

5 March 2024

Ref: SWS230002.01

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John Holland Group  
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Epic Environmental Pty Ltd (Epic) has been engaged by John Holland Group (JHG) to prepare a summary of hydrostatic testing activities, which will be undertaken during the construction stage of treated water and ancillary pipelines associated with the Upper South Creek Advanced Water Recycling Centre (AWRC), herein referred to as 'the project'.

## 1 BACKGROUND

### 1.1 Project Description

The proposed AWRC is located on Lot 211 on DP1272676 in Kemps Creek, adjacent to the proposed Western Sydney International (Nancy-Bird Walton) Airport and M12 Motorway in Western Sydney. The proposed project area, inclusive of all associated pipelines, spans across five local government areas (LGAs): Wollondilly Shire, Penrith City, Liverpool City, Fairfield City, and Canterbury-Bankstown. The proposed development is to include the Advanced Water Recycling Centre and associated treated water, environmental flows and brine pipelines.

The AWRC, treated water pipelines and the western portion of the brine pipeline are located in the Hawkesbury-Nepean catchment area, and the eastern portion of the brine pipeline is located within the Georges River catchment. An overview of the location of the proposed infrastructure is provided in **Figure 1**.

JHG proposes to undertake hydrostatic testing progressively along each section of the pipeline as construction is completed. Potable water is proposed to be used for hydrostatic testing of the brine pipeline and treated water pipeline where possible. It is proposed that water used for hydrostatic testing will either be discharged to receiving waterways (following any necessary treatment measures to remove potential contaminants of concern), reused on site for dust suppression, and/or removed to an offsite licenced liquid waste disposal facility.

### 1.2 Purpose and Structure of This Letter

The purpose of this letter is to provide a detailed summary of the proposed activity in support of a variation to the project Environmental Protection Licence (EPL), including:

- The regulatory framework associated with the proposed activity for the project
- Supporting documents
- A description of the EPA endorsed methodologies to undertake the proposed activity, including
  - Hydrostatic testing of pipelines
  - Treatment and discharge of process water
- Proposed concentration limits for pollutants that may be present in process water as a result of the proposed activity

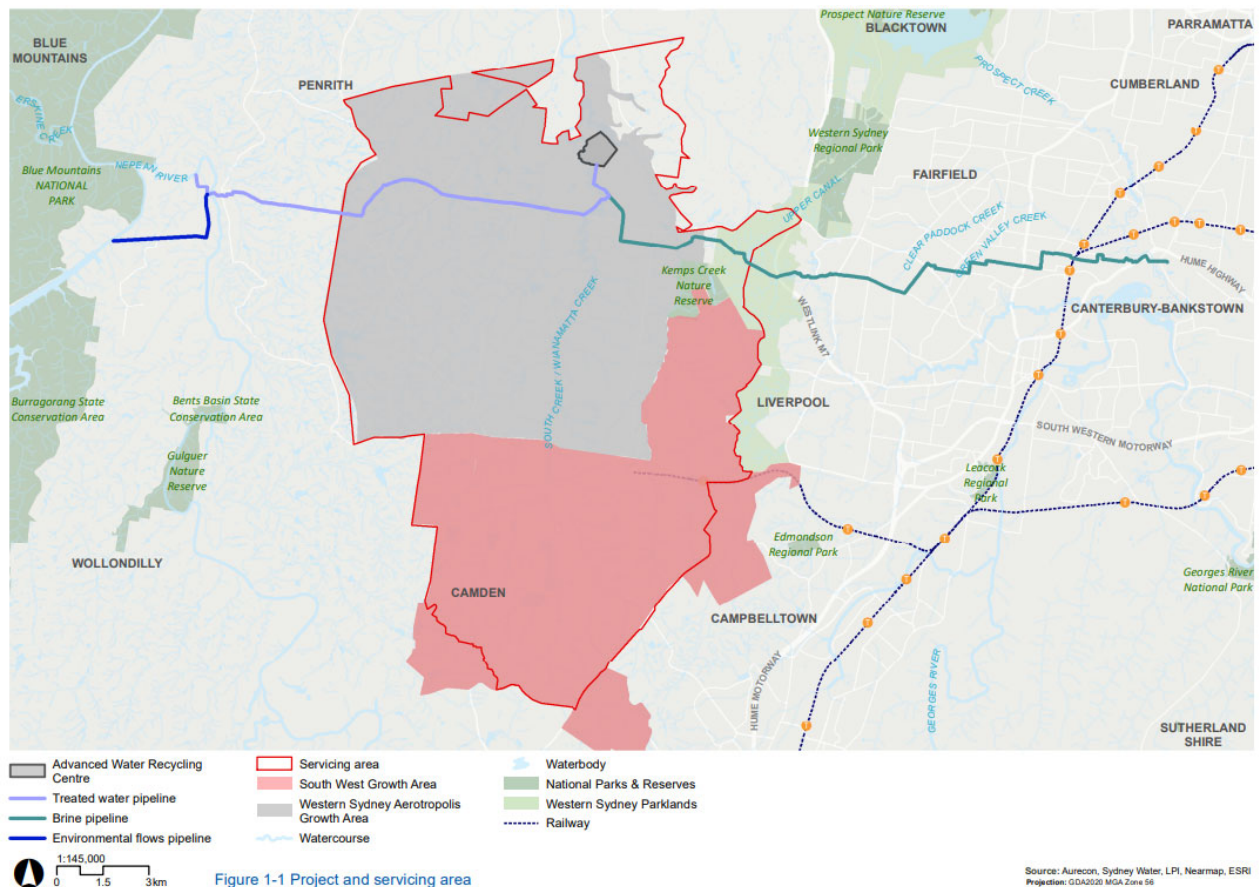


Figure 1. Project Overview (Aurecon Arup, 2021v2)

## 2 REGULATORY FRAMEWORK AND GUIDELINES

The principal guidelines, specifications and policy documents relevant to this assessment for the project include:

- Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC and ARMCANZ 2000 & ANZG 2018.)
- Protection of the Environment Operations Act (1997)
- New South Wales (NSW) Water Quality Objectives (WQOs)

## 3 SUPPORTING DOCUMENTS

The project specifications and plans relevant to surface water management are provided by JHG by the time of reporting, and include:

- Surface Water & Groundwater CEMP Sub-plan (RevD) (USCP-JHG-MPL-ENV-0001)
- Sydney Water – Water Quality Management During Operational Activities (D0001667)

## 4 PROPOSED ACTIVITY AND METHODOLOGY

### 4.1 Proposed Activity Summary

JHG proposes to undertake hydrostatic testing progressively along sections of the brine water and treated water pipelines as construction is completed. Testing will be undertaken progressively on 16 sections of the treated water pipeline and 11 sections of the brine water pipeline.

Potable water is proposed to be used for hydrostatic testing of the brine pipeline and treated water pipeline where possible. It is proposed that water used for hydrostatic testing will either be discharged to receiving waterways (following any necessary treatment measures to remove potential contaminants of concern), reused on site for dust suppression, and/or removed to an offsite licenced liquid waste disposal facility.

Prior to hydrostatic testing of both the brine and treated water pipelines, general flushing will be required which has the potential to generate a small volume of water that does not comply with water quality requirements for pH and turbidity / total suspended solids. As with the hydrostatic testing process water, it is understood that flush water will either be discharged to receiving waterways (following any necessary treatment measures to remove potential contaminants of concern), reused on site for dust suppression, and/or removed to an offsite licenced liquid waste disposal facility.

A number of discharge locations will be required for each section of the pipeline. Potential locations will comprise a combination of stormwater drains, roadside swale drains, dams, lakes, general overland drainage lines and in some cases direct discharge into named waterways from standpipes (and tubing where necessary).

If discharge criteria is complied with, the proposed potable water discharges would be considered to have a low risk to receiving waterways. The water would therefore be suitable for discharge at any suitable point along the brine and treated water alignments subject to erosion and sediment controls and access licensing. While there may be multiple potential discharge points within a pipeline section, the discharge points drain to the same receiving waterway therefore changes to the exact discharge point are unlikely to increase the risk profile subject to compliance with discharge protocols and criteria.

A summary of the discharge protocols for discharges associated with cleaning / testing of pipelines is provided in Appendix 3 of Sydney Water's *Water Quality Management During Operational Activities (D0001667)*. Water quality monitoring of process water prior to discharge/ reuse and/or offsite disposal will include field testing of pH, turbidity, and total suspended solids as standard.

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## 5 POTENTIAL IMPACTS TO RECEIVING WATER BODIES

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Discharge environments include water courses/sub catchments of the Hawkebury Nepean Catchment and Georges River Catchment. Presented below in **Table 3** are the water courses/sub catchments associated with each pipeline and their corresponding Strahler Order (Aurecon Arup 2021b).

The Strahler order represents the likely potential environmental significance of a stream, with 1 being least likely to support viable fish populations. 3rd order streams and above are considered likely to display valuable fish habitat, and hence could support viable fish populations (NSW DPI 2013).

Receiving environments are presented in **Table 3**.

**Table 3. Strahler Order of potential discharge environments**

ID	Creek/Location	Strahler Order	Catchment
Treated Water Pipeline – Water crossings			
T1	South Creek	6	Hawkesbury-Nepean
T2	Unnamed tributary to South Creek	2	
T3	Badgerys Creek	4	
T4	Unnamed tributary to Badgery’s Creek	3	
T5	Farm dams u/s of Badgerys Creek tributary	1	
T6	Unnamed tributary to Cosgroves Creek	2	
T7	Oaky Creek	3	
T8	Cosgroves Creek	4	
T9	Farm dam & unnamed tributary to Cosgroves Creek	2	
T10	Jerrys Creek	4	
T11	Nepean river	7	
T12	Baines Creek	3	
Brine Discharge Main – Water crossings			
B1	Unnamed tributary to Kemps Creek	2	Hawkesbury-Nepean
B2	Kemps Creek	4	
B3	Hinchinbrook Creek	2	Georges River
B4	Unnamed tributary to Hinchinbrook Creek	3	
B5	Green Valley Creek	2	
B6	Prospect Creek	4	

Impacts to creeks are considered to be minor in nature due to the following:

- In the event that super-chlorination is required following pipe installation, highly elevated (>5 mg/L) chlorine residuals in discharge water will be managed by dichlorination as per the *Sydney Water (2020) Water Quality Management During Operational Activities (D0001667)*.
- Drainage channels are intersected by private dams in a number of locations, mitigating potential releases of super-chlorinated water
- Numerous receiving environments are low Strahler Order (< 3) and are of low environmental significance and/or are ephemeral systems with limited potential for significant aquatic ecosystem impacts

## 6 PROPOSED ENVIRONMENT PROTECTION LICENCE POLLUTANT CONCENTRATION LIMITS

Discharge criteria for waters utilised for hydrostatic testing will be in accordance with the criteria agreed upon by the NSW EPA and Sydney Water. Total residual chlorine is to be managed by JHG as per the methodology agreed upon by the NSW EPA and Sydney Water. Notably:

- For potable water discharges <1ML no chlorine residual testing will be undertaken as per the Sydney Water guidelines.
- For potable water discharges >1ML, chlorine residual testing will be undertaken to confirm water chlorine concentration is below the Sydney Water drinking water upper average of 1.5 mg/L.

- For all discharges of dechlorinated, super chlorinated water, chlorine residual testing will be undertaken to confirm water chlorine concentration is below the Sydney Water drinking water upper average of 1.5 mg/L.

The proposed discharge concentration limits is presented in **Table 4**.

**Table 4. Discharge Concentration Limits (Water Quality Management During Operational Activities, Sydney Water)**

Parameter	Discharge Limit
pH range	6.5 – 8.5
Turbidity	50 NTU
Chlorine (total)	<1.5 mg/L - for discharges >1ML and all volumes of treated super-chlorinated water discharge

Regards



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#### References:

Aurecon Arup. (2021a). Upper South Creek Advanced Water Recycling Centre Environmental Impact Statement Appendix F Hydrodynamics and Water Quality Impact Assessment. Sydney.