

# Appendices

## **Appendix A      Other Conditions of Approval, REMMS and CEMF Requirements Relevant to this Plan**

Note: additional CoAs relevant to the preparation and approval of this Sub-plan are included in Section 3.2

**Minister's Conditions of Approval (23 July 2021) SSI 10051**

Ref	Requirement	Where addressed																										
<b>A6</b>	<p>Where the terms of this approval require a document or monitoring program to be prepared, or a review to be undertaken, in consultation with identified parties, evidence of the consultation undertaken must be submitted to the Planning Secretary with the document. The evidence must include:</p> <p>(a) documentation of the engagement with the party identified in the condition of approval that has occurred before submitting the document for approval;</p> <p>(b) a log of the dates of engagement or attempted engagement with the identified party and a summary of the issues raised by them;</p> <p>(c) documentation of the follow-up with the identified party(s) where feedback has not been provided to confirm that the party(s) has none or has failed to provide feedback after repeated requests;</p> <p>(d) outline of the issues raised by the identified party(s) and how they have been addressed; and</p> <p>(e) a description of the outstanding issues raised by the identified party(s) and the reasons why they have not been addressed.</p>	<p>Section 3.5</p> <p>Appendix F</p>																										
<b>C12</b>	<p>In addition to the relevant requirements of the CEMF, the Soil and Water CEMP Sub-Plan must include but not be limited to:</p> <p>(a) details how the requirements of Conditions E127, E128 and E129 will be met;</p> <p>(b) the unexpected contaminated finds protocol required by Condition E98.</p>	<p>See below for E127, E128, E129 and E98.</p>																										
<b>E15</b>	<p>The CSSI must be designed and constructed with the objective of not exceeding the flood impacts presented in the documents listed in Condition A1 or the flood impact criteria in Table 5, whichever is greater, within and in the vicinity of the CSSI for all flood events up to and including the one (1) per cent Annual Exceedance Probability (AEP) flood event.</p> <p><b>Table 5: Flood Impact Criteria</b></p> <table border="1"> <thead> <tr> <th>Parameter</th> <th>Location</th> <th>Criteria</th> </tr> </thead> <tbody> <tr> <td rowspan="3">Afflux</td> <td rowspan="2">Land zoned as residential, industrial or commercial, and critical infrastructure</td> <td>Maximum 10 mm to buildings that are flood prone in existing conditions</td> </tr> <tr> <td>No new above floor flooding</td> </tr> <tr> <td>Roads</td> <td>Maximum 50 mm where flooding is below floor level</td> </tr> <tr> <td rowspan="2">Velocity</td> <td>Roads</td> <td>Maximum 50 mm</td> </tr> <tr> <td>Land zoned as rural, primary production, environment or public recreation</td> <td>Maximum 100 mm</td> </tr> <tr> <td rowspan="2">Flood hazard</td> <td>All areas</td> <td>Velocities are to remain below 1 metre per second. Where existing velocities exceed 1 metre per second, increase by less than 10 per cent</td> </tr> <tr> <td>Residential and commercial land</td> <td>No increase in the flood hazard or risk to life</td> </tr> <tr> <td rowspan="3">Flood duration</td> <td>Roads</td> <td>No increase in the flood hazard or risk to life</td> </tr> <tr> <td>Residential and commercial buildings</td> <td>No increase to duration of above floor flooding</td> </tr> <tr> <td>Crown land, open space, farming, grazing and cropping land</td> <td>No more than one hour increase</td> </tr> </tbody> </table> <p>Measures identified in the documents listed in Condition A1 to limit flooding impacts or measures that achieve the same outcome must be incorporated into the detailed design of the CSSI.</p>	Parameter	Location	Criteria	Afflux	Land zoned as residential, industrial or commercial, and critical infrastructure	Maximum 10 mm to buildings that are flood prone in existing conditions	No new above floor flooding	Roads	Maximum 50 mm where flooding is below floor level	Velocity	Roads	Maximum 50 mm	Land zoned as rural, primary production, environment or public recreation	Maximum 100 mm	Flood hazard	All areas	Velocities are to remain below 1 metre per second. Where existing velocities exceed 1 metre per second, increase by less than 10 per cent	Residential and commercial land	No increase in the flood hazard or risk to life	Flood duration	Roads	No increase in the flood hazard or risk to life	Residential and commercial buildings	No increase to duration of above floor flooding	Crown land, open space, farming, grazing and cropping land	No more than one hour increase	<p>Design Reports</p>
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<b>E16</b>	<p>Updated modelling that incorporates these measures and is calibrated and validated with consideration of the results of the Wianamatta-South Creek Catchment Flood Assessment prepared by Infrastructure NSW as part of Stage 2 of the South Creek Sector Review must be prepared by a suitably qualified flood consultant The modelling must identify changes in post-development flood</p>	<p>Design Reports</p>																										

**Minister's Conditions of Approval (23 July 2021) SSI 10051**

Ref	Requirement	Where addressed
	behaviour including cumulative flood impacts associated with Western Sydney International Airport and the M12, where this information is available, prior to detailed design being finalised.	
<b>E17</b>	<p>Where flooding characteristics exceed the levels identified in Condition E15 above the Proponent must undertake the following:</p> <p>(a) consult with affected landowners for properties adversely flood affected as a result of the CSSI regarding appropriate mitigations; and</p> <p>(b) consult with the NSW State Emergency Service (SES) and Relevant Council(s) regarding the management of any continuous and residual flood risk from rarer flood events larger than the 1 per cent AEP and up to the probable maximum flood.</p> <p>In the event that the Proponent and the affected landowner cannot agree on the measures to mitigate the impact as described in Condition E15, the Proponent must engage a suitably qualified and experienced independent person to advise and assist in determining the impact and relevant mitigation measures.</p>	Design Reports
<b>E90</b>	Settlement must be monitored for any period beyond the minimum timeframe requirements of Condition E87 if directed so by the IPIAP following its review of the monitoring data from the period not less than six (6) months after settlement has stabilised, consistent with Condition E87. The results of the monitoring must be made available to the Planning Secretary upon request.	Not applicable to SSTOM scope of works
<b>E98</b>	An Unexpected Contaminated Land and Asbestos Finds Procedure must be prepared before the commencement of construction and must be followed should unexpected, contaminated land or asbestos (or suspected contaminated land or asbestos) be excavated or otherwise discovered during construction.	Section 6.9.2 Appendix C
<b>E99</b>	The Unexpected Contaminated Land and Asbestos Finds Procedure must be implemented throughout construction.	Section 6.9.2 Appendix C
<b>E102</b>	<p>A Water Reuse Strategy must be prepared, which sets out options for the reuse of collected stormwater and groundwater during construction and operation. The Water Reuse Strategy must include, but not be limited to:</p> <p>(a) evaluation of reuse options;</p> <p>(b) details of the preferred reuse option(s), including volumes of water to be reused, proposed reuse locations and/or activities, proposed treatment (if required), and any additional licences or approvals that may be required;</p> <p>(c) measures to avoid misuse of recycled water as potable water;</p> <p>(d) consideration of the public health risks from water recycling; and</p> <p>(e) time frame for the implementation of the preferred reuse option(s).</p> <p>The Water Reuse Strategy must be prepared based on best practice and advice sought from relevant agencies, as required. The Strategy must be applied during construction.</p> <p>Justification must be provided to the Planning Secretary if it is concluded that no reuse options prevail.</p> <p>A copy of the Water Reuse Strategy must be made publicly available.</p> <p>Note: Nothing in this condition prevents the Proponent from preparing separate Water Reuse Strategies for the construction and operational stages of the CSSI.</p>	Section 6.4 Sustainability Plan

## Minister's Conditions of Approval (23 July 2021) SSI 10051

Ref	Requirement	Where addressed
E126	The CSSI must be designed and constructed so as to maintain the NSW Water Quality Objectives (NSW WQO) where they are being achieved as at the date of this approval, and contribute towards achievement of the NSW WQO over time where they are not being achieved as at the date of this approval, unless an EPL in force in respect of the CSSI contains different requirements in relation to the NSW WQO, in which case those requirements must be complied with.	Section 6.3.1 and Section 6.12.1
E127	The Proponent must consider the Guidelines for controlled activities on waterfront land riparian corridors (Department of Industry 2018) when carrying out work within 40 metres of a watercourse, including its bed.	Section 6.5 Section 6.7
E128	Before undertaking any work and during maintenance or construction activities, erosion and sediment controls must be implemented and maintained to prevent water pollution consistent with Managing Urban Stormwater: Soils and Construction Vol 1 4th ed. By Landcom, 2004 (The Blue Book).	Section 6.1.1 Section 6.1.2 Section 6.11
E129	Unless an EPL is in force in respect to the CSSI and that licence specifies alternative criteria, discharges from construction wastewater treatment plants to surface waters must not exceed: <ul style="list-style-type: none"> <li>(a) the Australian and New Zealand Guidelines for Fresh and Marine Water Quality 2018 (ANZG (2018)) default guideline values for toxicants at the 95 per cent species protection level;</li> <li>(b) for physical and chemical stressors, the guideline values set out in Tables 3.3.2 and 3.3.3 of the Australian and New Zealand Guidelines for Fresh and Marine Water Quality 2000 (ANZECC/ARMCANZ); and</li> <li>(c) for bioaccumulative and persistent toxicants, the ANZG (2018) guidelines values at a minimum of 99 per cent species protection level.</li> </ul> <p>Where the ANZG (2018) does not provide a default guideline value for a particular pollutant, the approaches set out in the ANZG (2018) for deriving guideline values, using interim guideline values and/or using other lines of evidence such as international scientific literature or water quality guidelines from other countries, must be used.</p>	Section 6.3 Section 6.12 Appendix B
E130	If construction stage stormwater discharges are proposed, a Water Pollution Impact Assessment will be required. 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. <p>Note: If an EPL is required the Water Pollution Impact Assessment will be required to inform licensing consistent with section 45 of the POEO Act.</p>	Section 6.3.1
E131	Drainage feature crossings (permanent and temporary watercourse crossings and stream diversions) and drainage swales and depressions must be carried out in accordance with relevant guidelines and designed by a suitably qualified and experienced person.	Section 6.5
E133	Make good provisions for groundwater users must be provided in the event of a material decline in water supply levels, quality or quantity from registered existing bores associated with groundwater changes from either construction and/or ongoing operational dewatering caused by the CSSI.	Appendix G

## Revised Environmental Management Measures

Ref	Requirement	Where addressed
HYD1	<p>Construction planning would consider flood related mitigation, including:</p> <ul style="list-style-type: none"> <li>Staging construction works to reduce the duration of works within the floodplain</li> <li>Daily and continuous monitoring of weather forecasts and storm events, rainfall levels and water levels in key watercourses to identify potential flooding events and related flood emergency response</li> <li>Consultation with NSW State Emergency Services and relevant local councils to ensure consistent approaches to the management of flood events (off airport only)</li> <li>Provide flood-proofing to excavations at risk of flooding during construction, where reasonable and feasible, such as raised entry into shafts and/or pump-out facilities to minimise ingress of floodwaters into shafts and the dive structure</li> <li>Review of site layout and staging of construction works to avoid or minimise obstruction of overland flow paths and limit the extent of flow diversion required</li> </ul>	<p>Section 6.6 Progressive ESCPs</p>
HYD2	<p>Minimise works in the main creek channels (at Blaxland Creek, unnamed watercourse south of Patons Lane and Cosgroves Creek) where possible and avoid works in the channel during rainfall events</p>	<p>Section 6.5 Progressive ESCPs</p>
HYD3	<p>Surface water flows during construction would be managed to ensure that there is no increase in flows into or through the Warragamba to Prospect Water Supply Pipelines corridor</p>	<p>Progressive ESCPs Design Reports</p>
WQ1	<p>A surface water quality monitoring program would be implemented to monitor water quality during construction. The program would be developed in consultation with (as relevant) Western Sydney Airport, NSW Environment Protection Authority, relevant sections of the Department of Planning, Industry and Environment and relevant local councils. The program would consider monitoring being undertaken as part of other infrastructure projects such as the M12 Motorway and Western Sydney International</p> <p>On-airport, the water quality monitoring program would ensure that works meet the requirements under Schedule 2 of the Airports (Environment Protection) Regulations 1997 The program would monitor all construction discharge locations</p>	<p>Section 6.12 Appendix B</p>
WQ2	<p>Water treatment plants would be designed to ensure that wastewater is treated to a level that is compliant with the ANZECC/ARMCANZ (2000), ANZG (2018) and draft ANZG (2020) default guidelines for 95 per cent species protection and 99 per cent species protection level for toxicants that bioaccumulate unless other discharge criteria are agreed with relevant authorities</p>	<p>Section 6.3.1</p>
WQ3	<p>The design and construction of the project would take into account the former NSW Office of Water's Guidelines for controlled activities on waterfront land</p>	<p>Section 6.5</p>
SC1	<p>The Soil and Water Management Plan would incorporate the following measures:</p> <ul style="list-style-type: none"> <li>For low risk areas of environmental concern, worker health and safety measures, waste management and tracking for contamination would be outlined</li> </ul>	<p>Section 6.9</p>

## Revised Environmental Management Measures

Ref	Requirement	Where addressed
	<ul style="list-style-type: none"> <li>For medium and high risk areas of environmental concern, detailed site investigations and review of further available information would be undertaken prior to the start of construction</li> </ul>	
<b>SC2</b>	<p>Based on outcomes of SC1:</p> <ul style="list-style-type: none"> <li>If a medium or high risk area of environmental concern is reassessed as low risk, the site would be managed in accordance with the Soil and Water Management Plan. This would typically occur where there is minor, isolated contamination that can be readily remediated through standard construction practices such as excavation and off-site disposal</li> <li>For areas of environmental concern that remain or change to medium risk, visual inspections and monitoring would be performed during earthworks. If suspected contamination is encountered, the materials would be subject to sampling and analysis to assess management requirements in accordance with statutory guidelines made or endorsed by the NSW Environment Protection Authority</li> <li>For areas of environmental concern that remain or change to high risk, a Sampling, Analysis and Quality Plan would be prepared for Detailed Site Investigations or data gap investigations. The results from the site investigations would be assessed against criteria contained within the National Environment Protection (Assessment of Site Contamination) Measure (2013) and other applicable NSW statutory guidelines to assess whether remediation is required.</li> </ul> <p>Remediation works would be performed in accordance with the hierarchy of preferred strategies in the Guidelines for the NSW Site Auditor Scheme (NSW Environment Protection Authority, 2017) and other guidelines made or endorsed by the NSW Environment Protection Authority.</p> <p>Where practical, remediation works would be integrated with excavation and development works performed during construction</p>	Section 6.9
<b>SC3</b>	<p>Where information gathered from investigations for medium and high risk areas of environmental concern (as per mitigation measure SC1) is insufficient to determine the risk of contamination, a detailed site investigation would be carried out in accordance with the National Environment Protection Measure (2013) and other guidelines made or endorsed by the NSW Environment Protection Authority</p> <p>Where data from the additional data review (mitigation measure SC1) or the detailed site investigation (mitigation measure SC2) confirms that contamination would require remediation, a Remediation Action Plan would be developed for the area of the construction footprint</p> <p>If a Remediation Action Plan is required, it would be developed in accordance with NSW Environment Protection Authority statutory guidelines and a Site Auditor would be engaged. Remediation methodologies would be undertaken in accordance with Australian Standards and other relevant government guidelines and codes of practice</p> <p>Remediation would be performed as an integrated component of construction and to a standard commensurate with the proposed end use of the land</p>	Section 6.9
<b>SC4</b>	<p>If a duty to report to the NSW Environment Protection Authority under Section 60 of the Contaminated Lands Management Act 1997 is triggered, or where a medium to high risk of contamination is identified, an accredited Site Auditor would review and approve the Remediation Action Plan (including issue of interim audit advice), and would develop a Site Audit Statement and Site Audit Report upon completion of remediation</p>	Section 6.9

## Revised Environmental Management Measures

Ref	Requirement	Where addressed
SC5	<p>An unexpected finds procedure would be developed and implemented as part of the project Soil and Water Management Plan, outlining a set of potential contamination issues which could be encountered, and detailing the management actions to be implemented. The unexpected finds procedure would include a process for chemical and asbestos contamination and would generally include:</p> <ul style="list-style-type: none"> <li>• Cessation of works within the affected area until inspection of the suspected contamination by a qualified contaminated lands consultant</li> <li>• Collection of soil samples for chemical or asbestos analysis, where required, based on observations</li> <li>• Assessment of results against applicable land use or waste classification criteria in accordance with statutory guidelines made or endorsed by the NSW Environment Protection Authority</li> <li>• Management of the contamination in accordance with statutory guidelines made or endorsed by the NSW Environment Protection Authority</li> <li>• The unexpected finds procedure for on-airport construction would be consistent with the Western Sydney Airport unexpected finds procedure detailed in the Western Sydney Airport Soil and Water Construction Environmental Management Plan</li> </ul>	<p>Section 6.9.2 Appendix C</p>
SC6	<p>Post construction, an inspection of construction, stockpiling and laydown sites and soil validation of redundant sedimentation/water quality basins would be undertaken to assess if further investigation and remediation is required. Investigation and remediation (if required) would be undertaken in accordance with the Soil and Water Management Plan (off-airport) and a project specific Remediation Action Plan that would be prepared in a manner consistent with the Western Sydney Airport Remediation Action Plan (on-airport). All inspections, investigations and remediation would be undertaken by a qualified contaminated lands consultant with reports prepared or reviewed by a Certified Contaminated Land Consultant</p>	Section 6.12.4
SC7	<p>Prior to ground disturbance in areas of potential acid sulfate soil occurrence, testing would be carried out to determine the actual presence of acid sulfate soils. If acid sulfate soils are encountered, they would be managed in accordance with the Acid Sulfate Soil Manual (Acid Sulfate Soil Management Advisory Committee, 1998)</p>	Section 6.9.4
SC8	<p>Prior to ground disturbance in high probability salinity areas testing would be conducted to determine the presence of saline soils. If salinity is encountered, excavated soils would not be reused or would be managed in accordance with Book 4 Dryland Salinity: Productive Use of Saline Land and Water (NSW DECC 2008). Erosion controls would be implemented in accordance with the Managing Urban Stormwater: Soils and Construction Volume 1 (Landcom, 2004)</p>	Section 6.9.3
SC9	<p>Targeted groundwater investigations would be undertaken prior to construction to identify high salinity areas at risk from rising groundwater. Where high saline areas (&gt;1000 µS/cm) are identified, measures such as planting, regenerating and maintaining native vegetation and good ground cover in recharge, transmission and discharge zones would be implemented where possible</p>	<p>Section 6.9.3 Appendix G</p>
SC10	<p>Where the construction footprint is not used as part of the operational footprint (residual land), an assessment of the suitability of the site for the proposed land use would be undertaken in accordance with statutory guidelines made or endorsed by the NSW Environment Protection Authority</p>	Section 6.9



**Construction Environmental Management Framework**

Ref	Requirement	Where addressed
3.12a	Principal Contractors undertaking off-airport work in accordance with an EPL must develop and implement a Pollution Incident Response Management Plan, in accordance with the requirements of the POEO Act. Contractor's emergency and incident response procedures will also be consistent with any relevant Sydney Metro procedures and, for on-airport works, consistent with the environmental incident and emergency management requirements identified in the Western Sydney Airport Site Environmental Management Framework and will include: i. Categories for environmental emergencies and incidents; ii. Notification protocols for each category of environmental emergency or incident, including notification to Sydney Metro, WSA (where required for on-airport works) and notification to owners / occupiers in the vicinity of the incident. This is to include relevant contact details; iii. Identification of personnel who have the authority to take immediate action to shut down any activity, or to affect any environmental control measure (including as directed by an authorised officer of any regulator or government department); iv. A process for undertaking appropriate levels of investigation for all incidents and the identification, implementation, and assessment of corrective and preventative actions; and v. Notification protocols of incidents to relevant regulators and stakeholders including (but not limited to) the EPA, DPIE, the AEO, WSA and DITRDC for incidents that are made by the Contractor or Sydney Metro.	Section 6.6.2 Section 6.8 Emergency Response Plan Pollution Incident Response Plan (to be developed with EPL application0
12.1	The following soil and water management objectives will apply to construction:	
	i. Minimise pollution of surface water through appropriate erosion and sediment control;	Section 6.1.1 Section 6.1.2
	ii. Minimise leaks and spills from construction activities;	Section 6.8
	iii. Maintain existing water quality of surrounding surface watercourses;	Section 6.1.1 Section 6.1.2
	iv. Source construction water from non-potable sources, where feasible and reasonable; and	Sustainability Management Plan Water Reuse Strategy
	v. For on-airport works, the Sydney Metro Western Sydney Airport Soil and Water CEMP will detail all the soil and water management objectives and will be consistent with the WSA Soil and Water CEMP, including all appendices to the CEMP.	N/A
12.2a	On-airport management of soil and water will be achieved through the implementation of the SMWSA Soil and Water CEMP and Principal Contractors will develop and implement a Soil and Water Management Plan for all off-airport works. Both plans will include as a minimum:	
	i. The soil and water mitigation measures as detailed in the planning approval documentation and sustainability requirements;	Section 6.11
	ii. Details of construction activities and their locations, which have the potential to impact on water courses, storage facilities, stormwater flows, and groundwater;	Section 5 Progressive ESCP

## Construction Environmental Management Framework

Ref	Requirement	Where addressed
	iii. Surface water and ground water impact assessment criteria consistent with the principles of the Australian and New Zealand Environment Conservation Council (ANZECC) guidelines for off-airport works and the Airports (Environment Protection) Regulations 1997 for on-airport works (with due consideration of the ANZECC guidelines);	Section 6.2.1 Section 6.3.1 Appendix B
	iv. Management measures to be used to minimise surface and groundwater impacts, including identification of water treatment measures and discharge points, details of how spoil and fill material required by the project will be sourced, handled, stockpiled, reused and managed; erosion and sediment control measures; salinity control measures and the consideration of flood events;	Section 6 Appendix G
	v. A contingency plan, consistent with the NSW Acid Sulfate Soils Manual (EPA 1998), to deal with the unexpected discovery of actual or potential acid sulfate soils both on and off-airport lands. The plan must include procedures for the investigation, handling, treatment and management of such soils and water seepage;	Section 6.9.4
	vi. Management measures for contaminated material (soils, water and building materials) and a contingency plan to be implemented in the case of unanticipated discovery of contaminated material, including asbestos, during construction;	Section 6.9.2 Appendix C
	vii. A description of how the effectiveness of these actions and measures would be monitored during the proposed works, clearly indicating how often this monitoring would be undertaken, the locations where monitoring would take place, how the results of the monitoring would be recorded and reported, and, if any exceedance of the criteria is detected how any non-compliance can be rectified;	Section 6.12 Section 8 Appendix B
	viii. The requirements of any applicable licence conditions;	Section 6.2.1 and 6.3.1
	ix. The responsibilities of key project personnel with respect to the implementation of the plan;	Section 7.1
	x. Procedures for the development and implementation of Progressive Erosion and Sediment Control Plans;	Section 6.1.2
	xi. Identification of locations where site specific Stormwater and Flooding Management Plans are required; and	Section 6.6.1
	xii. Compliance record generation and management	Section 7
<b>12.2b</b>	Principal Contractors will develop and implement Progressive Erosion and Sediment Control Plans (ESCPs) for all active worksites in accordance with Managing Urban Stormwater: Soils & Construction Volume 1(Landcom, 2004) (known as the “Blue Book”). The ESCPs will be approved by the Contractor’s Environmental Manager (or delegate) prior to any works commencing (including vegetation clearing) on a particular site. Copies of the approved ESCP will be held by the relevant Contractor personnel including the Engineer and the Site Foreman.	Section 6.1.1
<b>12.2c</b>	ESCPs will detail all required erosion and sediment control measures for the particular site at the particular point in time and be progressively updated to reflect the current site conditions. Any amendments to the ESCP will be approved by the Contractor’s Environmental Manager (or delegate).	Section 6.1.1
<b>12.2d</b>	Principal Contractors will develop and implement Stormwater and Flooding Management Plans for the relevant construction sites. These plans will identify the appropriate design standard for flood mitigation based on the duration of construction, proposed activities and flood risks. The plan will develop procedures to ensure that threats to human safety and damage to infrastructure are not exacerbated during the construction period.	Section 6.6.1 Emergency Response Plan
<b>12.2e</b>	Principal Contractors will undertake the following soil and water monitoring as a minimum:	

Construction Environmental Management Framework		
Ref	Requirement	Where addressed
	i. Weekly inspections of the erosion and sediment control measures. Issues identified would be rectified as soon as practicable;	Section 6.12, 6.12.1
	ii. Additional inspections will be undertaken following significant rainfall events (greater than 20 mm in 24 hours); and	
	iii. All water will be tested (and treated if required) prior to discharge from the site in order to determine compliance with the appropriate approvals and licencing. No water will be discharged from the site without written approval of the Contractor's Environmental Manager (or delegate). This is to form a HOLD POINT.	Section 6.2.1
<b>12.2f</b>	The following compliance records will be kept by the Principal Contractors:	
	i. Copies of current ESCPs for all active construction sites;	Section 7.3
	ii. Records of soil and water inspections undertaken;	Section 7.3
	iii. Records of testing of any water prior to discharge; and	Section 7.3
	iv. Records of the release of the hold point to discharge water from the construction site to the receiving environment.	Section 7.3 Appendix E
<b>12.2g</b>	The following water resources management objectives will apply to the construction of the project:	
	i. Minimise demand for, and use of potable water;	Section 6.4
	ii. Maximise opportunities for water re-use from captured stormwater, wastewater and groundwater;	Sustainability Management Plan Water Reuse Strategy
	iii. Examples of measures to minimise potable water consumption include: <ul style="list-style-type: none"> <li>• Water efficient controls, fixtures and fittings in temporary facilities;</li> <li>• Collecting, treating and reusing water generated in tunnelling operations, concrete batching and casting facility processes;</li> <li>• Using recycled water or treated water from onsite sources in the formulation of concrete;</li> <li>• Harvesting and reusing rainwater from roofs of temporary facilities;</li> <li>• Using water from recycled water networks;</li> <li>• Collecting, treating, and reusing groundwater and stormwater;</li> <li>• Using water efficient construction methods and equipment; and</li> <li>• Providing designated sealed areas for equipment wash down.</li> </ul>	
<b>12.3a</b>	The on-airport Soil and Water CEMP and the off-airport Soil and Water Management Plan will include the following surface water and flooding mitigation measures as well as any relevant Conditions:	
	i. Clean water will be diverted around disturbed site areas, stockpiles and contaminated areas;	Section 6.11
	ii. Control measures will be installed downstream of works, stockpiles and other disturbed areas;	Section 6.11
	iii. Exposed surfaces will be minimised, and stabilised / revegetated as soon feasible and reasonable upon completion of construction;	Section 6.11

## Construction Environmental Management Framework

Ref	Requirement	Where addressed
	iv. Dangerous good and hazardous materials storage will be within bunded areas with a capacity of 110 per cent of the maximum single stored volume;	Section 6.11
	v. Chemicals will be stored and handled in accordance with relevant Australian standards such as:	Section 6.9.5
	• AS 1940-2004 The storage and handling of flammable and combustible liquids	Section 6.8
	• AS/NZS 4452:1997 The storage and handling of toxic substances	
	• AS/NZS 5026:2012 The storage and handling of Class 4 dangerous goods	
	• AS/NZS 1547:2012 On-site domestic wastewater management	
	vi. Spill kits will be provided at the batch plants, storage areas and main work sites;	Section 6.9.5
	vii. A protocol will be developed and implemented to respond to and remedy leaks or spills.	Section 6.8 Appendix D
	viii. A remedial action plan and unexpected finds protocol would be established to facilitate the quarantining, isolation and remediation of contamination identified throughout the construction programme. Any asbestos identified on site would be managed in accordance with applicable regulatory requirements.	Appendix C

# **Appendix B      Surface Water Quality Monitoring Program**



# Surface Water Quality Monitoring Program

SMWSASSM-PLD-1NL-PC-PLN-000021 (Rev 01)

Parklife Metro D&C

# Document Approval

Revision	Author	Date	Comments	Reviewed by	Approved by
A	C. Kennedy	20/02/2023	Initial Draft	Mark Chilton	Richard Graham
B	C. Kennedy	27/03/2023	Issued for stakeholder consultation	Mark Chilton	Richard Graham
C	C. Kennedy	19/05/2023	Revised in response to comments	Mark Chilton	Richard Graham
D	C. Kennedy	09/06/2023	Revised in response to comments	Mark Chilton	Richard Graham
00	C. Kennedy	26/06/2023	Final for ER endorsement and DPE review and approval	Mark Chilton	Richard Graham
01	C. Kennedy	17/07/2023	Revised in response to DPE review	Mark Chilton	Richard Graham

<b>Signature</b>	
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## Acronym and Definitions

Abbreviation	Expanded Text
<b>AS</b>	Australian Standard
<b>CEMF</b>	Construction Environmental Management Framework
<b>Condition</b>	Planning Minister's Condition of Approval
<b>Construction</b>	Includes all work required to construct the CSSI as described in the documents listed in Conditions A1, including commissioning trials of equipment and temporary use of any part of the CSSI, but excluding Low Impact Work.
<b>DPE</b>	NSW Department of Planning and Environment
<b>EC</b>	Electrical conductivity
<b>EIS</b>	Environmental Impact Statement
<b>EM</b>	Environment Manager
<b>EMS</b>	Environmental Management System
<b>EPA</b>	NSW Environmental Protection Authority
<b>EPL</b>	Environmental Protection License
<b>ER</b>	Environmental Representative nominated by the Proponent and approved by the Planning Secretary in accordance with Condition A27
<b>LGA</b>	Local Government Area
<b>Minister, the</b>	NSW Minister for Planning and Public Spaces (or delegate)
<b>Non-compliance</b>	An occurrence, set of circumstances, or development that results in a non-compliance or is non-compliant with Infrastructure Approval or other licence, permit or legal requirements, but is not an incident
<b>Non-conformance</b>	Observations or actions that are not in strict accordance with the CEMP and the aspect specific Sub-Plan
<b>NTU</b>	Nephelometric Turbidity unit
<b>POEO Act</b>	<i>Protection of the Environment Operations Act 1997.</i>
<b>REMM</b>	SSD 7308 Revised Environmental Management Measures
<b>SSTOM</b>	Stations, Systems, Trains, Operations and Maintenance
<b>the Principal</b>	Sydney Metro
<b>the Project</b>	Sydney Metro Western Sydney Airport
<b>Parklife Metro</b>	Consortium comprising entities of Plenary, Siemens, RATP Dev and Webuild as the the Applicant for the Sydney Metro Western Sydney Airport SSTOM Package.
<b>Parklife Metro D&amp;C</b>	Parklife Metro Design and Construct. Consists of Webuild S.P.A, Siemens Mobility Pty Ltd and Richard Crookes Constructions Pty Ltd. Responsible for the construction of SSTOM Works

# 1 Introduction

## 1.1 Background

The Sydney Metro Western Sydney Airport Project involves the construction and operation of a new metro railway line around 23km in length that extends from the existing Sydney Trains suburban T1 Western Line at St Marys in the north and the Aerotropolis in the south at Bringelly. The alignment includes a combination of tunnel, surface, bridges and viaduct sections, and comprises of six new metro stations between St Marys and the Aerotropolis Core precinct, as well as a stabling and maintenance facility and operational control centre to support the operation of the new metro railway line (see Figure 1).

The Project will be delivered in multiple stages, consisting of

- **Advanced and Enabling Works (AEW)** – Site investigations, modification of the existing transport network, power and water supply for construction sites, utility and stormwater diversions and some demolition works.
- **Station Boxes and Tunnelling (SBT)** – Two sections of twin running tunnels, constructed with the use of tunnel boring machines (TBMs), dive structures and station box excavations.
- **Surface and Civil Alignment Works (SCAW)** – Construction of bridges and viaducts to cross floodplains, watercourses and existing and proposed permanent infrastructure.
- **Stations, Systems, Trains, Operations and Maintenance (SSTOM)**, being the subject of this Monitoring Program, and will include the following:
  - Station design and fit-out, urban and landscape design, precinct and transport integration works,
  - Finishing works and testing and commissioning, and
  - Operation of the Western Sydney Airport metro service (operation of Sydney Metro WSA will be managed by separate CEMP and Sub-plans).
- **Finalisation Auxiliary Works.**

The SSTOM Works scope as part of the Sydney Metro Western Sydney Airport Project includes:

- installation of tracks, signalling, mechanical and electrical systems,
- construction of a stabling and maintenance facility at Orchard Hills,
- construction of the lower chamber of Bringelly shaft, along with capping and backfill,
- construction of the lower chamber of Claremont Meadows shaft, along with capping and backfill, and
- construction of six stations, including:
  - a new metro station connecting to, and providing an interchange with, the T1 Western Line (part of the existing Sydney Trains suburban rail network) at St Marys,
  - two new metro stations between the T1 Western Line and Western Sydney International; one at Orchard Hills and one at Luddenham within the Northern Gateway Precinct,
  - two new metro stations within the Western Sydney International site; one at the Airport Terminal and one at the Airport Business Park, both of which are located on Airport land and are managed under a separate CEMP and Sub-plan documents, and
  - a new metro station within the Aerotropolis Core precinct, south of Western Sydney International.

The SSTOM Works also includes the supplying new driverless trains, and the operation and maintenance of the new metro railway line and its assets, which will be managed separately to this Monitoring Program.

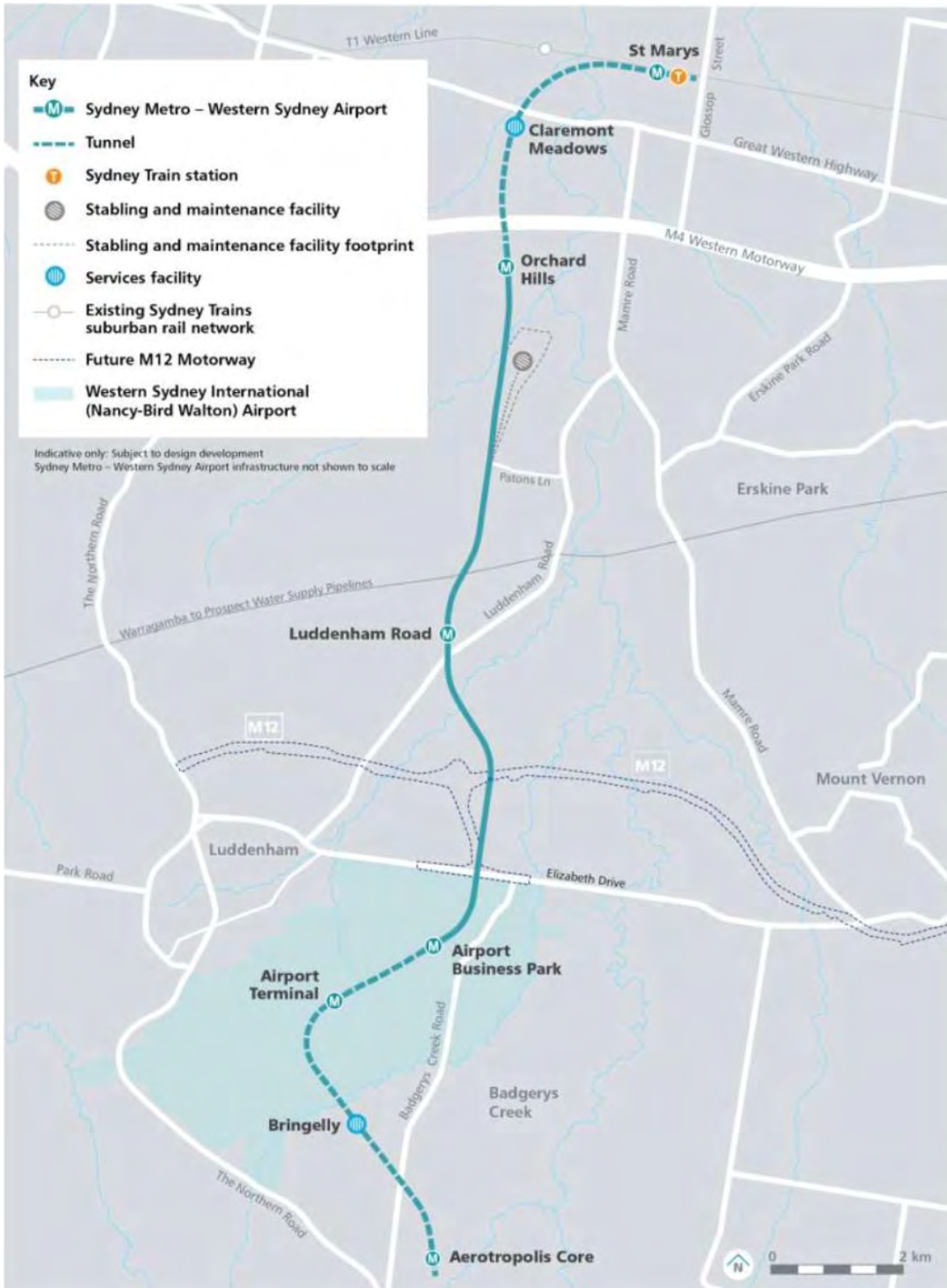


FIGURE 1 OVERVIEW OF SMWSA PROJECT

## 1.2 Context

This Surface Water Quality Monitoring Program (Monitoring Program) is an appendix of the Soil and Water Management Sub-plan (SWMP) and forms part of the Construction Environmental Management Plan (CEMP) for the SSTOM Works being undertaken on NSW land (off-airport). This Monitoring Program has been developed in consultation with relevant Councils, DPE Water and DPI Fisheries (refer to Appendix F of the Soil and Water Management Plan for details of consultation), in accordance with Condition A6.

The Monitoring Program is required under Condition C13 and in accordance with the SMWSA Staging Report, this Monitoring Program will be endorsed by the SSTOM Environmental Representative (ER) before commencement of construction in accordance with Condition C18. Construction will not commence until the ER has endorsed and/or the Planning Secretary has approved, all of the Construction Monitoring Programs required under Condition C13, in accordance with the SMWSA Staging Report. The Surface Water Quality Monitoring Program will be implemented for the duration of construction in accordance with Condition C21.

## 1.3 Scope

The Monitoring Program has been prepared in accordance with the requirements of Planning Approval Conditions (refer to Table 1) and will describe how Parklife Metro D&C will approach monitoring requirements for surface water on the SSTOM Works. The Monitoring program has been developed considering the SMART principles, in that they are specific to surface water quality monitoring for the SSTOM Works being undertaken off-airport, they are measurable against monitoring parameters, they are actionable as trigger action responses, they are realistic and achievable, and they are timely in that they apply to the construction phase of the SSTOM Works.

This Monitoring Program is the key measurement tool and has been prepared to compare actual performance of the SSTOM Works against the predicted performance the EIS and will describe how Parklife Metro D&C proposes to monitor potential impacts to surface water during construction of the SSTOM Works.

## 1.4 Conditions of Approval

Conditions relevant to the preparation of this Program are identified in Table 1. A cross reference is also included to indicate where the requirement is addressed in this Program or other documents

TABLE 1 REQUIREMENTS FOR THE PREPARATION OF THIS MONITORING PROGRAM

Ref	Requirement	Where Addressed
<b>Condition C13</b>	<p>The following Construction Monitoring Programs must be prepared in consultation with the relevant government agencies (as required by Condition A6) identified for each to compare actual performance of construction of the CSSI against the performance predicted in the documents listed in Condition A1 or in the CEMP. Where a government agency(ies) request(s) is not included, the Proponent must provide the Planning Secretary / ER (whichever is applicable) justification as to why.</p> <p>(b) Surface water quality: DPIE Water, DPI Fisheries and Relevant Councils</p>	<p>Section 3</p> <p>Appendix F of the SWMP</p>
<b>Condition C14</b>	Each Construction Monitoring Program must provide:	
	(a) details of baseline data available including the period of baseline monitoring;	Section 4
	(b) details of baseline data to be obtained and when;	Section 4
	(c) details of all monitoring of the project to be undertaken;	Section 5
	(d) the parameters of the project to be monitored;	Section 5.4
	(e) the frequency of monitoring to be undertaken;	Section 5.2

	(f) the location of monitoring;	Section 5.1
	(g) the reporting of monitoring results and analysis results against relevant criteria;	Section 5.3.3 Section 6.3
	(h) details of the methods that will be used to analyse the monitoring data;	Section 6.2
	(i) procedures to identify and implement additional mitigation measures where the results of the monitoring indicated unacceptable project impacts;	Section 6
	(j) a consideration of SMART principles;	Section 1.3, Section 5
	(k) any consultation to be undertaken in relation to the monitoring programs; and	Section 3
	(l) any specific requirements as required by Conditions C15 to C16.	N/A
<b>Condition C17</b>	With the exception of any Construction Monitoring Programs expressly nominated by the Planning Secretary to be endorsed by the ER, all Construction Monitoring Programs must be submitted to the Planning Secretary for approval.	Section 2
<b>Condition C18</b>	The Construction Monitoring Programs not requiring the Planning Secretary's approval must obtain the endorsement of the ER as being in accordance with the conditions of approval and all undertakings made in the documents listed in Condition A1. Any of these Construction Monitoring Programs must be submitted to the ER for endorsement at least one (1) month before the commencement of construction or where construction is staged no later than one (1) month before the commencement of that stage.	Section 2
<b>Condition C19</b>	Any of the Construction Monitoring Programs which require Planning Secretary approval must be endorsed by the ER and then submitted to the Planning Secretary for approval at least one (1) month before the commencement of construction or where construction is staged no later than one (1) month before the commencement of that stage.	Section 2
<b>Condition C20</b>	Unless otherwise agreed with the Planning Secretary, construction must not commence until the Planning Secretary has approved, or the ER has endorsed (whichever is applicable), all of the required Construction Monitoring Programs and all relevant baseline data for the specific construction activity has been collected.	Section 2
<b>Condition C21</b>	The Construction Monitoring Programs, as approved by the Planning Secretary or the ER has endorsed (whichever is applicable), 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 or the ER (whichever is applicable), whichever is the greater.	Section 2
<b>Condition C22</b>	The results of the Construction Monitoring Programs must be submitted to the Planning Secretary, ER and relevant regulatory agencies, for information in the form of a Construction Monitoring Report at the frequency identified in the relevant Construction Monitoring Program.	Section 6.3
	Note: Where a relevant CEMP Sub-plan exists, the relevant Construction Monitoring Program may be incorporated into that CEMP Sub-plan.	



## 1.5 Environmental Protection Licence

An Environmental Protection Licence (EPL) will be obtained for the Project. Surface water quality monitoring requirements from the EPL will be undertaken in addition to the monitoring described in this Monitoring Program, where they are not already included in this document.

## 1.6 Construction Environmental Management Framework

The CEMF requirements relevant to the preparation of this Program are identified in Table 2. A cross reference is also included to indicate where the requirement is addressed, in this Program or other documents.

TABLE 2 CEMF REQUIREMENTS

Ref	Requirement	Where Addressed
<b>CEMF 3.16a</b>	Issue specific environmental monitoring will be undertaken as required or as additionally required by any approval, permit or licence conditions.	This document
<b>CEMF 3.16a</b>	The results of any monitoring undertaken as a requirement of a license or permit that is required to be published will be published on the Principal Contractor's, or a project specific, website within 14 days of obtaining the results.	Section 6.3

## 1.7 Revised Environmental Mitigation Measures

The revised environmental mitigation measures (REMMs) from the Submissions Report relevant to the preparation of this Monitoring Program are identified in Table 3. A cross reference is also included to indicate where the requirement is addressed in this Program or other documents.

TABLE 3 REMM REQUIREMENTS

Ref	Requirement	Where Addressed
<b>REMM WQ1</b>	<p>A surface water quality monitoring program would be implemented to monitor water quality during construction. The program would be developed in consultation with (as relevant) Western Sydney Airport, NSW Environment Protection Authority, relevant sections of Department of Planning, Industry and Environment and relevant local councils. The program would consider monitoring being undertaken as part of other infrastructure projects such as the M12 Motorway and Western Sydney International.</p> <p>On-airport, the water quality monitoring program would ensure that works meet the requirements under Schedule 2 of the Airports (Environment Protection) Regulations 1997.</p> <p>The program would monitor all construction discharge locations.</p>	This Monitoring Program

## 2 Document Approval

This Monitoring Program will be endorsed by the ER in accordance with Condition C19 and submitted to the Planning Secretary for approval no later than one month prior to the commencement of construction.

Construction will not commence until the ER has endorsed and/or the Planning Secretary has approved, all of the Construction Monitoring Programs required under Condition C13. This Monitoring Program will be implemented for the duration of construction in accordance with Condition C21.

### 3 Agency Consultation

Agencies to be consulted for this Monitoring Program are specified in Condition C13 and summarised in Table 4 below. Parklife Metro D&C have engaged with these agencies in developing and finalising this Monitoring Program.

TABLE 4 AGENCY CONSULTATION REQUIREMENTS

Subject	Agency Consultation
Surface Water Quality Monitoring Program Condition C13(b)	DPE Water, DPI Fisheries and Relevant Councils (Penrith City Council and Liverpool City Council)

A summary of this consultation is provided below in Table 5 whilst records of consultation are provided in Appendix F of the SWMP in accordance with Condition A6. The evidence in Appendix F of the SWMP also includes the consultation undertaken for the Soil and Water Management Plan, required in accordance with Condition C5.

TABLE 5 CONSULTATION LOG

Agency	Date consulted	Comments received	Discussion
<b>Penrith City Council</b>	29/03/2023	28/04/2023	Penrith City Council requested for any land contamination assessments of management documentation be sent to Council. This has been addressed in Appendix C of the SWMP.
<b>Liverpool City Council</b>	29/03/2023	No response received	
<b>DPI Fisheries</b>	5/04/2023	4/05/2023	DPI Fisheries raised various comments around reporting procedures for incidents and notification requirements. It is noted that environmental incidents will be managed in accordance with the requirements included in Section 3.8 of the CEMP.
<b>DPE Water</b>	5/04/2023	4/05/2023	Confirmed that DPE Water have no issues to raise.



## 4 Baseline Data

The EIS reviewed the results from previous water quality monitoring undertaken in the surrounding environment around the Project and concluded South Creek as one of the most degraded catchments in the wider Hawkesbury-Nepean catchment. The existing results that were reviewed during development of the EIS confirmed that existing water quality in the area is generally not meeting the ANZECC guidelines values for protection of aquatic ecosystems, primary and secondary contact recreation and irrigation water used for food and non-food crops. The existing water quality is considered poor and degraded due to high nutrient concentrations and low dissolved oxygen concentrations.

It is noted that additional surface water quality monitoring is being undertaken as part of other infrastructure projects, such as the M12 Motorway and Western Sydney International, which will also be reviewed during construction and during development of any site-specific trigger values (SSTVs), as further discussed in Section 5.5.

The locations of the previous water quality monitoring points are illustrated below in Figure 2 and Figure 3. Table 6 lists the upstream and downstream sample IDs as they are relevant to this Monitoring Program.

TABLE 6 BASELINE WATER MONITORING LOCATIONS RELEVANT TO SSTOM WORKS

Sample ID	Location	Source
<b>SREC</b>	South Creek – D/S of Luddenham Station, U/S of Orchard Hills Station and SMF	GHD 2015 - 2016
<b>S1</b>	South Creek – D/S of Airport land, U/S of Luddenham Station	PPK, 1998 and SMEC, 2014
<b>S2</b>	Kemps Creek – U/S of alignment	PPK, 1998 and SMEC, 2014
<b>S3</b>	D/S of Orchard Hills Station, U/S of St Marys	PPK, 1998
<b>C3</b>	Cosgroves Creek – U/S of Luddenham Station	PPK, 1998 and SMEC, 2014
<b>L5</b>	Oaky Creek – D/S of Airport land	GHD 2015 - 2016
<b>BCDS</b>	Badgerys Creek – D/S of Airport Land	WSI EIS WQ Monitoring 2105, 2016
<b>L1</b>	Badgerys Creek – D/S of Airport Land	GHD 2015 - 2016
<b>B3</b>	Badgerys Creek – D/S of Airport Land	PPK, 1998 and SMEC, 2014
<b>L2</b>	Badgerys Creek – D/S of Airport Land	GHD 2015 - 2016
<b>L3</b>	Badgerys Creek – D/S of Airport Land	GHD 2015 - 2016
<b>L4</b>	Badgerys Creek – D/S of Airport Land	GHD 2015 - 2016
<b>B1</b>	Badgerys Creek – U/S of Airport Land and Bringelly Services Facility	PPK, 1998 and SMEC, 2014
<b>B2</b>	Badgerys Creek – D/S of Airport Land and Bringelly Services Facility	PPK, 1998 and SMEC, 2014
<b>TCUS</b>	Thompsons Creek – U/S of Aerotropolis Core Station	GHD 2015 - 2016
<b>T1</b>	Thompsons Creek – D/S of Aerotropolis Core Station	PPK, 1998 and SMEC, 2014

Water quality monitoring undertaken at the above locations surrounding the SSTOM Works was previously completed to inform various environmental assessments or as part of monitoring programs for various projects. The monitoring undertaken at the locations described in Table 6 and illustrated in Figure 2 and Figure 3 have included a variety of water quality parameters. The various parameters sampled have included:

- Total recoverable hydrocarbons (TRH),
- Polycyclic aromatic hydrocarbons (PAHs) and trace phenols,
- Volatile organic compounds (VOCs),
- Benzene, toluene, ethylbenzene, xylene and naphthalene (BTEXN),
- Metals (As, Cd, Cr, Cu, Pb, Hg, Ni and Zn),
- Trace organochlorine and organophosphorus pesticides,
- Nutrients (nitrate, nitrite, ammonia, total Kjeldahl nitrogen, total phosphorous, reactive phosphorous, total nitrogen),
- Total suspended solids (TSS),

- Turbidity, and
- Thermotolerant coliforms, and Chlorophyll-(a).

Table 7 provides a summary of the baseline water quality data for the historic monitoring programs. This baseline water quality data will be utilised to inform SSTVs, as further discussed in Section 5.5.

TABLE 7 HISTORICAL BASELINE WATER QUALITY DATA

Parameter	ANZG (2018) / ANZECC (2000)*	Monitoring Location					
<b>DO % sat</b>	85 - 110	83 - 105	39 - 79	53.99	60.44	39 - 79	15 - 50
<b>Conductivity (µs/cm)</b>	125 - 2,200	Not tested	<500-3200	1075.92	7857.92	<500-3200	Not tested
<b>pH</b>	6.5 - 8.0	7-7.2	6.9 - 7.4	7.74	7.5	6.9 - 7.4	6.4 - 7.3
<b>Turbidity (NTU)</b>	6 - 50	15 - 65	12 - 40	41.08	49.16	12 - 40	4.9 - 17
<b>TSS (mg/L)</b>	3 - 25	9-56	4-14	44.7	42.12	4-14	5-31
<b>TN (mg/L)</b>	0.5	0.49 - 1.6	0.8 - 1.52	3.46	3.6	0.8 - 1.52	0.02 - 1.14
<b>TP (mg/L)</b>	0.05	0.01 - 0.14	0.05 - 0.5	0.52	0.6	0.05 - 0.5	0.01 - 0.07
<b>Arsenic</b>	0.013	Not tested	Not tested	0.0017	0.0027	Not tested	Not tested
<b>Cadmium</b>	0.002	Not tested	Not tested	<0.0002	0.0002	Not tested	Not tested
<b>Chromium (VI)</b>	0.001	1.7	Not tested	0.0025	0.004	Not tested	Not tested
<b>Copper</b>	0.0014	3.6	Not tested	0.0076	0.0083	Not tested	Not tested
<b>Lead</b>	0.0034	1.61	Not tested	0.0024	0.0032	Not tested	Not tested
<b>Mercury</b>	0.0006	Not tested	Not tested	<0.0001	<0.0001	Not tested	Not tested
<b>Nickel</b>	0.011	Not tested	Not tested	0.0026	0.0035	Not tested	Not tested
<b>Zinc</b>	0.008	9.1	Not tested	0.0125	0.0147	Not tested	Not tested



FIGURE 2 HISTORICAL SURFACE WATER QUALITY MONITORING LOCATIONS - NORTH (EIS, OCTOBER 2020)



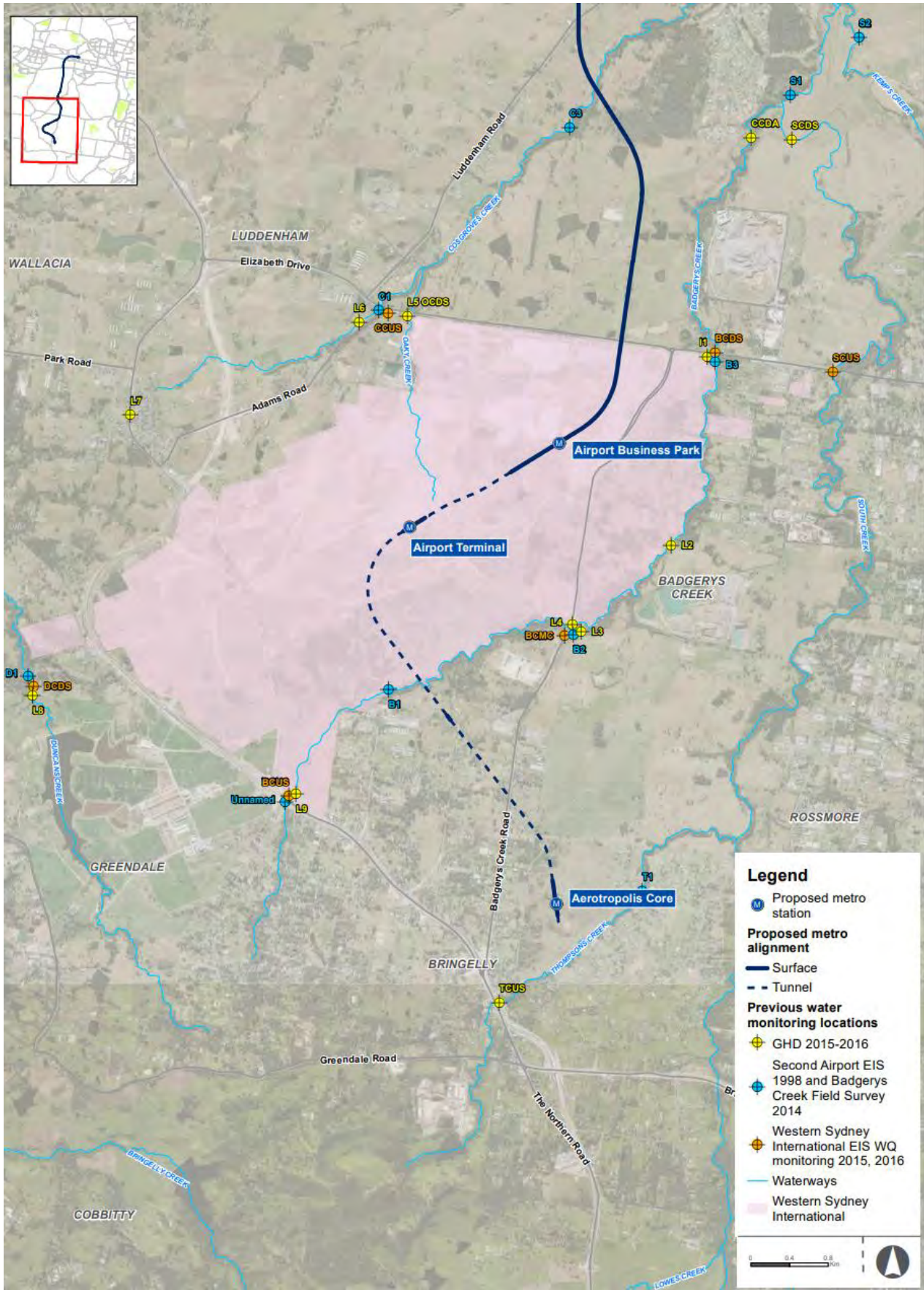


FIGURE 3 HISTORICAL SURFACE WATER QUALITY MONITORING LOCATIONS - SOUTH (EIS, OCTOBER 2020)

## 5 Monitoring

The water quality monitoring undertaken as part of this Monitoring Program will be used as the key measurement tool to compare actual performance of the SSTOM Works against the predicted performance in the EIS and as an indicator of compliance with the water quality trigger values. The Monitoring Program will identify potential impacts on surface water within the catchment and waterways of the SSTOM Works alignment and determine the effectiveness of water quality and erosion and sediment controls on site.

The Project EPL may authorise discharge of water from specific locations or premises and establish criteria that differ from those given in this Program. In such circumstances the EPL, and any conditions and criteria of that EPL, take precedence over this Program. In accordance with the requirements of the EPL, this Monitoring Program includes the monitoring of all construction discharges, in the locations and parameters required by the EPL.

### 5.1 Monitoring Locations

The monitoring points identified in Table 8 all lie within the northward flowing South Creek catchment, which are illustrated in Figure 4 and Figure 5. Monitoring locations, as shown in Figure 4 and Figure 5, are indicative and approximate and will be varied slightly as required to enable safe monitoring location during all weather conditions.

TABLE 8 CONSTRUCTION SURFACE WATER QUALITY MONITORING POINTS

ID	Representative Historical Sampling Location	Monitoring Location	Work Areas Targeted / Notes
SW1	N/A	South Creek, Christie Street Bridge	Previously monitored by SBT contractor as SBT1  D/S monitoring point for works around St Marys Station
SW2	S3	South Creek, end of north end of Samuel Marsden Road, Orchard Hills	Previously monitored by SBT contractor as SBT2  U/S monitoring point for works around St Marys Station
SW3	N/A	Blaxland Creek, downstream of alignment, Orchard Hills	Previously monitored by SCAW contractor as SCAW 1 (DS)  D/S monitoring point for works on the alignment between Orchard Hills Station and Luddenham Road Station and for the stabling and maintenance facility
SW4	N/A	Blaxland Creek, upstream of alignment, Orchard Hills	Previously monitored by SCAW contractor as SCAW 1 (US)  U/S monitoring point for works on the alignment between Orchard Hills Station and Luddenham Road Station and for the stabling and maintenance facility
SW5	COSDS	Cosgroves Creek, Twin Creeks Drive crossing, Luddenham	Previously monitored by SCAW contractor as SCAW 3 (DS)  D/S monitoring point for works at Luddenham Road Station and surrounding alignment

<b>SW6</b>	C3	Cosgroves Creek, downstream of alignment, Luddenham	Previously monitored by SCAW contractor as SCAW 3 (US)  U/S monitoring point for works at Luddenham Road Station and surrounding alignment
<b>SW7</b>	CCDA	Badgerys Creek, near Ganton Way, Luddenham	Previously monitored by SCAW contractor as SCAW 4 (DS)  D/S monitoring point for works on the alignment between the WSA and Luddenham Road
<b>SW8</b>	BCDS	Badgerys Creek, Elizabeth Drive crossing, Badgerys Creek	Previously monitored by SCAW contractor as SCAW 4 (US)  U/S monitoring point for works on the alignment between the WSA and Luddenham Road
<b>SW9</b>	D/S Basin 3	Badgerys Creek, Badgerys Creek Road crossing, Bringelly	Previously monitored by SBT contractor as SBT3  D/S monitoring point for works at Bringelly Services Facility
<b>SW10</b>	D/S Badgerys	Badgerys Creek, near Mersey Road, Bringelly	Previously monitored by SBT contractor as SBT4  U/S monitoring point for works at Bringelly Services Facility
<b>SW11</b>	T1	Thompsons Creek, The Retreat crossing, Bringelly	Previously monitored by SBT contractor as SBT5  D/S monitoring point for works at Aerotropolis Core Station
<b>SW14</b>	N/A	Thompsons Creek, The Northern Road crossing, Bringelly	Not included in previous SMWSA Monitoring  U/S monitoring point for works at Aerotropolis Core Station



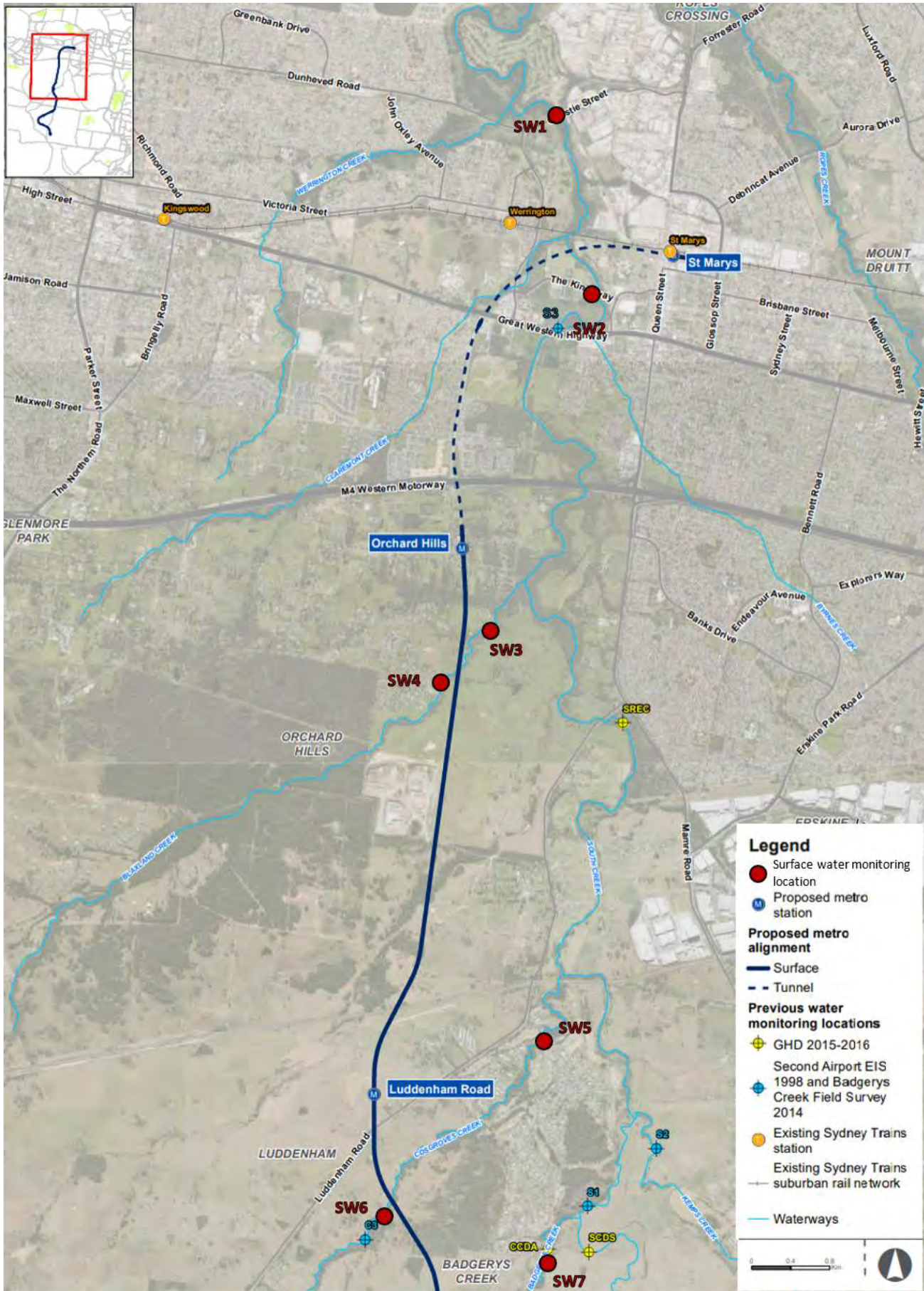


FIGURE 4 CONSTRUCTION SURFACE WATER QUALITY MONITORING LOCATIONS - NORTH



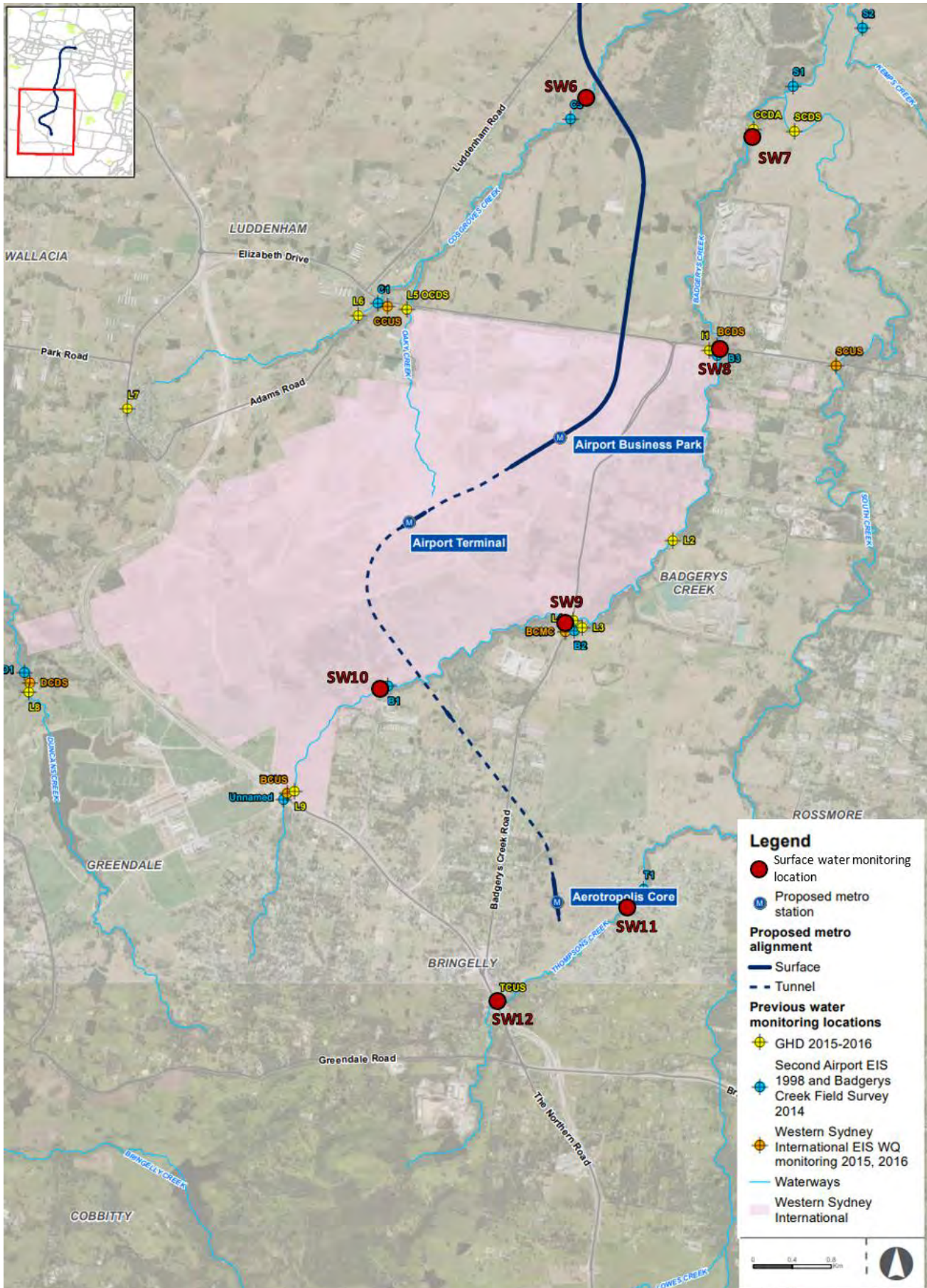


FIGURE 5 CONSTRUCTION SURFACE WATER QUALITY MONITORING LOCATIONS - SOUTH

## 5.2 Sampling Frequency

During the SSTOM Works, surface water quality monitoring will be undertaken quarterly at the locations identified in Section 5.1.

Wet weather monitoring will also be carried out at least once every quarter after a rainfall of >20mm is received during a 24-hour period and has generated runoff from site.

If works causing ground disturbance is identified to be required within waterways or their riparian zones, localised sampling points would be identified to measure any potential impacts. These works would be planned in accordance with an EWMS, and will require monthly monitoring for the duration of the associated works in that area.

## 5.3 Monitoring Methodology

### 5.3.1 Sample Collection

Probe sampling will be collected manually from the sampling locations identified in Table 8. The volume of sample collected will be sufficient for the required physio-chemical (field) parameter analysis using a multi-probe water quality meter.

Grab samples will be collected for laboratory analysis for those pollutants that cannot be tested in the field. The bottle selection, required preservative and recommended holding times and conditions will be determined by the laboratory.

### 5.3.2 Field Measurements

Field physio-chemical parameters including EC/salinity, pH, DO, Redox potential, temperature and turbidity (NTU) will be measured at each sampling location using a fully calibrated multi-probe water quality meter(s) or provided for laboratory analysis. Other observations including odour, colour and presence of oil or grease will also be recorded where anomalies are observed.

The multi-probe field water quality meter(s) will be calibrated against known standards, as supplied by the manufacturer, at the start and completion of each day of water quality sampling.

The sampling method for the appropriate water quality parameter is presented in the EPA publication, *Approved Methods for Sampling and Analysis of Water Pollutants in NSW (2004)*.

### 5.3.3 Recording Measurements and Monitoring Data

Results for each monitoring location will be recorded on appropriate field sheets (hard copy or digital) using unique sampling identification nomenclature consisting of the sample date and time, location, sampler details, and any unique observations noted during the sampling event.

Monitoring data will be digitally recorded and compared against trigger values and previous monitoring data to determine environmental performance.

## 5.4 Sampling Parameters

During water quality monitoring, the parameters identified in Table 9 will be measured via the sampling methodology identified. In the event that any indicators of additional contamination are observed, the sampling parameters identified in Table 9 would be reviewed.

TABLE 9 SAMPLING PARAMETERS TO BE MEASURED

Category	Sampling Method	Parameters Measured
<b>Physio-chemical parameters</b>	In-field using a calibrated multi parameter probe.	<ul style="list-style-type: none"> <li>• Temperature (°C)</li> <li>• Dissolved Oxygen (% saturation)</li> <li>• Electrical Conductivity / Salinity (µS/cm)</li> <li>• Reduction-Oxidation Potential (Redox)(mV)</li> <li>• pH</li> <li>• Turbidity (NTU)</li> <li>• Visible oil and grease</li> </ul>
<b>Physio-chemical parameters</b>	Laboratory testing	<ul style="list-style-type: none"> <li>• Total suspended solids (TSS)<sup>1</sup></li> </ul>
<b>Metals</b>	Laboratory testing	<ul style="list-style-type: none"> <li>• Cadmium</li> <li>• Chromium (VI)</li> <li>• Copper</li> <li>• Lead</li> <li>• Nickel</li> <li>• Zinc</li> </ul>
<b>Nutrients</b>	Laboratory testing	<ul style="list-style-type: none"> <li>• Total Phosphorous (TP)</li> <li>• Total Nitrogen (TN)</li> <li>• Oxides of Nitrogen (NOx)</li> </ul>

<sup>1</sup> Total suspended solids (TSS) may be determined via statistical correlation with Turbidity (NTU), if such relationship has been determined.

## 5.5 Water Quality Trigger Values

The project environmental values, based on ANZG 2018 and ANZECC guideline trigger values for the selected toxicants, would be applied for the protection of 95 percent of species in slightly disturbed to moderately disturbed freshwater systems, and 99 percent species protection level for toxicants that bioaccumulate. For physical and chemical stressors, the ANZG 2018 guidelines are the same as the ANZECC 2000 and provide guideline trigger values for slightly disturbed ecosystems in lowland rivers in south-east Australia as shown in Table 10.

An ongoing review of monitoring data from this Monitoring Program and historical monitoring events will be undertaken to provide SSTVs, noting that some surface water quality parameters exceed the default ANZECC (2000a) water quality trigger values for slightly to moderately disturbed ecosystems. It is anticipated that SSTVs will be determined based on a rolling mean value following the first three rounds of sampling events, which will then provide an easily identifiable indication of any potential changes in water quality.

TABLE 10 WATER QUALITY TRIGGER VALUES

Parameters	Units	Trigger value
<b>Dissolved Oxygen (DO)</b>	% saturation	85 – 110
<b>Turbidity (NTU)</b>	NTU	6 – 50
<b>Total suspended solids (TSS)</b>	mg/L	3 – 25
<b>pH</b>	pH	6.5 – 8.5
<b>Salinity</b>	µS/cm	125 - 2200



Parameters	Units	Trigger value
Oil and grease	Visible	None visible
Cadmium	mg/L	0.0002
Chromium (VI)	mg/L	0.001
Copper	mg/L	0.0014
Lead	mg/L	0.0034
Nickel	mg/L	0.011
Zinc	mg/L	0.008
Total Phosphorous (TP)	mg/L	0.025
Total Nitrogen (TN)	mg/L	0.35
Nitrogen oxides (NOx)	mg/L	0.04

### 5.5.1 Trigger Actions Response

During construction of the SSTOM Works, the ongoing surface water quality monitoring events will be used to initiate a trigger action response. A trigger action response will be initiated if:

- A parameter exceeds the SSTV for any single monitoring event by more than 30%,
- A parameter downstream exceeds the corresponding parameter upstream for any single monitoring event by more than 20%,
- A parameter exceeds the SSTV for two consecutive monitoring events, and
- A parameter exceeds the SSTV for half of the sampling events in a twelve-month period.

In the event that the above trigger values, or SSTV, are exceeded, the below investigations and actions will be enacted:

- Comparison of downstream monitoring results against upstream monitoring results will be undertaken to determine if any significant reduction in water quality can be attributed to SSTOM Works,
- Investigation of surrounding land use changes or activities that may be impacting surface water quality, and
- Inspection and evaluation of the existing erosion and sediment controls around site.

If the exceedance is determined to be attributable to SSTOM Works, the event will be treated as an environmental incident, recorded in Glaass Pro and managed in accordance with the requirements included in Section 3.8 of the CEMP. Corrective and preventative actions will be identified and implemented as part of that process.

## 6 Compliance Management

### 6.1 Roles, responsibility and training

All surface water quality monitoring will be carried out by appropriately trained and competent personnel, who are familiar with the requirements of the relevant standards and procedures. Training will be provided to the Environment Team in appropriate sampling methodologies, as required.

## 6.2 Data analysis and management response

Results from the construction monitoring program will be compared with the trigger values and/or SSTVs and with previous results.

If a trigger is observed a review will be initiated to determine the significance of the exceedance(s) and possible causes. The review will assess available surface water data, baseline data for the relevant waterway, recent rainfall records, and recent activities or recorded erosion/sediment control incidents occurring in the catchment.

If the exceedance is determined to be attributable to SSTOM Works, the event will be treated as an environmental incident and managed in accordance with the requirements of Section 3.8 of the CEMP. Corrective and preventative actions will be identified and implemented as part of that process.

## 6.3 Reporting

During construction, surface water quality data will be collected, tabulated and assessed against baseline conditions, trigger values and/or SSTVs. Construction Monitoring Reports will be submitted to the Planning Secretary, the ER and relevant regulatory agencies on an annual basis from the commencement of construction in accordance with Condition C22.

Reporting requirements associated with the Program for the construction phase of the Project are presented in Table 11.

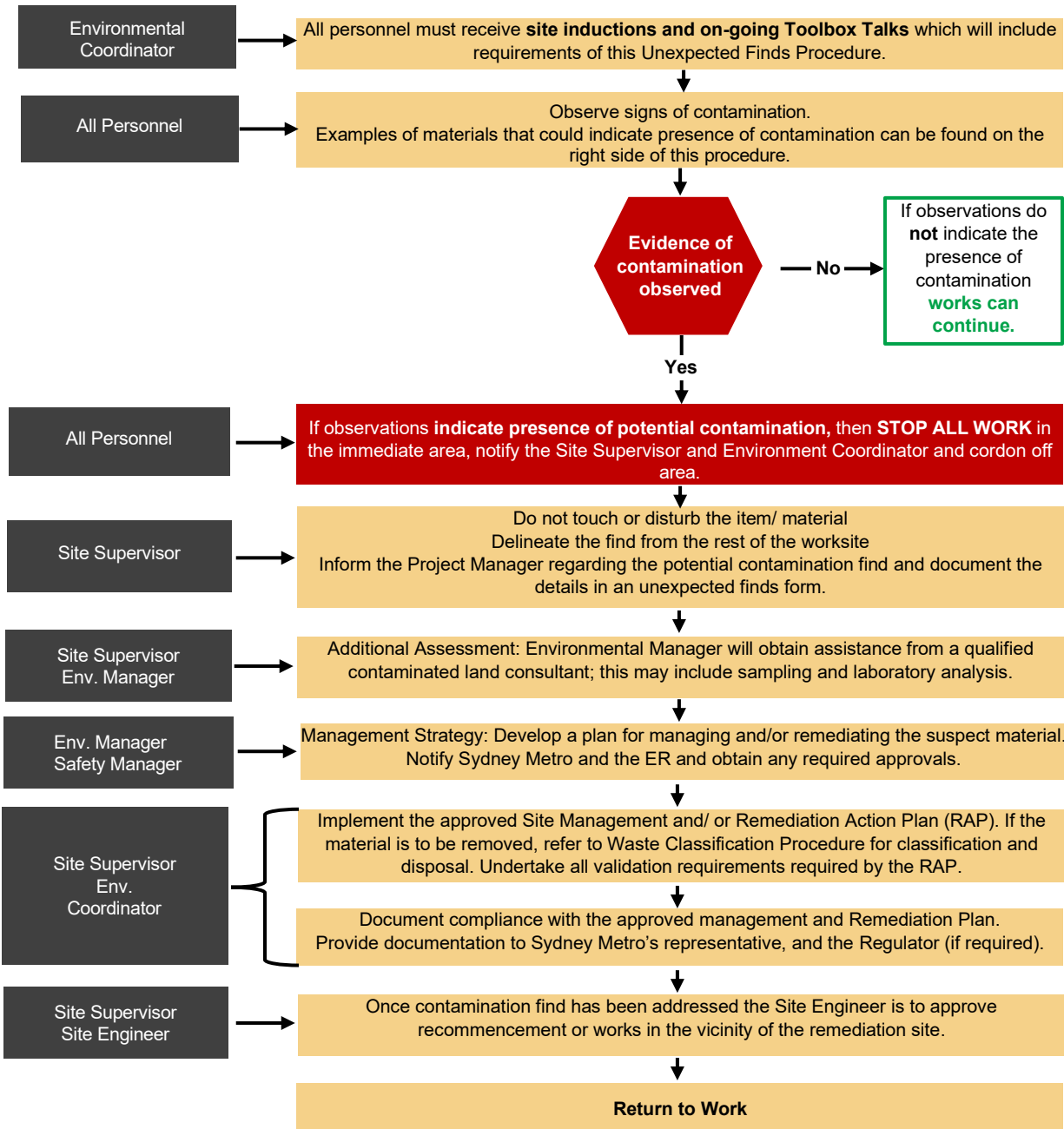
TABLE 11 REPORTING REQUIREMENTS

Report	Requirement	Recipient
<b>Surface Water Quality Construction Monitoring Report</b>	Data summary reports presenting tabulated surface water monitoring data collected during the reporting period (annually). Surface water quality results will be presented, and performance criteria exceedances will be highlighted. Applicable management responses will be documented.	DPE ER Publicly available
<b>Construction Compliance Reports</b>	A summary of environmental monitoring undertaken in the compliance period (6 monthly)	DPE ER Publicly available
<b>EPL Monitoring Reports and Annual Returns</b>	EPL monitoring reports and related reporting requirements will be prepared in accordance with the requirements of the EPL.	EPA Publicly available
<b>EPL Monitoring Results</b>	The results of any monitoring undertaken as a requirement of the EPL that is required to be published will be published on the project website within 14 days of obtaining the results.	Publicly available

# **Appendix C      Contamination and Asbestos Unexpected Finds Procedure**

## MANAGEMENT & RESPONSIBILITIES

## PROTOCOL



**Contamination** of the environment is the release (whether by act or omission) of a contaminant into the environment. Examples of materials that could indicate the presence of contamination include:

- Asbestos cement fragments or other potentially asbestos containing materials
- Odorous or stained soil
- Buried chemical drums or containers
- Waste materials or building debris
- Tarry or ashy material
- Brightly or unusually coloured material

### ACTIONS

If unexpected contamination is discovered the following procedure will be implemented:

- **STOP ALL WORKS** in the vicinity immediately,
- Follow the adjacent flow chart
- Notify the Site Supervisor and Environment Manager
- Provide any assessment or management documentation (DSI, RAP, EMP, etc.) to the relevant local Council, Government Agency.



### Asbestos:

An unexpected find occurs when Asbestos Containing Materials (ACM) not identified in the Asbestos Register is found on site. Asbestos finds are to be managed in accordance with the **Project Health and Safety Management Plan** and applicable regulatory requirements. If unexpected ACM is uncovered, potential management measures will include:

- Appropriately delineate the area and employ dust suppression measures
- Ensure the material is handled and removed by a licensed contractor to a facility licensed to receive the material.
- Arrange for validation testing and certification is

### Acid Sulfate Soils (ASS):

ASS are naturally occurring soils, sediments or organic substrates that are formed under waterlogged conditions in coastal areas. When exposed to air after being disturbed, soils containing iron sulfides produce sulfuric acid and often release toxic quantities of iron, aluminum and heavy metals.

If ASS is encountered, possible management strategies include:

- Redesign of the Project to avoid the area of ASS,
- Delineation and removal by a licensed contractor to a suitably licensed facility, and
- Onsite treatment to neutralise the ASS, in accordance with an EWMS, which would be developed, if required.

### Monitoring

- Observation during excavation or following unexpected find, and
- As required by the contamination consultant in the event of an unexpected find.

### Recording

- Unexpected find record form, and
- Details of any additional sampling and analysis required to identify contaminant.

### Personal Protective Equipment

The appropriate PPE will be worn prior to any contamination investigation/management.