidence of stressed or dead flora and / or fauna (for example, fish kills) in downstream receiving environments;
- Depth to water (mbTOC);
- Presence/absence of Light Non-Aqueous Phase Liquid (LNAPL) and thickness if present (mbTOC);
- Water Temperature (°C);
- pH;
- Electrical Conductivity (µS/cm);
- Dissolved Oxygen (%); and
- Redox Potential.
- Representative groundwater samples will be obtained and submitted to a NATA laboratory for analysis of the following parameters:
- Total dissolved solids (TDS).
- Total suspended solids (TSS).
- Nutrients (including ammonia, nitrate, nitrite, total nitrogen and total phosphorous).
- Major ions (chloride, sulfate, sodium, potassium, magnesium, calcium, carbonate and bicarbonate); and
- Dissolved heavy metals (As, Cd, Cr, Cu, Pb, Hg, Ni and Zn) and polycyclic aromatic hydrocarbons (PAHs).

5.3 Sample Methods

Water quality sampling is to be conducted in accordance with:

- NSW EPA (2022). Approved Methods for the Sampling and Analysis of Water Pollutants in NSW;
- Australian Standard 5667.1:1998 Water Quality – Sampling Guidance on the design of sampling programs, sampling techniques and the preservation and handling of samples;
- AS/NZS 5667.11:1998 Water quality: sampling guidance on sampling of groundwaters;
- Approved Methods for the Sampling and Analysis of Water Pollutants in NSW (DECC, 2008); and
- Sydney Water's standard sampling and laboratory procedures.

Sample containers, chain of custody forms and any required consumables should be obtained prior to sampling from the NATA accredited facility conducting the laboratory analysis. Sample containers will be labelled, with a unique site code, collector's name, date and time. Additional details required by the laboratory facility and chain of custody form are also to be completed. Guidance as to recommendations and requirements for each sample type (i.e. preservatives and holding periods) should be sought from the laboratory conducting the analysis. Where sample preservatives are required, these should be applied in accordance with the laboratory guidelines. Where sample containers already contain preservatives, care must be taken to avoid overfilling or washing out the vessel. Samples must be delivered to the laboratory within the defined holding period. All sample containers for each monitoring site should be filled. Where coolers and ice bricks are supplied, the bricks should be frozen, and samples chilled on collection.

Exceptions to the above methodologies include when water quality (WQ) parameters do not stabilise over a long period of time (i.e., purging duration > 60 minutes) and samples are collected prior to stabilisation.

Another exception is when a well is low-yielding and has a poor recovery, in which case the standing water level (SWL) may not stabilise, and samples may need to be collected to ensure collection of a sample prior to the well pumping dry.

In each of these cases, comprehensive field notes are required to detail the rationale for collecting samples when stabilisation of WQ parameters and/or SWL are not attained.

5.3.1 Field Measurements

Water quality meters should be maintained and calibrated according to manufacturer's instructions to ensure the accuracy of the results. Calibration records for water quality meters should be kept on file. The water quality meter probe should be fully submersed and parameter values allowed to stabilise before records are taken, noting that values such as dissolved oxygen are likely to fluctuate around a point and not fully stabilise.

5.3.2 Sample Handling

A field record will be completed which describes the field conditions (for example, weather, flow, clarity, etc), sample locations, sampling methods and handling and storage methods, field numbers, date, time, and the identity of sampler.

Quality control procedures will be adhered to, in general compliance with the recommendations of the ANZG/ANZECC. In summary, these include measures such as:

- Sample containers will be provided by the laboratory appropriate for the required analysis;
- Use of powder free nitrile gloves;
- Use of disposable equipment or decontamination between samples;
- Population of a field record noting site conditions;
- Field descriptions of flow; clarity, colour and adjacent site conditions;
- Chain of Custody (CoC) forms listing all samples collected and tests required will be prepared for each batch and submitted to the laboratory.
- Samples will be submitted to a NATA accredited laboratory, accredited for the analyses requested.

5.3.3 QAQC

As with baseline studies undertaken ongoing groundwater monitoring will be subject to the following QAQC sampling regime to be applied for each round of monitoring undertaken:

- Intra laboratory blind duplicate;
- Inter laboratory duplicate;
- Rinsate Blank; and

All QA/QC samples are to be tested for the same analytical suite as their associated primary samples in accordance with the NEPM (2013).

5.4 Monitoring Frequency and Duration

5.4.1 Monitoring Duration

This GW-CMP will be implemented prior to commencement of construction on site and continue until Final Completion (which is the completion of construction). Monitoring may cease in each work area once construction is finished, and the ground surface is stabilised and verified by the project CPESC and approved by the ER/ DPE.

Pre-construction groundwater monitoring has commenced from June 2023 (in the locations specified in Figure 3-1) and will assist in obtaining a baseline dataset for the project in relation to the existing environment prior to the commencement of construction.

5.4.2 Routine Monitoring

Routine water level gauging shall be undertaken:

- Weekly at the proposed nested piezometers installed on the north-western boundary of the site during dewatering activities; and
- Quarterly during groundwater sampling.

In accordance with UMM GW02, the proposed nested piezometers are to be equipped with continuous pressure loggers to monitor baseline conditions for the two additional wells. Results will be used to establish baseline conditions, verify the existing

surface water and groundwater connectivity and assist in developing a risk-based approach to managing groundwater impacts at the site.

Groundwater quality sampling shall be undertaken at quarterly intervals during earthworks and then reduced to biannually until the completion of the project.

This programmed monitoring will be supplemented by specific event triggered response monitoring, as described in Section 5.4.3.

5.4.3 Event Triggered Sampling

Should incidents with the potential to impact upon groundwater quality occur, such as sediment basin discharges or fuel spills, post incident monitoring and reporting should be undertaken to identify whether any of the project trigger values or objectives have been exceeded. The accompanying brief report should include a record of any sediment basin dewatering or refuelling undertaken at the time (e.g. pump or refuelling permit).

5.5 Trigger Value Exceedances

In addition to the analysis of water quality trends at and between monitoring sites under this GW-CMP, potential groundwater quality issues or impacts will be identified through the exceedance of project trigger values or acceptable ranges. Where exceedances are observed either in the field or upon receipt of laboratory results these will be investigated immediately upon their discovery using the processes outlined in Sections 5.5.1 and 5.5.2. Such investigations will allow the project to ascertain rapidly whether the exceedance is likely to be a result of project construction or not, and to carry out response actions if required. The effectiveness of construction measures including handling of exceedances and interpretation of associated monitoring result will be completed by a suitable qualified professional as defined in the ISC V2.1 manual.

5.5.1 Identified from Field Results

During groundwater quality sampling, only the field-collected monitoring data can be used to identify trigger value or acceptable range exceedances immediately. Samplers will have ready access to the project trigger levels and acceptable ranges for all parameters, given these values will be pre-filled in a column of the water quality sampling field sheet. In the case where a measurement is taken for a site, and the value recorded exceeds the trigger value for that parameter, then a rapid targeted assessment will be made by the sampler which notes project activities, weather conditions, water clarity, the presence of any odour and/or observable oils, grease or sheen and changes in site conditions since the last sample was collected.

In line with the relevant reporting procedure set out in Section 7.0, this information will then be used by the sampler to complete a trigger value exceedance report using a standalone template established for the project. Following this report, the Environment Manager will also be contacted, and the exceedance report forwarded for consideration and response actions by the project (if required), including all reporting requirements set out in Section 7.0.

5.5.2 Identified from Laboratory Results

Exceedances of trigger values or acceptable ranges for those project groundwater quality monitoring parameters that must be analysed at a laboratory can only be identified when results are received from the laboratory. As such, interrogation of the laboratory results for any exceedances will be carried out as the first component of the water quality data analysis process, and on the same day as laboratory results are received. In the case where a value recorded by the laboratory exceeds the trigger value for that parameter, then a rapid targeted assessment will be made of the groundwater quality sampling field sheet completed during the respective monitoring event, looking at aspects including weather conditions, water clarity, the presence of any observable odour and/or oils or grease and changes in site conditions since the last sample was collected.

In line with the relevant reporting procedure set out in Section 7.0, this information will then be used to complete a trigger value exceedance report using a standalone template established for the project. Following this report, the Environment Manager will also be contacted, and the exceedance report forwarded for consideration and response actions by the project (if required), including all reporting requirements set out in Section 7.0.

5.6 Data Analysis

Data analysis of results will commence on the same day as the groundwater quality monitoring event and will include a comparison and interpretation of the field-collected water quality values against the acceptable ranges set out in Table 3-1, and against the baseline and other water quality datasets. Importantly the data analysis will also provide for comparison of overall results between sampling sites and within sampling sites for the project parameters (i.e. upgradient to downgradient variations). The key outputs will take the form of graphs and charts which will be optimised to best display the specific comparison dataset or parameter for seamless inclusion in reports and easy interpretation by the reader.

It should be noted that if a project trigger value exceedance has already been identified in the field or within results which are received from the laboratory then the processes outlined in Sections 5.5.1 and 5.5.2, and any further response actions or reporting requirements related to those exceedances will take precedence over standard data analysis as detailed in this section. Standard data analysis will also occur for all collected water samples when results are received from the laboratory.

The standard data analysis process will require all groundwater quality monitoring results to be entered into the project water quality monitoring spreadsheet and each parameter to be plotted to analyse any trends at and between GW-CMP monitoring sites. This level of analysis will also assist with the determination of any site-specific relationships between the range of water quality parameters to be monitored for the project.

For parameter-specific analyses, graphs will also include line bars which represent the acceptable ranges, and the Project trigger values for the specific parameter. Graphs which are presented in this format will be included in all reports related to exceedances of trigger values and/or acceptable ranges for the respective parameter/s.

Data analysis of the water quality monitoring results by the project Environment team will also have the capacity to identify actual or potential ambient groundwater problems which may be attributable to the project, such as variable levels of TDS which are unrelated to rainfall or storm events. This level of data analysis will focus on spatial comparisons of the groundwater quality results in question to determine whether project construction is a likely cause. For example, are exceedances or trends recorded across multiple locations or only in close proximity to the project? Such problem identification will guide the project in the further assessment and management of groundwater quality problems which are confirmed as attributable to the project.

6.0 Project Response and Actions

Exceedances of the project trigger values, or acceptable range values will initiate the actions set out in Table 6-1 below and will initially involve further examination of the monitoring results to ascertain whether the exceedance may be a result of natural prevailing conditions or due to project construction. The exceedance levels and relevant parameters will also be recorded and displayed in the associated report (refer Section 7.0).

6.1 Project Trigger Value and Acceptable Range Exceedance

Where a project trigger value exceedance is identified in the field or within results which are received from the laboratory then the processes outlined in Sections 5.5.1 and 5.5.2 will be carried out immediately. Response actions to be implemented by the project are described in Table 6-1 below. Note, interpretation of all monitoring results will be undertaken by a suitable qualified person as defined in ISC V2.1 manual.

Table 6-1 Project responses to Project trigger level and acceptable range exceedances

Exceedance Scenario	Corrective Action	Timing
1. Project trigger level exceeded – Deemed not attributable to Project	1. Continue monitoring in line with GW-CMP frequencies 2. Reporting as required.	N/A
2. Project trigger level exceeded – Deemed attributable to Project	1. Inform Project team. 2. Assess all relevant work practices and environmental controls - **Direct changes or install additional controls as required** 3. Carry out additional field monitoring following 2., only at site/s where exceedance observed 4. Carry out additional sample collection (if reqd.) following 2., only at site/s where exceedance observed 5. If parameter/s observed to drop below trigger level/s after 3. or 4. continue monitoring in line with GW-CMP frequencies. 6. If parameter/s continue to rise and exceed acceptable range action Exceedance Scenario 4 7. Reporting as required.	Until parameter/s return to below Project trigger level/s or Exceedance Scenario 4 is actioned.
3. Project acceptable range exceeded – Deemed not attributable to Project	1. Continue monitoring in line with GW-CMP frequencies 2. Reporting as required including completion of water quality monitoring record and communicate to the project management team.	N/A
4. Project acceptable range exceeded – Deemed attributable to Project	1. Inform Project team, including Sydney Water representatives 2. *If underway, stop work in all areas with potential to impact surface waters* 3. Assess all relevant work practices, environmental controls and locate the source of the problem causing exceedance - **Direct changes or install additional controls as required** 4. Carry out additional field monitoring following 3., only at site/s where exceedance observed 5. Carry out additional sample collection (if reqd.) following 3., only at site/s where exceedance observed 6. If parameter/s observed to drop below trigger level/s after 4. or 5. continue monitoring in line with GW-CMP frequencies. 7. If parameter/s continue to rise stop all in-water works and all relevant work practices until the source of the exceedance has been located and rectified 8. Reporting as required. Note that for project acceptable range exceedances that are attributable to the project, these will be managed and reported in accordance with Section 3.7 of the CEMP (Emergency & Incident Planning).	Until parameter/s return to below Project trigger level/s.

7.0 Reporting

7.1 Report Format

The GW-CMP reports are to include the following information:

- Date, time, personnel, and location of collection of sample result.
- Weather within 24hrs and at time of sampling;
- Physical observations (colour, clarity, odour, discolouration, free phase liquids or foaming of the water);
- Evidence of stressed or dead flora and / or fauna in downstream receiving environments;
- Records of site activities at the time of sampling, including description of any discharge events, contamination events, complaints, and activities or observations which may influence water quality;
- Comparison of results against project criteria and previous results;
- Photographic record of site conditions;
- Field measurements;
- Equipment calibration records;
- NATA laboratory Chain of Custody (COC) and Certificates of Analysis (COA) – when sampling undertaken.
- Details of any follow up activities required or undertaken.

This information will be maintained on site with project records.

7.2 Review and Improvement

An adaptive management approach is to be employed in respect of the works forming part of this GW-CMP. This approach involves an integrated process of monitoring, reviewing and then responding to the relative water quality conditions surrounding the project footprint to identify any alterations to the monitoring or impact mitigation measures that may be required to ensure that the objectives of the GW-CMP are achieved.

7.3 Reporting Frequency and Submission

The results of the GW-CMP must be submitted to the Planning Secretary, and relevant regulatory agencies, for information in the form of a Construction Monitoring Report (CMR). CMR will be submitted six-monthly to Planning Secretary and relevant agencies using a reporting form generated by the project.

A monitoring report will be prepared after each event to review compliance, including:

- Routine sampling (Section 5.4.2)
- Event triggered sampling (Section 5.4.3)
- Trigger value exceedances (field results and laboratory results (Section 5.5)

A summary of the monitoring results shall be included within the routine (i.e. monthly) reports provided to the Sydney Water and ER. A copy of the trigger value exceedance report will be provided to the EPA for information.

8.0 Responsibilities

Responsibilities for each task within the ground water quality monitoring program are defined in Table 8-1 below.

Table 8-1 GW-CMP Responsibilities

Task	Responsibility
Implementation of the groundwater monitoring plan	JH Environmental Manager / JH Construction Manager
Field monitoring and report preparation	JH Environment Manager / Project Environmental Scientist / Specialists (as required)
Provision of reports to the *Planning Secretary*, and relevant *regulatory agencies* and Sydney Water representative and relevant Authorities	JH Environment Manager
Investigation & reporting of exceedances of adopted assessment criteria	JH Environment Manager / Project Environmental Scientist / Specialists (as required)

9.0 References

ANZECC 2000. Australian Water Quality Guidelines for Fresh and Marine Waters. National Water Quality Management Strategy. Australian and New Zealand Environment and Conservation Council, Canberra.

ANZG (2018). Australian and New Zealand Guidelines for Fresh & Marine Water Quality.

Australian Government (2022). National Health & Medical Research Council. National Resource Management Ministerial Council. National Water Quality Strategy. Australian Drinking Water Guidelines 2011 (v3.8 updated 2022).

Australian Standard AS/NZS 5667.1 1998 – Water quality – Sampling - Guidance on the design of sampling programs, sampling techniques and the preservation and handling of samples.

Landcom 2004. Managing urban stormwater: soils and construction 'Blue Book'. Volume 1, 4th edition, Sydney.

NSW EPA 2022. Approved Methods for the Sampling and Analysis of Water Pollutants in NSW. ISBN 978 1 922447 38 8.

Appendix G: Erosion and Sediment Control Procedure

Progressive ESCPs will be developed for each work site prior to commencement of ground disturbance. The progressive ESCPs will outline appropriate erosion and sediment controls to minimise water, land pollution and maintain existing water quality of the surrounding surface watercourses. The ESCP will be developed in accordance with *Managing Urban Stormwater: Soils and Construction Volume 1* (Landcom, 2004) and *Managing Urban Stormwater: Soils and Construction Volume 2* (Department of Environment and Climate Change, 2008). In the South Creek Catchment, the controls must be in accordance with the construction-phase targets and the erosion and sediment control design principles outlined in the *Technical Guidance for Achieving Wianamatta South Creek Stormwater Management Targets* (DPE, 2022) and other relevant plans and procedures as reference in section 3 of this SWGCSP. The ESCP will detail:

- Required erosion and sediment control measures for the site
- An overview of construction activities and their locations if they have the potential to impact on soil management, stormwater flows and groundwater
- Location of surface water capture points (for reuse in dust suppression or removal from site via tanker)
- Details of temporary stockpiles, location, and management.

The John Holland Environmental Manager (or delegated representative) will undertake site inspections on a weekly basis, prior to and following rainfall events (in accordance with Section 8.3 of the SWGCSP) including a review of erosion and sediment controls on-site, ensuring all controls are undamaged, functional, adequate, and installed as per the ESCPs. A CPESC will be engaged by John Holland for the duration of construction of the project to provide advice regarding erosion and sediment control including review of ESCPs. ESCPs will be provided to SWC for information.

The ESCP will be updated to reflect the current site conditions as required. All reviews and amendments will be conducted by the John Holland Environmental Manager in consultation with the Site Supervisor.

Minimising Water Use

- Where feasible and reasonable, construction water will be sourced from non-potable sources
- Water efficient controls, fixtures and fittings will be in place for temporary facilities, where possible
- Where possible, use water efficient construction methods and equipment

EROSION AND SEDIMENT CONTROL PLAN (ESCP)

ESCP(s) will be developed by the JH Environment Manager (JH EM) with inputs from the JH Supervisor. The ESCPs will be reviewed and endorsed by the project CPESC and provided to SWC for approval via a hold point. The JH Project Manager (JH PM) notifies the JH EM of the proposed work. The JH Supervisor and Environmental Staff (or delegate representative) will undertake a site inspection to obtain an understanding of any constraints and if any additional environmental controls are required. The ESCP will include controls and measures for contaminated or suspected contaminated areas.

JH Project Manager
JH Supervisor
JH Environment Manager
CPESC

Environmental controls will be implemented on-site as per the ESCP.

WORKING ON-SITE

Before commencing work each day, consider the following:

- Are works commencing in a new area?
- Does the area require specific contaminated land controls?
- Has current work changed?
- Has there been significant rainfall? (As per Section 7.14 of the SWGCSP) or high winds?
- Has the pre-rainfall, mid-rainfall and post-rainfall inspections been undertaken?
- Are works to recommence after a shutdown?

JH Supervisor
JH Environment Manager

Ensure all environmental controls are implemented and maintained.

Continue work as planned.

REVIEW ESCP

Contact the JH EM. Works cannot commence / recommence until an ESCP review has been undertaken to determine if an update is required.

Environmental controls will be implemented on-site as per the ESCP.

Ensure all environmental controls are implemented and maintained.

Continue work as planned.

UPDATE ESCP

JH EM to update ESCP in consultation with the JH PM and Supervisor. ESCP will be reviewed and endorsed by the project CPESC. JH Supervisor to implement environmental controls prior to commencing / recommencing work as per the ESCP.

JH Project Manager
JH Supervisor
JH Environment Manager
CPESC

ENVIRONMENTAL CONTROL MEASURES

- Use of suitable sediment retention structures to filter or retain mobilised sediment generated during rain events when the surface is disturbed.
- Exposed surfaces will be minimised, and stabilised or revegetated as soon as possible upon the completion of construction.
- Provide rumble grids and/or stabilised laybacks at vehicle access points to minimise the risk of sediment tracking onto public roads.
- Diversion of 'clean water' from off-site around the work site without contact with exposed soils or mixing with 'dirty' on-site water.
- After rainfall events (> 50% chance of 10 mm of rainfall or greater in 24 hours), sediment and erosion controls will be inspected to ensure performance is adequate.
- Compostable or reusable temporary erosion control devices will be used where practical.
- Temporary controls (e.g., sandbags, slop breaks, cross drains) will be re-instated at the end of each day.
- Implement specific control measures for contaminated land as directed by the JH EM (e.g., surface water diversions, covering stockpiles, bunding).

Appendix H: initial Erosion and Sediment Control Plan (ESCP)

Appendix I: In-stream Works Procedure

Instream Works Procedure

1 Purpose

The purpose of this In-stream Works Procedure is to detail the process to be followed when undertaking works within waterways. It's noted that this Procedure does not detail construction methodologies or mitigation measures for specific locations/waterways, but rather a generalised process to be applied for all waterways work.

This Procedure is applicable to all ground disturbing works by John Holland and its subcontractors within waterways as defined in the Surface Water and Groundwater CEMP Sub-Plan and provided in Table 1.

2 Procedure

Step 1 – Obtain relevant environmental information about the waterway

Information on the waterway will be gathered from the Surface Water and Groundwater CEMP Sub-Plan, Biodiversity CEMP Sub-Plan, EIS, site observations and any other relevant information sources, including the Project CPESC, geomorphologist and aquatic ecologist where relevant. Information which is typically required includes:

- Flora and fauna including any threatened species, KFH, exotic species.
- Physical features and hydrology i.e. flow rates, geomorphology, groundwater, stream order.
- Sensitive receivers which utilise the waterway e.g. water source, dams etc.
- Undertake site inspections of the proposed locations including those undertaken by the CPESC, geomorphologist where applicable.

Step 2 – Develop draft construction methodology.

The following items will be considered when developing the construction methodology of relevant in-stream works.

- The construction methodology will be developed by engineers and in consultation with the environment team, Project CPESC, geomorphologist, SWC personnel and ecologist where required as detailed in Table 1. This is usually facilitated during Activity Method Statement (AMS) workshops which are undertaken for all new activities. This provides an opportunity to identify the risks and potential solutions early in the planning phase.
- The methodology will be compliant with all Project requirements i.e. CEMP, Biodiversity CEMP Sub-Plan, Surface Water and Groundwater CEMP Sub-Plan, Conditions of Approval (State and Commonwealth), EPL etc. This includes relevant guidelines and policies within Section 8.3 of the Biodiversity CEMP Sub-Plan (BCSP) and Section 7.15 of the Surface Water and Groundwater CEMP Sub-Plan (SWGCSP) .
- The methodology will be determined based on the risk profile of the creek as determined in Step 1.
- Key methodology points which require consideration include:
  - Creek diversion methodology – determine whether a pump-around diversion or a creek sidetrack (swale or pipe) is required which should consider flow rates, gradient, geomorphology constraints, works timeframe etc. Pumps and sidetracks should be sized/designed to manage base flows and increased flows from rainfall. Flood events, where diversions are exceeded, will also need to be considered in the relevant environmental documentation (Step 3), including preparation tasks and emergency response. In some cases, isolating waterways may consist of using coffer dams and/or bulka/sandbag bunds.
  - Flora, fauna and habitat – the presence of threatened flora, fauna and habitat will inform construction methodologies and consider fauna passage, minimising clearing, fish migration/spawning seasons, weed and pest management etc.
  - Erosion and sediment control – ERSED controls need to be implemented through all stages of the in-stream works to minimise impacts to the waterway which will be managed by PESCPs (Step 3). PESCPs will be developed in consultation with and endorsed by the CPESC and geomorphologist.
  - Rehabilitation – The rehabilitation of creeks and any potential opportunities to improvement waterway health will be investigated and documented in PESCP's and EWMS (Step 3). Rehabilitation will consider stabilisation/reshaping of creek beds and banks, revegetation, protection of assets (pipelines, adjacent properties), improvements to fauna habitat and passage etc. See Step 7 for further detail.
  - Any other factors specific to the selected waterway.

Step 3 – Prepare relevant documentation

Following development of the draft methodology, an ERSED Plan, EWMS in accordance with Section 3.2.3 of the CEMP and any other relevant documentation will be prepared to identify environmental risk/hazards and detail mitigation measures

to reduce the risk of environmental impact or incidents. Table 1 provides the likely documentation required for each waterway crossing. The documentation will include the proposed construction methodology detailed in Step 2.

Step 4 – Consultation with relevant state and local authorities

Following preparation of the relevant documentation, consultation will be undertaken with any relevant state and local authorities which may include DPE – Water, NSW Fisheries, EHG and/or local councils. Table 1 provides the likely stakeholders to be consulted for each waterway crossing.

Consultation with the relevant state and local authorities will consist of formal correspondence (portal notifications/submissions or emails) and by phone calls. If no initial response is received, further reasonable attempts will be made to contact the authority. If no response is received after four weeks, a final closeout letter will be issued to the authority which will include an engagement log.

Step 5 – Finalisation of the methodology and documentation

Any feedback or comments received from local or state authorities will be considered in the environmental documentation. Following the consideration and/or closeout of all comments, the environmental documentation will be endorsed by the CPESC, geomorphologist, ecologist as detailed in Table 1. It's noted that the EWMS will be approved by a member of the JH environment team, and the ERSED plan will be endorsed by the CPESC, geomorphologist and ecologist where applicable. Approval/endorsement signatures will be provided on the relevant environmental documentation

Step 6 – Implementation

Weather forecast monitoring will be undertaken to identify any potential inclement weather which may impact the works i.e. significant rainfall, flooding etc. Where possible, in-stream works will be scheduled during dry weather periods when base flows are minimal and outside of designated fish migration and spawning seasons.

Once works commence, appropriate supervision, toolboxes, pre-starts and inspections will be undertaken to ensure all controls/mitigation measures have been installed and the works are compliant with the methodologies detailed in the environmental documentation e.g. EWMS, PESCP. In addition, inspections will be undertaken where required by SWC, ER, CPESC, geomorphologist and ecologist during the works. Training, competence and awareness will be managed in accordance with Section 3.5 of the CEMP.

Step 7 – Review and improvement

The environmental documentation will be periodically reviewed and updated as required throughout the works and when additional works are required, change of methodology, following an incident or where a deficiency is identified.

Step 8 – Rehabilitation of waterway

Once construction works are complete, the waterway will be rehabilitated in accordance with the Rehabilitation Management Plan, Section 7.15 of the Surface Water and Groundwater CEMP Sub-Plan and the relevant environmental documentation outlined in Step 3 e.g. EWMS, PESCP. In accordance with CoA E117, rehabilitation will be waterways impacted by the Project will commence within three months of completion of the waterway works. Rehabilitation considerations for each waterway will consist of:

- Erosion control of the creek bed and banks
- Revegetation
- Any opportunities to enhance or improve the waterway

Table 1 – Waterway crossings associated with the Project and associated management approach

Reference	Brine/Treated	Waterway	Stream Order [1]	KFH[2]	Likely Methodology	Environmental Management Tool	Specialist endorsement	Stakeholder Consultation
1	Treated	Nepean River	7	Yes	Outfall structure – Coffer dam	-Site specific/updated Working in Waterways EWMS - Site specific PESCP	- CPESC - Geomorphologist - Ecologist	Not a waterway crossing triggered by CoA E115
2	Treated	South Creek	6	Yes	Trench	-Site specific/updated Working in Waterways EWMS - Site specific PESCP	- CPESC - Geomorphologist - Ecologist	- DPI-Fisheries - DPE-Water - EHG - Council
3	Treated	Badgerys Creek	4	Yes	HDD	- Trenchless crossings EWMS	n/a	n/a
4	Treated	Unnamed tributary of Badgerys Creek	3	No	HDD	- Trenchless crossings EWMS	n/a	n/a
5	Treated	Cosgroves Creek	4	Yes	Trench	-Site specific/updated Working in Waterways EWMS - Site specific PESCP	- CPESC - Geomorphologist - Ecologist	- DPI-Fisheries - DPE-Water - EHG - Council
6	Treated	Two unnamed tributaries of	2	No	Trench	- General EWMS	- CPESC	n/a

Reference	Brine/Treated	Waterway	Stream Order [1]	KFH[2]	Likely Methodology	Environmental Management Tool	Specialist endorsement	Stakeholder Consultation
		Cosgroves Creek				- Site specific PESCP		
7	Treated	Baines Creek	3	No	Trench	- General EWMS - Site specific PESCP	- CPESC	- DPE-Water - EHG - Council
8	Treated	Oaky Creek	3	No	Trench	-Site specific/updated Working in Waterways EWMS - Site specific PESCP	- CPESC - Geomorphologist	- DPE-Water - EHG - Council
9	Treated	Two tributaries of Mulgoa Creek	1	No	Trench	- General EWMS - Site specific PESCP	- CPESC	n/a
10	Treated	Jerrys Creek	4	Yes	HDD	- Trenchless crossings EWMS	n/a	n/a
11	Brine	Kemps Creek	4	Yes	Use existing enveloper pipe	- General EWMS	n/a	n/a
12	Brine	One unnamed tributary of Kemps Creek	2	Yes	Trench	-- General EWMS - General PESCP	N/A – works do not interact with the waterway	– works do not interact with the waterway
13	Brine	Three unnamed tributaries of Kemps Creek	1	No	Trench	- General EWMS - Site specific PESCP	- CPESC	n/a
14	Brine	Prospect Creek	4	Yes	HDD	- Trenchless crossings EWMS	n/a	n/a

Reference	Brine/Treated	Waterway	Stream Order [1]	KFH[2]	Likely Methodology	Environmental Management Tool	Specialist endorsement	Stakeholder Consultation
15	Brine	Green Valley Creek	2	Yes	HDD	- Trenchless crossings EWMS	n/a	n/a
16	Brine	Hinchinbrook Creek	2	Yes	HDD	- Trenchless crossings EWMS	n/a	n/a
17	Brine	One unnamed tributary of Hinchinbrook Creek	3	No	Trench	- General EWMS - Site specific PESCP	- CPESC	n/a
18	Brine	One unnamed tributary of Hinchinbrook Creek	1	No	Trench	- General EWMS - Site specific PESCP	- CPESC	
19	Brine	Clear Paddock Creek	1	Yes	Trench	-- General EWMS - General PESCP	N/A – works do not interact with the waterway	– works do not interact with the waterway
20	Brine	Upper Canal	1	No	HDD	- Trenchless crossings EWMS	n/a	n/a
21	Brine	Two unnamed creeks	1	No	Trench	- General EWMS- Site specific PESCP	- CPESC	n/a

[1] Stream order was assessed in the EIS using the Strahler system

[2] Key Fish Habitat was assessed in the EIS