Construction Environmental Management Plan

SMCSWSSJ-JHL-WEC-EM-PLN-000001

Document and Revision History

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Terms and Definitions

The following terms, abbreviations and definitions are used in this plan:

Terms	Explanation
AHD	Australian Height Datum
ARI	Average Rainfall Intensity
AS	Australian Standard
Assurance Application	Laing O'Rourke's Online Tool to manage Non-Conformances
CAR	Corrective Action Request
CCB	City of Canterbury-Bankstown (Council)
CCTV	Closed Circuit Television
CEMF	Construction Environmental Management Framework
CEMP	Construction Environmental Management Plan
CFCs	Chlorofluorocarbons
CHMP	Construction Heritage Management Plan
CNVMP	Construction Noise and Vibration Management Plan
CoA	Conditions of Approval
Core Process and Enabling Processes	Core Process (Governance) and Enabling Process (Detail) provide a coordinated overview of the processes and controls in Laing O'Rourke.
CRAW	Construction Risk Assessment Workshop
CSSI	Critical State Significant Infrastructure
CTMP	Construction Traffic Management Plan
Cwth	Commonwealth
dB	Decibels
DECC	NSW Department of Energy and Climate Change (now OEH)
DPI&E	Department of Planning, Industry and Environment (formally Department of Planning and Environment – DPE)
ECM	Environmental Control Map
ECR	Environmental Compliance Requirement
EEC	Endangered Ecological Community
EIFR	Environmental Incident Frequency Rate
EIS	Environmental Impact Statement (Sydney Metro City and Southwest Chatswood to Sydenham)
EMS	Environment Management System
EP&A Act	Environmental Planning and Assessment Act 1979 (NSW)
EPA	NSW Environment Protection Authority
EPL	Environment Protection Licence under the POEO Act
ER	Environmental Representative (independent of design and construction personnel)
HSE	Health Safety and Environment
HSEMS	Health Safety and Environment Management System
HSEQ	Health Safety Environment and Quality
HV	High voltage
iGMS	Laing O'Rourke Intranet
IMPACT	Laing O'Rourke Online Reporting System
ISO	International Standardization Organisation

ITP	Inspection and Test Plan
IWC	Inner West Council
JSEA	Job Safety and Environment Assessment
JH	John Holland Group Pty Limited
JHLOR	John Holland and Laing O'Rourke joint venture
Laing O'Rourke/ LOR / LORAC	Laing O'Rourke Australia Construction Pty Limited
LEP	Local Environmental Plan
LPG	Liquefied Petroleum Gas
LV	Low voltage
Minister, the	The Minister of New South Wales (NSW) Planning
NATA	National Association of Testing Authorities
NSW	New South Wales
OEH	NSW Office of Environment and Heritage
OHWS	Overhead Wiring System
OOHW	Out-of-Hour Works
PEM	Project Environmental Manager
PIR	Preferred Infrastructure Report
POEO Act	Protection of Environment Operations Act 1997 (NSW)
PPE	Personal Protective equipment
Proponent	The person or organisation identified as the proponent in Schedule 1 of the planning approval. In this case Transport for NSW
Registered Aboriginal Parties	As defined in the Aboriginal cultural heritage consultation requirements for proponents 2010
REMM	Revised Environmental Mitigation Measure
RMS	Road and Maritime Services
SCO	Sydney Coordination Office
Secretary	The Secretary of the Department of Planning, Industry and
SDS	Safety Data Sheet
SM	Sydney Metro
SMEW	Southwest Metro Early Works
SSI	State Significant Infrastructure
SWMS	Safe Works Method Statement
TBA	To be announced
TEC	Threatened Environmental Communities
TfNSW	Transport for New South Wales
TS	Threatened Species
WIRES	Wildlife Information, Rescue and Education Service

Table of Contents

1.0 Purpose....8
2.0 Scope....15
2.1 Permanent Works....15
2.2 Temporary Works....15
2.3 Works Location and Site Layout....16
2.4 Program....19
2.5 Construction Hours....20
2.6 Plant and Equipment....22
3.0 Distribution Policy....23
3.1 Issue, Revision and Re-issue....23
4.0 Health, Safety and Environmental Management System....24
5.0 Policy....26
6.0 Objectives and Targets....27
7.0 Responsibilities and Authorities....28
8.0 Legal and Compliance Obligations....34
8.1 Project Approval and Development Consent....34
8.2 Additional Environmental Assessments....34
8.3 Standards and Codes....35
8.4 Environmental Protection Licence....35
8.5 Stakeholder Consultation and Approval of Plans....35
9.0 Environmental Risk Assessment and Control....37
9.1 Severe Environmental Risk Controls....39
10.0 Training, Awareness and Competence....40
11.0 Communication and Reporting....43
11.1 Internal....43
11.2 External....43
12.0 System Documentation....43
13.0 Document Control and Records....43
14.0 Operational Control....45
14.1 General....45
14.2 Hold Points....45
14.3 Environmental Control Map....47
14.4 Design....47
14.5 Procurement....48
14.6 Handling, Storage, Packaging and Transport....48

14.7 Manufacture, Construction and Fabrication Processes 48
14.7.1 Life cycle perspective 49
14.7.2 Planning for high environmental risk activities 49
14.8 Plant and Equipment 49
15.0 Emergency Preparedness and Response 51
15.1 Site Shutdown Planning 52
16.0 Monitoring and Measurement 53
16.1 Monthly Environmental Reporting 53
16.1.1 Monthly Project Environmental System Self-check 54
16.1.2 Supply Chain Environmental Compliance Obligations Review 54
16.2 Compliance Reporting 55
17.0 Incidents, Non-Compliance, Complaints, Corrective and Preventative Action 56
17.1 Non-Conformances, Non-Compliances 57
17.2 Corrective Actions 58
17.3 Incident and Complaints Reporting 58
17.3.1 Senior Leaders Environmental incident review 59
17.4 External Incident Notification 59
17.4.1 State Matters 61
17.4.2 Commonwealth Matters 61
17.5 Client Complaints 61
18.0 Environmental Management System Audit 63
19.0 Management Review 63
20.0 Environmental Schedules 63
21.0 Other Key Items of Note 65
21.1 Ancillary Facilities and Compound Set out 65
21.2 Trees and Vegetation 65
21.3 Site Restoration 65
APPENDIX 1 – Class 1 Incident Management Flow Chart 66
APPENDIX 2 – Legal and Other Requirements 67
APPENDIX 3 – Risk Assessment 75
APPENDIX 4 – Operational Control Procedures – Environmental Risk Action Plans 95
APPENDIX 5 – Environmental Control Map 117
APPENDIX 6 – Emergency Preparedness and Response 133
APPENDIX 7 – Project Permits and Licences Register 138
APPENDIX 8 – Environmental Incident Investigation Guidelines 143

APPENDIX 9 – EMP Flowchart 145
APPENDIX 10 – Organisation Chart 146
APPENDIX 11 – Sydney Metro Environment & Sustainability Policy (SM SE MM 102)....147
APPENDIX 12 – Stakeholder Consultation Details....148
APPENDIX 13 – Environmental Audit Schedule....151
APPENDIX 14 – Compliance Matrix....152
APPENDIX 15 – Environmental Schedules....168
APPENDIX 16 – Sydney Metro Environmental Incident and Non-Compliance Reporting Procedure..169
Appendix 17 – CEMP Structure Overview....170

Table 1 Conditions Compliance Matrix 10
Table 2 Guideline for the Preparation of Environmental Management Plans (DIPNR) compliance matrix 12
Table 3 - Construction Environmental Management Framework.... 13
Table 4 - Project Phases and Timing.... 19
Table 5: Indicative List of Plant and Equipment.... 22
Table 6: CEMP Distribution 23
Table 7: Key responsibilities and authorities.... 28
Table 8: Relevant Standards/Guidelines 35
Table 9 Emergency Contact Details 51
Table 10 - Planning Approval Compliance Matrix.... 152
Table 11 - CEMF Compliance 156
Table 12 REMM Compliance.... 166
Table 13 PIR Revised Environmental Performance Outcomes relevant to the CEMP 167

1.0 Purpose

The Southwest Metro Project (SWM) was assessed as Critical State Significance Infrastructure (CSSI 8256) by the Minister for Planning and Environment under Part 5.1 of the EP&A Act. The Project determination was made on the 12th of December 2018. CSSI 8256 Modification 1 determination was made on the 22nd of October 2020 and includes updates to accommodate the following;

- Revised station design for Bankstown Station including provision of a new north-south connection across the rail corridor between Appian Way and Restwell Street.
- Administrative corrections and changes including updates to definitions and agency names to reflect name and title changes.

To enable the full scope of the Southwest Metro Project, a package of early works was awarded to the John Holland Laing O'Rourke joint venture. This early works package is known as Southwest Metro Early Works (SMEW).

This Construction Environmental Management Plan (CEMP) and its associated management plans have been prepared to comply with the requirements of the planning approval SSI 8256, contract requirements for environmental management, relevant environmental legislation and other environmental obligations associated with the project.

This CEMP is also intended to ensure that positive and negative effects on the environment are assessed as they relate to organisational stakeholders including those described in Laing O'Rourke's Health, Safety and Environmental Management System (HSEMS).

This Environmental Plan has been developed to:

– ensure that the needs and expectations of the client are met;
– ensure that the project meets contractual, legal and other environmental requirements;
– meet the requirements of ISO 14001 including the need for continual improvement;
– provide a link between the corporate and project management system; and
– provide all Laing O'Rourke personnel with systems, procedures and documentation necessary to undertake the construction of this project with environmental requirements.

The following CEMP sub plans, which will be prepared separately to this document, will form part of the CEMP and are to be submitted to DPI&E in accordance with Condition of Approval **(CoA)-C3** and *Sydney Metro City & Southwest Sydenham to Bankstown Upgrade – Staging Report*:

- Construction Noise and Vibration Management Plan (as referred to in **CoA-C3**)
- Construction Soil and Water Management Plan (as referred to in **CoA-C3**)
- Construction Heritage Management Plan (as referred to in **CoA-C3**)

In accordance with the Sydney Metro City & Southwest - Sydenham to Bankstown Staging Report, JHLOR will implement the environmental management requirements of the CEMF in line with the SMEW column in Table 5 from the Staging Report. Figure 1 is Table 5 as extracted from the Staging Report.

Figure 1 Table 5 from the Sydney Metro City and Southwest Sydenham to Bankstown Staging Report

CEMF Environmental Management Category	SMEW
Waste / Spoil / Recycling *	CEMP / SPM
Groundwater	CEMP
Traffic	CoA E47 CTMP
Noise & Vibration	CEMP sub-plan
Heritage	CEMP sub-plan
Flora & Fauna / Biodiversity	CEMP-P
Visual Amenity	CEMP sub-plan
Carbon & Energy	SMP sub-plan
Materials	SMP sub-plan
Soil & Water	CEMP sub-plan
Air Quality	CEMP-P
Workforce Development	WFDIP Plan

The following CEMP sub plans, which will be prepared separately to this document, will form part of the CEMP and are not required to be submitted to DPI&E:

- Visual Amenity Management Plan (as referred to under Section 3.4 of the CEMF)

The following stand-alone plans will also be prepared:

- Construction Traffic Management Plan (as referred to in **CoA-E47** and Section 3.4 of the CEMF)

The Construction Traffic Management Plan is to be submitted to Roads and Maritime Services (RMS) following engagement with the Sydney Coordination Office (SCO) and submitted to the DPI&E for information.

The following plans are sub-plans to the Sustainability Management Plan. Refer to the Sustainability Management Plan for further details.

- Carbon and Energy Management Plan
- Materials Management Plan

Management of the following aspects during construction have been incorporated into the CEMP Environmental Risk Action Plans seen in Appendix 4;

- Flora and Fauna
- Delivery and storage of chemicals
- Groundwater
- Air Quality
- Waste and Spoil

A flow chart with the CEMP structure overview is included within Appendix 17.

In addition, this Plan will provide continuity between a range of documents and specific requirements to ensure that the SMEW (Southwest Metro Early Works) Project is carried out generally in accordance with;

- The Sydney Metro City & Southwest – Sydenham to Bankstown – State Significant Infrastructure Assessment (SSI 8256), dated 12th December 2018

- The Sydney Metro City & Southwest – Sydenham to Bankstown - Environmental Impact Statement , dated 7th September 2017;
- The Sydney Metro City & Southwest – Sydenham to Bankstown – Submissions and Preferred Infrastructure Report June 2018;
- The Sydney Metro City & Southwest – Sydenham to Bankstown – Instrument of Approval, dated 12th December 2018
- Sydney Metro City & Southwest – Sydenham to Bankstown Upgrade Staging Report (Sydney Metro, 2019).
- The Sydney Metro Construction Environmental Management Framework v3.2;
- Department's Guideline for the Preparation of Environmental Management Plans. Appendix A1;
- The Overarching Stakeholder and Community Involvement Plan (Sydney Metro Community Consultation Strategy (CCS));
- The Sydney Metro Construction Noise and Vibration Strategy (including out-of-hour works protocol)
- City and Southwest – Sydenham to Bankstown Compliance Monitoring and Reporting Program Report (Sydney Metro, 2019).
- The conditions of all other environmental legislative requirements
- All other requirements of The Contract

Construction, as defined within the Planning Approval, will not commence until the CEMP and relevant Sub-plans are endorsed by the ER and approved by the Secretary.

This CEMP addresses all requirements of the Conditions of Approval, Revised Environmental Mitigation Measures and Construction Environmental Management Framework that relate to the production of a CEMP.

Table 1 lists each condition of approval condition relating the CEMP and indicates where the condition is addressed within the CEMP. The full Compliance Matrix can be found in Appendix 14.

Table 1 Conditions Compliance Matrix

<table>
<tr><th>Condition Reference</th><th>Condition Requirements</th><th>Document Reference</th></tr>
<tr><td>C1</td><td>A Construction Environmental Management Plan (CEMP) must be prepared in accordance with the Construction Environmental Management Framework (CEMF) included in the documents listed in Condition A1 to detail how the performance outcomes, commitments and mitigation measures specified in the documents listed in Condition A1 will be implemented and achieved during Construction.</td><td>This document fulfils the requirements of the Project CEMP.
The SMEW Compliance Matrix tracks these requirements.</td></tr>
<tr><td>C2</td><td>The CEMP must 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.</td><td>Section 8.1</td></tr>
<tr><td>C3</td><td>The CEMP Sub-plans must be prepared in consultation with the relevant government agencies identified for each CEMP Sub-plan and be consistent with the CEMF and CEMP referred to in Condition C1:
<table>
<tr><th>ID</th><th>Consultation required for CEMP subplans</th><th>Relevant Government Agencies to be consulted for CEMP subplans</th></tr>
<tr><td>a)</td><td>Noise and Vibration</td><td>Relevant Council(s)</td></tr>
<tr><td>b)</td><td>Soil and Water</td><td>Relevant council(s), DoI, OEH</td></tr>
<tr><td>c)</td><td>*Waste and Spoil</td><td>Relevant council(s)</td></tr>
<tr><td>d)</td><td>Heritage</td><td>Heritage Council (or its delegate) and relevant council(s)</td></tr>
</table></td><td>Consultation with the relevant government agencies has occurred in accordance with the Consultation Matrix as shown in Appendix 12.</td></tr>
<tr><td>C4</td><td>The CEMP Sub-plans must be prepared in accordance with the CEMF.</td><td>Refer to Construction Noise and Vibration Management Plan and Construction Soil and Water Management Plan</td></tr>
</table>

<table>
<tr><td></td><td></td><td></td></tr>
<tr><td>C5</td><td>Details of all information requested by an agency to be included in a CEMP Sub-plan as a result of consultation, including copies of all correspondence from those agencies, must be provided with the relevant CEMP Sub-Plan</td><td>Refer to Construction Noise and Vibration Management Plan and Construction Soil and Water Management Plan
Appendix 12</td></tr>
<tr><td>C6</td><td>Any of the CEMP Sub-plans may be submitted along with, or subsequent to, the submission of the CEMP but in any event, no later than one (1) month before Construction.</td><td>Section 8.1</td></tr>
<tr><td>C7</td><td>Construction must not commence until the CEMP and all CEMP Sub-plans have been approved by the Planning Secretary. The CEMP and CEMP Sub-plans, as approved by the Planning Secretary, including any minor amendments approved by the ER must be implemented for the duration of Construction. Where Construction of the CSSI is staged, Construction of a stage must not commence until the CEMP and CEMP Sub-plans for that stage have been approved by the Planning Secretary</td><td>Section 8.1</td></tr>
<tr><td>C8</td><td>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 the CSSI against the predicted performance.
<table>
<tr><th>ID</th><th>Consultation required for Construction Monitoring Programs</th><th>Relevant Government Agencies to be consulted for Construction Monitoring Programs</th></tr>
<tr><td>a)</td><td>Noise and Vibration</td><td>Relevant Council(s)</td></tr>
<tr><td>b)</td><td>Water Quality</td><td>Relevant council(s)</td></tr>
</table></td><td>Refer to Construction Noise and Vibration Management Plan and Construction Soil and Water Management Plan</td></tr>
<tr><td>C9</td><td>Each Construction Monitoring Program must 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;
h) procedures to identify and implement additional mitigation measures where results of monitoring are unsatisfactory; and
(i) any consultation to be undertaken in relation to the monitoring programs.</td><td>Refer to Construction Noise and Vibration Management Plan and Construction Soil and Water Management Plan
Appendix 12</td></tr>
<tr><td>C10</td><td>The Construction Monitoring Programs must be developed in consultation with relevant government agencies as identified in Condition C8 of this approval and must include reasonable information requested by an agency to be included in a Construction Monitoring Programs during such consultation. Details of all information requested by an agency including copies of all correspondence from those agencies, must be provided with the relevant Construction Monitoring Program.</td><td>Refer to Construction Noise and Vibration Management Plan and Construction Soil and Water Management Plan
Appendix 12</td></tr>
<tr><td>C11</td><td>The Construction Monitoring Programs 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.</td><td>Refer to Construction Noise and Vibration Management Plan and Construction Soil and Water Management Plan</td></tr>
<tr><td>C12</td><td>Construction must not commence until the Planning Secretary has approved all of the required Construction Monitoring Programs.</td><td>Refer to Construction Noise and Vibration Management Plan and Construction Soil</td></tr>
</table>

		and Water Management Plan
C13	The Construction Monitoring Programs, as approved by the Planning Secretary 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.	Refer to Construction Noise and Vibration Management Plan and Construction Soil and Water Management Plan
C14	The results of the Construction Monitoring Programs 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 Construction Monitoring Program.	Refer to Construction Noise and Vibration Management Plan and Construction Soil and Water Management Plan
C15	Where a relevant CEMP Sub-plan exists, the relevant Construction Monitoring Program may be incorporated into that CEMP Sub-plan.	Refer to Construction Noise and Vibration Management Plan and Construction Soil and Water Management Plan

*Note: in accordance with the Sydney Metro City & Southwest - Sydenham to Bankstown Staging Report and Waste and Spoil Management Plan is not required. Waste and Spoil is addressed within a procedure, Refer to Appendix 4.

Table 2 identifies the sections of the CEMP that show compliance with the requirements of the Guideline for the Preparation of Environmental Management Plans (DIPNR, 2004).

Table 2 Guideline for the Preparation of Environmental Management Plans (DIPNR) compliance matrix

Requirement	Document Reference
Introduction	Section 1 and Section 2
Project Description	Section 2
EMP Context	Section 1, Section 2 and Section 8
EMP Objectives	Section 6
Environmental Policy	Section 5
Environmental Management Structure and Responsibility	Section 7 and Appendix 10
Approval and Licensing Requirements	Section 8, Appendix 2 and Appendix 7
Reporting	Section 11
Environmental Training	Section 10
Emergency Contacts and Response	Section 15, Section 16, Appendix 1 and Appendix 6
Risk Assessment	Section 9 and Appendix 3
Environmental Management Activities and Controls	Aspect specific sub-plans, Appendix 3 and Appendix 4
Environmental Control Maps	Appendix 5
Environmental Schedules	Section 16, Appendix 15
Environmental Monitoring	Section 16 and aspect specific sub-plans
Environmental Auditing	Section 18
Corrective Action	Section 16
EMP Review	Section 3, Section 19

Table 3 below identifies the sections of the CEMP that show compliance with the requirements of the Construction Environmental Management Framework.

Table 3 - Construction Environmental Management Framework

Clause	Requirement	Document Reference
3.3 (a)	Principal Contractors are required to prepare and implement a Construction Environmental Management Plan (CEMP) relevant to the scale and nature of their scope of works. The CEMP shall comprise of a main CEMP document, issue specific sub plans, activity specific procedures and site based control maps. The CEMP shall illustrate the relationship between other plans required by the contract, in particular those that relate to design management	This Plan
3.3 (b)	Depending on the scope and scale of the works, TfNSW may decide to streamline the CEMP and sub-plan requirements. For example, depending on the risk associated with particular environmental issues it may be appropriate to remove the need for a sub plan, or replace with a procedure as part of the CEMP.	Refer to the Sydenham to Bankstown Staging Report
3.3 (c)	The CEMP will cover the requirements of the relevant planning approval documentation, the conditions of all other permits and licences, the Principal Contractor's corporate EMS, the environmental provisions of the contract documentation and this Construction Environmental Management Framework.	Section 1 Section 8 Appendix 14
3.3 (d)	As a minimum the CEMP will:	
(i)	Include a contract specific environmental policy;	Section 5
(ii)	Include a description of activities to be undertaken during construction	Section 2
(iii)	For each plan under the CEMP include a matrix of the relevant Conditions of Approval or Consent referencing where each requirement is addressed	Refer to the relevant sub plan
(iv)	For each plan under the CEMP, set objectives and targets, and identify measurable key performance indicators in relation to these;	Refer to the relevant sub plan Section 6
(v)	For each role that has environmental accountabilities or responsibilities, including key personnel, provide a tabulated description of the authority and roles of key personnel, lines of responsibility and communication, minimum skill level requirements and their interface with overall project organisation structure;	Section 7 Appendix 10
(vi)	Assign the responsibility for the implementation of the CEMP to the Environment Manager, who will have appropriate experience. The Principle Contractor's Project Director will be accountable for the implementation of the CEMP;	Section 7
(vii)	Identify communication requirements, including liaison with stakeholders and the community	Section 8 Section 11 Section 17

(viii)	Include induction and training requirements and a summary of the Training Needs Analysis required in Section 3.9(b)	Section 10
(ix)	Management strategies for environmental compliance and review of the performance of environmental controls;	Section 14 Section 16 Section 17 Section 19
(x)	Processes and methodologies for surveillance and monitoring, auditing and review, and reporting on environmental performance including environmental compliance tracking;	Section 14 Section 16 Section 18 Section 20
(xi)	Include procedures for emergency and incident management, non-compliance management, and corrective and preventative action; and	Section 17 Appendix 1 Appendix 6
(xii)	Include procedures for the control of environmental records.	Section 12 Section 13
3.3 (e)	The CEMP and associated sub-plans will be reviewed by TfNSW and/or an independent environmental representative (see Section 3.11) prior to any construction works commencing. Depending on the Conditions of Approval, the CEMP and certain sub-plans may also require the approval of the Department of Planning and Environment (DPI&E).	Section 3 Section 8
3.3 (f)	Where a corresponding systems document exists within the Sydney Metro Integrated Management System, the Principal Contractor's procedures will be required to be consistent with any requirements in those documents.	This plan and supporting documents have been written to meet the Sydney Metro project requirements. Furthermore Southwest Metro Enabling Works will utilise any Sydney Metro forms or systems documentation to facilitate works approval.

Full compliance matrix against the CEMF conditions relevant to the CEMP is contained in Appendix 14.

For the purpose of this Plan, Sydney Metro is also referred to as the "Client" and JHLORJV is also referred to as the "Company".

2.0 Scope

This CEMP applies to the full scope of project activities described in the contract and relevant conditions of approval over which we have the ability to control or influence with due consideration to the life cycle perspective and stakeholder relationships.

The plan has been developed to address the Client's specific requirements as well as the requirements of Laing O'Rourke HSEMS.

Sydney Metro City & Southwest is a new 30km metro line extending metro rail from the end of Sydney Metro Northwest at Chatswood under Sydney Harbour, through new CBD stations and southwest to Bankstown. It is due to open in 2024 with the capacity to run a metro train every two minutes each way through the centre of Sydney. The Sydney Metro City & Southwest comprises of two components;

- Chatswood to Sydenham Project
- Sydenham to Bankstown upgrade, now known as Southwest Metro

The Southwest Metro Early Works (SMEW), referred to as "the Project" or 'the works" in this document, will be undertaken in accordance with the *Sydney Metro City & Southwest Sydenham to Bankstown Upgrade Instrument of Approval* (SSI_8256) and will include critical enabling work activities for the greater Southwest Metro Project.

The SMEW Project site is located on the T3 Bankstown line between Sydenham and Loch St, Campsie, NSW.

Some supporting works may occur within the *Sydney Metro City & Southwest Sydenham to Bankstown Upgrade* project boundary between Loch St, Campsie and Bankstown. In particular;

- A generator will be installed temporarily adjacent to Belmore Station for emergency back-up power provisions during Sydney Trains high voltage feeder outages associated with SMEW. The generator will be installed for short durations, nominally three weeks, during Sydney Trains high voltage feeder outages and removed once the outages have ended.
- Relocation of existing Sydney Trains Service route at Lakemba,
- Trimming and removal of vegetation to facilitate Sydney Trains Service route and future Sydney Metro City and Southwest Sydenham to Bankstown Works between Marrickville and Bankstown

Works will occur predominately within the rail corridor. SMEW is expected to be finished in mid 2021.

The works will be undertaken by a John Holland Group Pty Limited (John Holland) and Laing O'Rourke Construction Pty Limited (Laing O'Rourke) joint venture referred to as JHLOR. Laing O'Rourke has been nominated as Principal Contractor and as such the works will occur under Laing O'Rourke's Management Systems.

2.1 Permanent Works

The works include all permanent new infrastructure and modifications to existing infrastructure, which must be constructed to enable the construction of SMEW. The permanent new infrastructure and modifications to existing infrastructure to be constructed includes;

- Installation and commissioning of Combined Service Route (GST, GLT, pit & pipe)
- Sydney Trains signalling, communications and HV diversions
- Rail embankment stabilisation including retaining walls
- Installation of drainage and fencing
- Civil enabling works for a traction substation
- Vegetation clearing
- Access Road upgrades
- Bridge Remedial works

2.2 Temporary Works

The SMEW temporary works include:

- Temporary arrangements to divert and control pedestrians, public transport users, cyclists, public transport and traffic and to provide public access, amenity, security and safety during all stages of design and construction of the Works;
- Temporary arrangements for people and vehicles to safely access all property, including publicly accessible space affected by the Contractor's Activities;
- Temporary arrangements for people and vehicles to safely access the Site;
- Temporary access stairs, walkways and platforms within the Site;
- Temporary construction hoardings, fencing, noise walls, access gates and barriers on and around the Site;

- All environmental safeguards and measures necessary to mitigate environmental effects which may arise during the design and construction of the Works;
- Cleaning, maintenance, repair, replacement and reinstatement, as required, of all areas occupied by the Contractor during design and construction of the Works;
- Temporary site facilities required for design and construction of the Works,;
- Temporary infrastructure, safety screens and ground support installed or erected to undertake design and construction of the Works;
- Temporary arrangements for Utility Services including water, electricity, stormwater, sewerage, gas and electronic communications;
- Temporary power for stations
- Temporary works and measures required as a consequence of requirements arising from the stakeholder and community liaison process; and
- All other temporary works and measures required for the construction of the Works.
- Investigation works

In addition to the above works, JHLOR will set-up a main compound area at the Canterbury Bowls Club site, Close Street, Canterbury. This main compound site will be used by the SMC Project, TSOM Project and other Sydney Metro City and Southwest Sydenham to Bankstown projects as directed by Sydney Metro. The area has been leased by Sydney Metro from City of Canterbury Bankstown. JHLOR will comply with the terms of the lease.

The compound set-up will include;

- Archaeological investigations
- Geotechnical and service investigations
- Fencing
- Tree trimming and removal
- Installation of hard stand, haul roads and ramps
- Demolition of an existing structure
- Installation of utilities and services for the compound
- Installation of buildings, containers and structures
- Supporting activities required to establish the compound (i.e. road sweeping, dust suppression)

The works will occur within the project boundary.

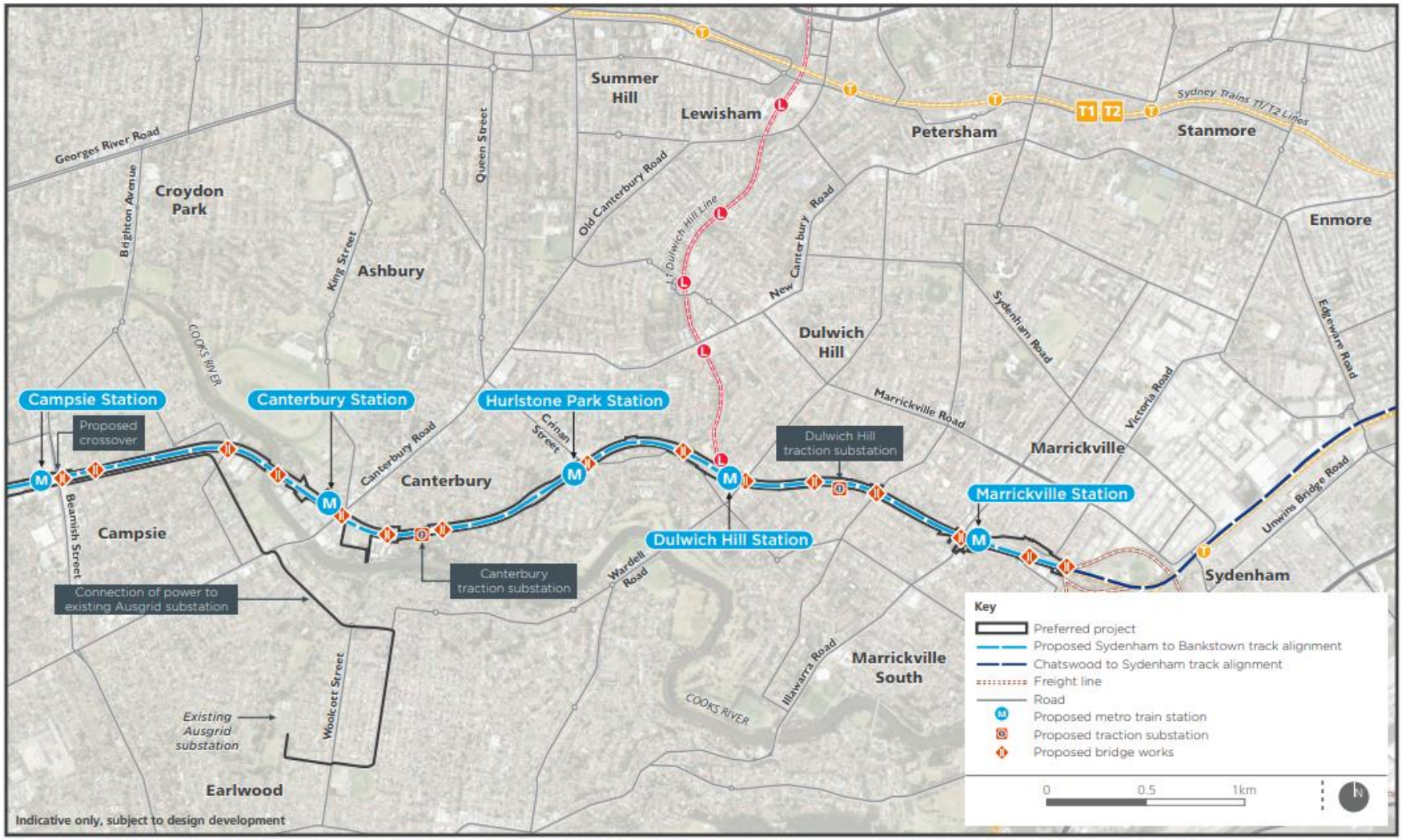
Ongoing communication with local residents and businesses will occur in accordance with the Community Communication Strategy.

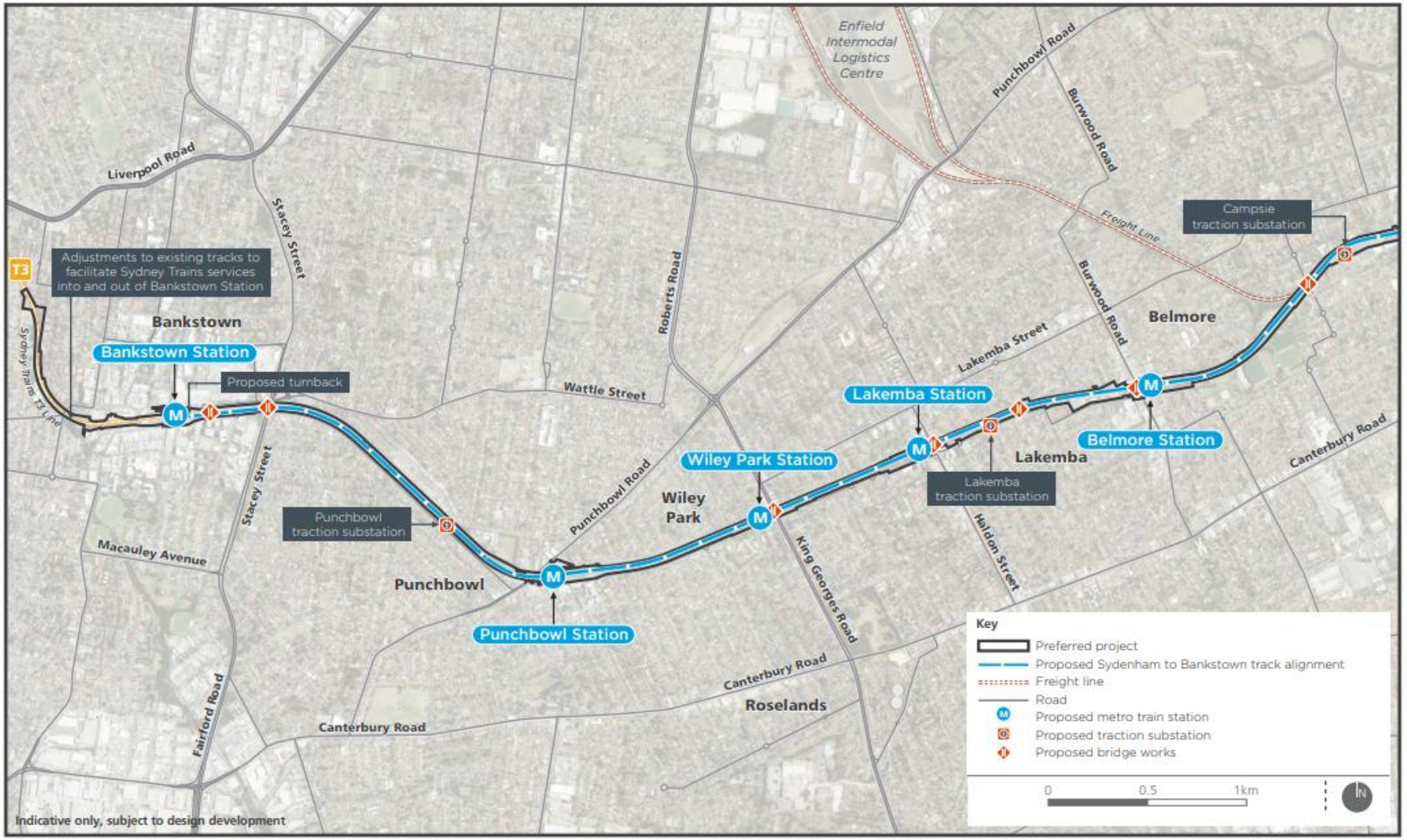
Operation of the compound and reinstatement of the compound area following demobilisation will be addressed within the relevant project's management plans.

2.3 Works Location and Site Layout

The SMEW work location and site layout is highlighted in Figure 2. Refer also to the Environmental Control Map in Appendix 5.

Figure 2: Site Layout (source: Sydney Metro City & Southwest - Sydenham to Bankstown - Submissions and Preferred Infrastructure Report, 2018)




Enfield Intermodal Logistics Centre
Punchbowl Road
Burwood Road
Freight Line
Campsie traction substation
Liverpool Road
Stacey Street
Roberts Road
Adjustments to existing tracks to facilitate Sydney Trains services into and out of Bankstown Station
T3
Sydney Trains T3 Line
Bankstown
Bankstown Station
Proposed turnback
Wattle Street
Lakemba Street
Belmore
Lakemba Station
Belmore Station
Canterbury Road
Lakemba
Lakemba traction substation
Wiley Park Station
Wiley Park
Punchbowl Road
Punchbowl traction substation
Macauley Avenue
Punchbowl
Punchbowl Station
King Georges Road
Haldon Street
Fairford Road
Canterbury Road
Roselands
Key
Preferred project
Proposed Sydenham to Bankstown track alignment
Freight line
Road
Proposed metro train station
Proposed traction substation
Proposed bridge works
0
0.5
1km
N
Indicative only, subject to design development

2.4 Program

Table 4 shows the project delivery phases:

Table 4 - Project Phases and Timing

Phase	Timing	Details	Notes
Phase 1	January – July 2019	Geotechnical investigations Service searching Bridge examination Conditions inspections Vegetation Protection	Low impact/pre-construction
Phase 2	May 2019 – January 2021	Combined Service Route installation Boundary and Segregation Fencing Clear and Grub	
Phase 3	August 2019 – March 2021	Retaining Wall construction Drainage Sydney Trains signalling, communications and HV diversions	
Phase 4	March 2021 – May 2021	Canterbury Compound establishment	Enabling works for future Sydney Metro projects on Sydenham to Bankstown
Phase 5	October 2020 – May 2021	Finalisation of works	Landscape watering and other activities related to site stabilisation may continue

*Note that some work may occur outside standard construction hours for all phases depending on the scope of the works.

2.5 Construction Hours

JHLOR will undertake works in accordance with the Laing O'Rourke Environmental Protection Licence (EPL) 21147. No scheduled activities will occur outside the EPL 21147 premise boundary.

CoA-E19 states the construction hours as per the Planning Approval. **CoA-E20** states that if the works are to be undertaken under an EPL, than the hours stipulated within the EPL must be complied with. As such, JHLOR will undertake works in accordance with the hours stipulated within the Laing O'Rourke EPL. It is noted that the standard construction hours within the EPL differ to those as stated under **CoA-E19**. Works under the EPL are permitted to occur up until 1pm on Saturdays, whereas works may occur up until 6pm under **CoA-E19**.

CoA– E19 states that construction must only be undertaken during the following standard construction hours:

- 7:00am to 6:00pm Mondays to Fridays, inclusive;
- 8:00am to 6:00pm Saturdays; and
- No work on Sundays or public holidays.

CoA-E20 states "*Work may be undertaken outside the hours specified in the following circumstances:*

a) for the delivery of materials required by the NSW Police Force or other authority for safety reasons; or
b) where it is required in an emergency to avoid injury or the loss of life, to avoid damage or loss of property or to prevent environmental harm; or
c) where different Construction hours are permitted or required under an EPL in force in respect of the CSSI; or
d) Work approved under an Out-of-Hours Work Protocol for Work not subject to an EPL as required by Condition E25; or
e) Construction that causes LAeq(15 minute) noise levels:
  i. no more than 5 dB(A) above the rating background level at any residence in accordance with the Interim Construction Noise Guideline (DECC, 2009), and
  ii. no more than the 'Noise affected' noise management levels specified in Table 3 of the Interim Construction Noise Guideline (DECC, 2009) at other sensitive land uses, and
  iii. continuous or impulsive vibration values, measured at the most affected residence are no more than the maximum values for human exposure to vibration, specified in Table 2.2 of Assessing Vibration: a technical guideline (DEC, 2006), and
  iv. intermittent vibration values measured at the most affected residence are no more than the maximum values for human exposure to vibration, specified in Table 2.4 of Assessing Vibration: a technical guideline (DEC, 2006); or
f) where a negotiated agreement has been reached with a substantial majority of sensitive receivers who are within the vicinity of and may be potentially affected by the particular Construction, and the noise management levels and/or limit for ground-borne noise and vibration (human comfort) cannot be achieved. All agreements must be in writing and a copy forwarded to the Planning Secretary at least one (1) week before the commencement of activities."

Works are to comply with Condition L4.1; "*Unless permitted by another condition of this licence, construction works and activities must:*

a) only be undertaken between the hours of 0700 and 1800 Monday to Friday; and
b) only be undertaken between the hours of 0800 and 1300 Saturday; and
c) not be undertaken on Sundays or Public Holidays."

CEMF Section 5.1 states "*Works which can be undertaken outside of standard construction hours without any further approval include:*

i. Those which have been described in respective environmental assessments as being required to take place 24/7. For example, tunnelling and underground excavations and supporting activities will be required 24/7
ii. Works which are determined to comply with the relevant Noise Management Level at sensitive receivers
iii. The delivery of materials outside of approved hours as required by the Police or other authorities (including RMS) for safety reasons
iv. Where it is required to avoid the loss of lives, property and / or to prevent environmental harm in an emergency
v. Where written agreement is reached with all affected receivers."

It is noted that in regards to the works, the EPL takes precedence, followed by the Conditions of Approval and then the CEMF.

CoA-E24 places further restrictions on the hours that 'high noise impact' generating activities may occur, except as permitted by an EPL. Construction works and activities with the potential to generate high noise impact will be scheduled to occur between the hours of;

- 8:00am to 6:00pm Mondays to Fridays, inclusive;
- 8:00am to 1:00pm Saturdays; and
- In continuous blocks not exceeding three hours each with a minimum respite from those activities and Works of not less than one hour between each block.

EPL Condition L4.4 states: "*Unless otherwise specified by another condition of this licence, the following applies in relation to high noise impact works:*

(a) High noise impact works and activities must only be undertaken:

1. *between the hours of 8:00am to 6:00pm Monday to Friday;*
2. *between the hours of 8:00am to 1:00pm Saturday; and*
3. *in continuous blocks not exceeding 3 hours each with a minimum respite from those activities and works of not less than 1 hour between each block.*

For the purposes of this condition 'continuous' includes any period during which there is less than a 1hour respite between ceasing and recommencing any of the work that is the subject of this condition."

Therefore the requirements of **CoA-E24** and EPL condition L4.4 align.

Where JHLOR must undertake works outside of standard construction hours, and the activities are not permitted under the Laing O'Rourke EPL 21147, JHLOR will seek a variation from the NSW EPA to the licence in accordance with the requirements of the EPL.

2.6 Plant and Equipment

The following plant and equipment is proposed to be utilised during construction. This information is indicative at this stage, and will be updated as required to align with method and equipment selections.

Table 5: Indicative List of Plant and Equipment

Activity	Details	Timeframe	Plant
Geotechnical Investigations	Test pits, boreholes and other soil testing to inform design	January – July 2019	Drill rigs, excavators, trucks, concrete trucks (for stabilised sand backfill), compaction equipment, lighting towers, watercart, street sweeper, hand tools
Service Searching	Identifying service locations to inform design	January – July 2019	Vacuum trucks, hand tools, lighting towers
Bridge Investigations	Inspecting bridges to inform design	January – July 2019	Elevated work platforms, hand tools , lighting towers
Conditions Assessments	Road and property dilapidation assessments as required Survey	January – July 2019	Survey equipment, hand tools
Vegetation Protection	Installation of fence panels, flagging, bollards or other barriers to limit access to protected vegetation	January – July 2019	Small truck, hand tools, mobile cranes
Combined Service Route	Installation of new and relocation of existing combined service route and other services	May 2019 – March 2021	Excavators, mobile cranes, piling rig, concrete pump, concrete vibrator, light towers, EWPs, compaction equipment, hand tools, grinders, welding equipment, hi-rail plant, underboring drilling rigs, generators, tipper trucks, non-destructive digging trucks.
Boundary and Segregation Fencing	Installation of boundary and segregation fencing	May 2019 – October 2020	Excavators, mobile cranes, piling rig, concrete truck, concrete pump, compaction equipment, hand tools, grinders, welding equipment, tipper trucks
Clear and Grub	Removal of any grass, weeds, shrubs, plants and trees to facilitate construction	May 2019 – January 2021	Excavators, EWP, Mulcher, chainsaw, trucks
Retaining Wall	Construction of a retaining wall within the rail corridor to stabilise the existing embankment	July 2019 – February 2021	Excavators, mobile cranes, piling rig, concrete pump, concrete vibrator, light towers, EWPs, compaction equipment, hand tools, grinders, welding equipment, hi-rail plant, generators, tipper trucks, non-destructive digging trucks.
Drainage	New drainage for retaining wall	July 2019 – October 2020	Excavators, mobile cranes, concrete pump, concrete vibrator, light towers, EWPs, compaction equipment, hand tools, grinders, welding equipment, hi-rail plant, telehandlers, generators

Canterbury Compound Set-up	Installation of compound at Close St Canterbury	March – May 2021	Excavators, rollers, front end loader, crane, telehandler, EWP, hand tools, power tools, jack-hammer, concrete saw, trucks, water cart, street sweeper

3.0 Distribution Policy

The master 'controlled' EMP document will be held within the Project's document management system where it can be accessed by personnel as necessary.

All paper copies of this EMP will be considered as 'uncontrolled'.

Table 6: CEMP Distribution

Copy No.	Issued To
01	Project Manager
02	Environmental Manager
03	Client Representative

The personnel to whom these copies have been issued will be sent amendments as they occur, and it is their responsibility to discard superseded pages and insert new pages.

3.1 Issue, Revision and Re-issue

The initial issue of this plan has been reviewed by the HSE Leader or Environmental Leader to ensure it meets the requirements of the current Environmental Management System and policy, contract, specifications and standards. The plan is approved for use on the project by the Project Leader. Evidence of initial review and approval is by signatures on the cover sheet.

In accordance with **CoA-C2**, the CEMP must be endorsed by the ER and then submitted to the Secretary for approval no later than one (1) month before the commencement of construction or within another timeframe agreed with the Secretary.

Revisions of this CEMP may be required throughout the duration of the project to reflect changing circumstances or identified deficiencies.

Revisions may result from:

– Management Review
– Audit (either internal or by external parties)
– Client complaints or non-conformance reports
– Changes to the Company's HSEMS

The CEMP and sub-plans would be subsequently reviewed and updated by the Environmental Manager as required. The CEMP and sub-plans would be reviewed at least on a six monthly basis throughout the duration of the construction period between 2019 and 2020. Revisions shall be reviewed and approved by the Project Leader prior to issue. Updates to this plan are numbered consecutively and issued to holders of controlled copies.

In accordance with **CoA-A26 i)** the Independent Environmental Representative will consider any minor amendments to be made to the CEMP, CEMP sub-plans and monitoring programs that comprise updating or are of an administrative nature, and are consistent with the terms of this approval and the CEMP, CEMP sub-plans and monitoring programs approved by the Secretary and, if satisfied such amendment is necessary, approve the amendment. This does not include any modifications to the terms of the approval;

4.0 Health, Safety and Environmental Management System

Laing O'Rourke maintains an industry-leading Health, Safety and Environmental Management System (HSEMS) that is applied across all operations and is accredited by Sci Qual International to *ISO 14001:2015 Environmental Management Systems – Requirements with Guidance for Use*.

The HSEMS is available for everyone to access via https://nextgearsms.com. The system includes three core environmental components: System Requirements, Environmental Primary Standards and Severe Environmental Risk protocols.

The Company is currently certified (No. 4749) with SciQual.

SCI QUAL INTERNATIONAL

Environment Management Systems

Certificate of Registration

Laing O'Rourke Australia Construction Pty Limited

Level 21, 100 Mount Street, North Sydney NSW 2060
Level 2, M & A Building, 825 Ann Street, Fortitude Valley QLD 4006
Level 20 HWT Tower, 40 City Road, Southbank VIC 3006
Level 1, 3 Craig Street, Burswood WA 6100

In recognition of the implementation of a management system conforming to

ISO 14001:2015

The Scope of Certification covers the following activities:

Processes associated with the design, construction and project management of multi-discipline engineering construction and building projects including rail; commercial, residential and special purpose buildings; roads and bridges; gas; water and associated infrastructure and civil works.

Certificate No.	Date of Issue	Certification Date	Expiry Date	Re-Issue Date
4749	30 October 2017	6 September 1991	30 April 2021	20 September 2020

Alain Etchegaray
GENERAL MANAGER

Signed for and on behalf of
Sci Qual International Pty Ltd

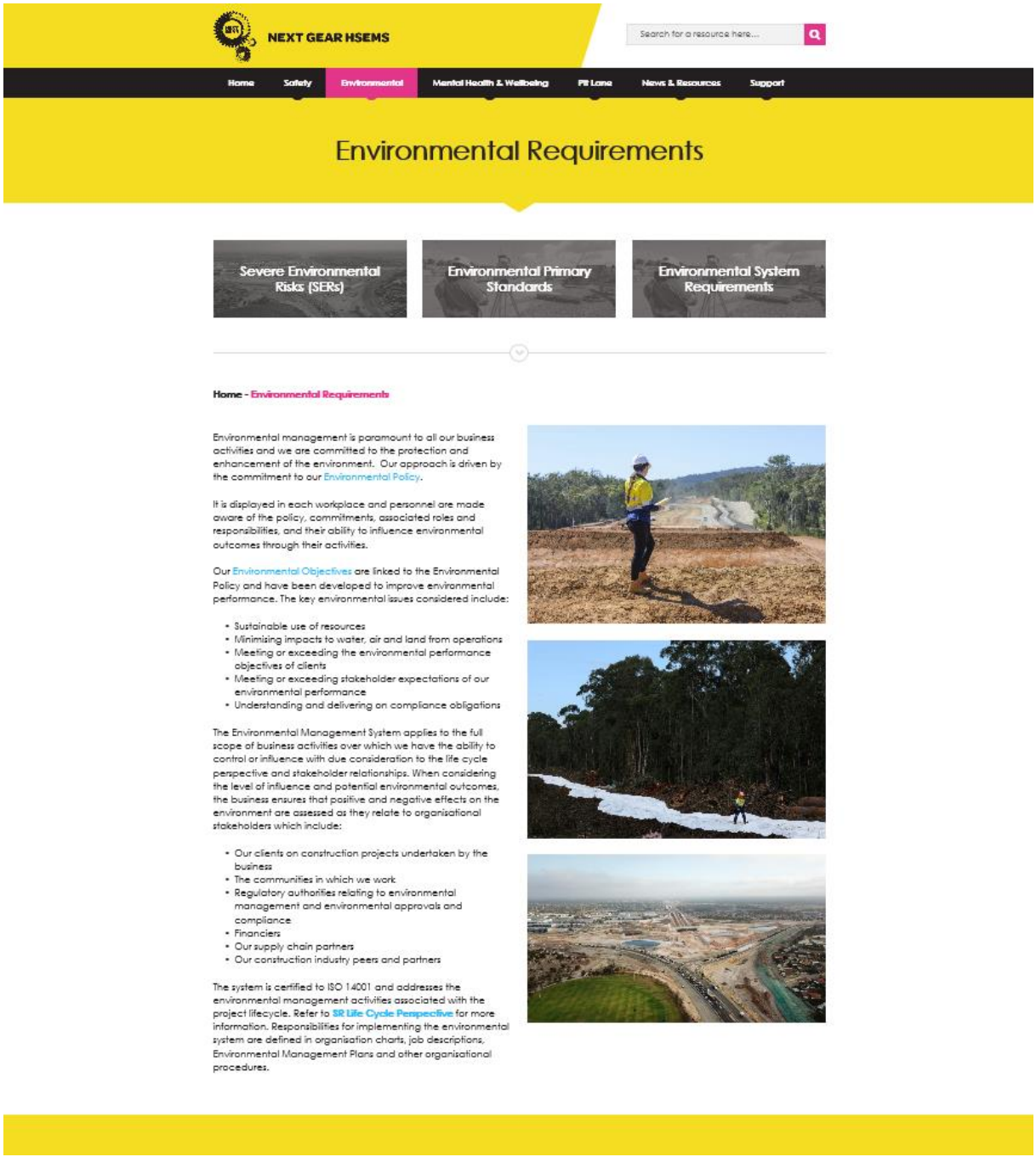
Suite 19, Building D, "The Lakes Centre", 8-22 King Street, Caboolture QLD 4510

The certificate of Registration, which remains the property of Sci Qual International Pty Ltd, is granted subject to the Regulations governing the certification scheme operated by Sci Qual International Pty Ltd and in respect of goods or services described in the schedule hereto, bearing the same number as this certificate.

All works carried out on the site will be in accordance with:

– Client requirements as detailed in the Contract
– Laing O'Rourke's environmental requirements, as detailed in the HSEMS
– ISO 14001 Environmental Management System
– Laing O'Rourke's compliance obligations including mandatory and voluntary requirements.

This *Plan* references relevant parts of the Company's environmental management system and incorporates the additional elements necessary to satisfy the client's environmental system requirements. An outline of Laing O'Rourke's Environmental Management System is provided below.



5.0 Policy

A Joint Venture (JV) Environmental Policy has been produced for the project. The Policy states the following;

LAING O'ROURKE

JOHN HOLLAND

Environment Policy

August 2018

Our vision

JHLOR JV are committed to the protection and enhancement of the environment. High environmental performance is an ongoing priority and is achieved by our actions in line with this policy. This policy sits alongside our Sustainability policy and Supply Chain policy as part of the JHLOR JV, underpinned by our Code of Conduct.

John Holland Group and Laing O'Rourke goal is to minimise the negative impacts of our operations and maximise the quality of the built environment for future generations. Through innovation and application of leading practice, we aim to steer the industry to design a sustainable and high-quality built environment with as little environmental impact as possible through the whole asset lifecycle

Our approach

JHLOR JV commitment to the environment is an integral part of fulfilling each of our Parent company visions. We will continually strive and expect to:

- Demonstrating leadership of our environmental agenda by senior leaders
- Complying with relevant legislation and other requirements specific to the context of our business and regularly evaluating and reporting on our compliance obligations
- Preventing polluting emissions or discharges to the environment
- Proactively minimising environmental impacts, including being industry leading in minimising direct and embodied carbon emissions, and providing energy-efficient/low-carbon assets for our clients
- Continually improving the environmental performance of our activities, products and services through clear objectives, targets and programmes
- Exploring opportunities in the sourcing and lifecycle aspects of our products, services and supply chain to reduce carbon emissions and demonstrate positive environmental outcomes
- Exploring opportunities for innovative technologies, products and processes that drive improved environmental outcomes / environmental benefits throughout the delivery and operation of the assets we build
- Communicating and addressing the risks and opportunities associated with the impacts of our activities, products and services
- Improving resource efficiency by reducing the use of natural resources and reducing waste, maximising resource recovery and diverting the waste we do produce away from landfill sites
- Reducing our water consumption and improving water efficiency in all of our operations
- Engaging our supply chain partners to improve their environmental performance and responsible sourcing of their materials, products and services
- Proactively protecting, preserving and enhancing biodiversity and land quality
- Enhancing employee understanding of environmental sustainability by stimulating cultural change and providing clear direction
- Maintaining ISO 14001 certification for our principal businesses.

Our pledge

Our policies are regularly updated to ensure currency and strive for best practice as our environment evolves.

John Holland Group and Laing O'Rourke fully endorse this JHLOR JV Policy

Chris Jones, Operations Manager
John Holland Group

Patrick Cashin, Director
Laing O'Rourke Australia

Darren Hayward, Rail Manager
John Holland Group

David D Robotham, General Manager – Rail
Laing O'Rourke Australia

SMCSWSSJ-JHL-WSS-WD-POL-000009

6.0 Objectives and Targets

High level objectives and targets for this project are based on the CEMF and are as follows:

Objective	Target	Reporting / Monitoring
Compliance with the Minister for Planning's Project Planning Approval and all permits and licences	Full compliance with the planning approval, all permits and licences	Compliance Tracking Program
Implementation of the performance outcomes, commitments and mitigation measures specified in the EIS and SPIR.	Full compliance with the performance outcomes, commitments and mitigation measures specified in the EIS and SPIR.	Compliance Tracking Program
Leadership proactively manage environmental performance	Leadership attendance rate at environmental inspections at 80% Actual vs. planned attendance at planned environmental awareness training at 80% (excludes tool boxes and inductions)	Inspection reports Training attendance sheets
Quality of relationships with Environmental Representative, EPA official and Heritage Council	Score from quarterly survey with Environmental Representative, EPA official and Heritage Council (as applicable) is greater than 65% on a rolling average	Survey report

Operational objectives and targets relating to significant environmental issues are contained in within the operational control procedures provided in Appendix 4.

In accordance with CoA-C1 the CEMP must detail how performance outcomes, commitments and mitigation measures from the Planning Approval and associated documentation are to be implemented and achieved during Construction. JHLOR's approach to implementing and achieving these requirements, strictly as they relate to the CEMP, is mapped within the Compliance Matrix in Appendix 14. It is noted that performance outcomes, commitments and mitigation measures relating to environmental aspects that have a corresponding sub-plan, as per the requirements of CoA-C3 and the Staging Report, are addressed within the specific sub-plan. Refer to the SMEW Construction Noise and Vibration Management Plan, Construction Soil and Water Management Plan and Construction Heritage Management Plan.

7.0 Responsibilities and Authorities

Sydney Metro (the Proponent) has engaged John Holland Laing O'Rourke Joint Venture (the Principal Contractor) to undertake Southwest Metro Early Works. In accordance with the Contract for the Southwest Metro Early Works, JHLOR must perform certain roles and meet certain requirements under the Planning Approval. This includes consultation with key regulatory stakeholders, such as the NSW EPA, Department of Industry, Office of Environment and Heritage, where required. The Department of Planning, Industry and Environment is the approval authority for a number of items required under the Planning Approval, including the CEMP and CEMP sub-plans.

Sydney Metro have engaged, and received DPI&E approval, for an Independent Environment Representative for the Project. The Independent Environment Representative will perform the duties described within Table 7 as per the requirements of CoA-A26.

Sydney Metro have engaged an Independent Certifier to assess and certify project compliance. The role includes certification against environmental compliance.

Authorities and responsibilities for all positions are defined and communicated in Job Descriptions and project documentation. Reporting lines are shown in the Organisation Chart (refer to Appendix 10). Key responsibilities are indicated in the chart in Table 7.

Table 7: Key responsibilities and authorities

Position	Key Responsibilities and Authorities
Project Director (Project Leader)	• Reports to senior management within John Holland and Laing O'Rourke • Ensure that internal audits of the system are conducted • Review audit corrective actions and take action as necessary to ensure timely close out of issues • Authorise expenditure on environmental issues within limits of authority • Resolve major issues which cannot be resolved by the Project Manager • Must complete corporate and project induction covering environmental responsibilities and LORs' environmental management system. • Ensure that project responsibilities and authorities are defined and communicated • Provide adequate resources to meet environmental objectives • Approve and implement the CEMP • Ensure that the CEMP is effectively implemented and maintained • Appoint/nominate and provide support for the Environmental Manager • Report to senior management on the performance of the system and environmental breaches • Take action to resolve environmental non-conformances and incidents • Ensure suppliers and subcontractors comply with requirements • Report environmental incidents to the client / local authorities as required • Liaise directly with the Independent Environment Representative as required and where appropriate to facilitate any environmental management requirements, including those identified within the Planning Approvals.
Project Manager (Construction Manager)	• Reports to the Project Director • Support the Project Director in environmental matters as required • Oversight of environmental requirements for design and construction • Must complete corporate and project induction covering environmental responsibilities and LORs' environmental management system. • Supervise all site construction activities and personnel by ensuring that they meet environmental and other requirements • Organise and manage site plant, labour and temporary materials

Position	Key Responsibilities and Authorities
	• Ensure that site environmental controls are properly maintained and provide support for the Environmental Manager • Report all environmental incidents • Take action to resolve non-conformances and incidents • Must complete corporate and project induction covering environmental responsibilities and LORs' environmental management system. • Provide information to the Independent Environment Representative as requested and where appropriate, via the Project Environmental Manager
Laing O'Rourke HSE Leader/John Holland Regional Environmental Manager	• Provide environmental support to the project team • Coordinate internal audits
Procurement Personnel	• Reports to the Project Director, • Carefully select suppliers and subcontractors based upon their ability to meet stated requirements • Ensure that purchase orders and agreements include environmental requirements as necessary • Where practical, select materials which are "environmentally friendly" • Must complete corporate and project induction covering environmental responsibilities and LORs' environmental management system. • Provide information to the Independent Environment Representative as requested and where appropriate, via the Project Environmental Manager
Project Environmental Manager	• Reports to the Project Director • Ensure that the CEMP is effectively established, implemented and maintained at the project level • Ensure relevant licences, approvals and permits identified in Appendix 7 are obtained. • Ensure compliance with all relevant statutes, regulations, rules, procedures, standards and policies • Liaise with the Principal's Environmental Representative and/or Superintendent on environmental issues, including the written notification of non-conformances (incidents, emergencies or deviations from the CEMP) • Ensure that all personnel on site receive appropriate environmental induction and training and are aware of their environmental responsibilities under relevant legislation and the contract • Report to the Project Director on the performance of the system and improvement opportunities • Provide support to the project team to enable them to meet their environmental commitments • Ensure that environmental records and files are collected and maintained • Regular compliance checking as required by this CEMP • Ensure that non-conformances and environmental incidents are recorded and written reports provided to the Client's Representative within 48-hours. Liaise with the required stakeholders to confirm the nature of the corrective action required and comply with the timeframe within which corrective actions must occur. • Ensure that environmental controls, materials and equipment are maintained • Develop and deliver environmental training materials in consultation with the Project Training Coordinator • Liaise directly with the Independent Environment Representative as required and where appropriate to facilitate any environmental management requirements, including those identified within the Planning Approvals. The Project Environmental Manager will be the primary contractor contact for the Independent Environmental Representative

Position	Key Responsibilities and Authorities

	• Must have tertiary qualifications in environmental engineering / science along with relevant experience working in environmental management roles in Australia. Infrastructure Sustainability Accredited Professional preferred.
	• Must complete corporate and project induction covering environmental responsibilities and LORs' environmental management system.
	• Minimum skill levels
	  • Minimum 10 years' experience post qualification, with extensive experience in the preparation and implementation of environmental management systems and plans
	  • Tertiary qualification in environmental science or engineering discipline or equivalent
	  • Recent relevant experience in environmental management on major infrastructure projects

Communication and Stakeholder Relations Manager	• Leadership and management of the Communications, Stakeholder and Community Relations Team • Build and maintain effective working relationship with TfNSW's representative and Stakeholder and Community Liaison team • Develops and oversees the implementation of the CCS and subplans • Responsible for a stakeholder and community relations induction and training program for all personnel involved in the performance of the project • Approves the Communications, Stakeholder and Community Relations team roles, role descriptions and responsibilities • Ensures the Community Communications Strategy and key activities are integrated into the project schedule • Attends the TfNSW led Communications Management Control Group and reports on activities, strategies and issues • Attends the monthly Project Management Review Group meeting to discuss project status and issues • Issues and crisis management • Manages media issues and acts as media spokesperson for JHLORJV (subject to media protocols) • Responsible for the Communications and Stakeholder Management KPI as well as the Communications and Stakeholder management component of the Quality of Information and Relationship with the Principal's representative KPI • Required to be on call 24 hours based on the team rotation • Liaise directly with the Independent Environment Representative as required and where appropriate to facilitate any environmental management requirements, including those identified within the Planning Approvals.
Community Place Manager	• Build and maintain effective working relationship with community, businesses, and stakeholders • Support the successful delivery of the project's Community Communication's Strategy and requirements • Implementation of the Community Communications Strategy and any relevant sub plans • Establish effective working relationships with local stakeholder to support the effective delivery of the project • Required to be on call 24 hours based on the team rotation to respond to enquiries and complaints. • Review, approve and oversee the development and distribution of all notification, newsletter, social media, photography, and other communication material. • Maintain the Consultation Manager database and generate reports as required. • Drives Communications and Stakeholder Management KPIs as well as the Communications and Stakeholder management component of the Quality of Information and Relationship with the Principal's representative KPI
Project Environmental Advisor	• Support the Environmental Manager in matters relating to environmental management

Position	Key Responsibilities and Authorities
	• Must have tertiary qualifications in environmental engineering / science along with relevant experience working in environmental management roles in Australia. Infrastructure Sustainability Accredited Professional preferred. • Must complete corporate and project induction covering environmental responsibilities and LORs' environmental management system. • Liaise directly with the Independent Environment Representative as required and where appropriate to facilitate any environmental management requirements, including those identified within the Planning Approvals.
Project Training Coordinator	• Develop a Training Needs Analysis to identify relevant environmental training for all contractor (and subcontractor, where appropriate) personnel • Develop environmental training materials in consultation with the Project Environmental Manager • Organise external environmental training courses/material, where required • Provide information to the Independent Environment Representative as requested and where appropriate, via the Project Environmental Manager
Sub-Contractors	• Comply with all legal, contractual requirements and this CEMP • Comply with site environmental requirements • Comply with management / supervisory directions • Participate in induction and training as directed • Report all incidents • Environmental qualifications as required by contract • Must complete project induction covering environmental responsibilities and LORs' environmental management system. • Provide information to the Independent Environment Representative as requested and where appropriate, via the Project Environmental Manager
All Personnel	• Comply with the relevant Acts, Regulations and Standards • Comply with the Company's environmental policy and procedures • Promptly report to management on any non-conformances, environmental incidents and/or breaches of the system • Undergo induction and training in environmental awareness as directed by management • Report all incidents • Act in an environmentally responsible manner • Must complete corporate and project induction covering environmental responsibilities and LORs' environmental management system. • Provide information to the Independent Environment Representative as requested and where appropriate, via the Project Environmental Manager
Independent Environment Representative	• Receive and respond to communication from the Planning Secretary in relation to the environmental performance of the CSSI; • Consider and inform the Planning Secretary on matters specified in the terms of this approval; • Consider and recommend to the Proponent any improvements that may be made to work practices to avoid or minimise adverse impact to the environment and to the community; • Review documents identified in Conditions C1, C3 and C8 and any other documents that are identified by the Planning Secretary, to ensure they are consistent with requirements in or under this approval and if so: (i) make a written statement to this effect before submission of such documents to the Planning Secretary (if those documents are required to be approved by the Planning Secretary), or (ii) make a written statement to this effect before the implementation of such documents (if those documents are required to be submitted to the Planning Secretary for information or are not required to be submitted to the Secretary);

Position	Key Responsibilities and Authorities
	• Regularly monitor the implementation of the documents listed in Conditions C1, C3 and C8 to ensure implementation is being carried out in accordance with the document and the terms of this approval; • As may be requested by the Planning Secretary, help plan, attend or undertake audits of the development commissioned by the Department including scoping audits, programming audits, briefings and site visits, but not independent environmental audits required under Condition A34 of this approval; • As may be requested by the Planning Secretary, assist the Department in the resolution of community complaints; • Assess the impacts of minor ancillary facilities as required by Condition A19 of this approval; • Consider any minor amendments to be made to the documents listed in Conditions C1, C3 and C8 and any document that requires the approval of the Planning Secretary that comprise updating or are of an administrative or minor nature and are consistent with the terms of this approval and the documents listed in Conditions C1, C3 and C8 or other documents approved by the Planning Secretary and, if satisfied such amendment is necessary, approve the amendment. This does not include any modifications to the terms of this approval; and • Prepare and submit to the Planning Secretary and other relevant regulatory agencies, for information, an Environmental Representative Monthly Report detailing the ER's actions and decisions on matters for which the ER was responsible in the preceding month. The Environmental Representative Monthly Report must be submitted within seven (7) days following the end of each month for the duration of the ER's engagement for the CSSI. • Must complete project induction covering LORs' environmental management system.
Independent Certifier	• Assess and certify the Project for compliance, including environmental requirements
Utilities Coordination Manager	• Establishing a Utilities Project Team with nominated representatives from utility service providers that may be impacted by the CSSI; • Coordination of meetings with utility service providers as requested by Sydney Metro's Contractors; • Involvement with reviews of CSSI designs and construction methodologies to assist with identifying potentially impacted utility assets; • Assist with coordination of design and construction methodology reviews by utility service providers to identify necessary utility works; • Communicate with the Utilities Project Team, Sydney Metro, and Sydney Metro's Contractors' delivery teams to understand the proposed program of works to coordinate intercepting, interconnecting and interrelated works and manage priorities as they may arise; • Observation of utility works; and • Manage escalation of utility work-related issues within Sydney Metro and the utility service providers as required. • In conjunction with the Contractors, co-ordinate utility providers and relevant council(s) to identify opportunities for maintenance, replacement or augmentation of utilities that cross the rail corridor and facilitate and co-ordinate requests by the utility providers and relevant council(s) to undertake the Work during rail shutdowns • Collaborate with the communications team and as required, the Community Complaints Mediator, to ensure utility works are appropriately notified and any complaints are resolved.

It is noted that;

- "Subcontractors" and "All personnel" are categorised as "Operational Personnel". All other roles as listed above are categorised as "Management". Refer to Section 10 for training requirements for each category.
- Work must not commence until an ER has been approved by the Planning Secretary and engaged by the Proponent.

- The Planning Secretary's approval of an ER must be sought no later than one (1) month before the commencement of Work.
- The proposed ER must be a suitably qualified and experienced person who was not involved in the preparation of the EIS, SPIR or Submissions Report and is independent from the design and construction personnel for the CSSI and those involved in the delivery of it.

It is the responsibility of Sydney Metro to engage an appropriate ER and seek approval from DPI&E.

8.0 Legal and Compliance Obligations

Mandatory compliance obligations and requirements relevant to the project are summarised below. The Compliance Obligations Environmental System Requirement in Laing O'Rourke's HSEMS outlines the process Laing O'Rourke uses to determine legal and other mandatory requirements.

All personnel associated with the project will comply with all relevant requirements including:

– Laws – Acts, regulations, policies, etc.
– Environment Protection Licence and permits
– Development consents
– Relevant industry standards / codes
– Contract requirements
– Other compliance obligations outline in this CEMP, including any voluntary compliance obligations.

An assessment of the relevant legislative instruments has been conducted and recorded in Appendix 2.

Licences, permits and approvals are outlined in Appendix 7 in the Project Permits and Approvals Register. The register is to be developed, at or prior to, the commencement of the project to outline the full scope of the project's requirements for Government authority approvals.

The register is to be reviewed in conjunction with the 6 monthly management review outlined in Section 19 or where there has been a change to relevant legislation.

The Register is to be reviewed and updated as the project progresses and compliance with the relevant conditions reported.
Compliance conditions relating to items listed on the Permits and Licenses Register are incorporated into this Environmental Management Plan. Specific details and controls are included in the associated sub-plans and Environmental Risk Action Plans.

A copy of relevant Permits, Licences and any development approvals relevant to JHLOR's activities will be kept on site.

8.1 Project Approval and Development Consent

The works are to be delivered through Part 5.1 of the Environmental Planning and Assessment Act 1979 in accordance with the Critical State Significant Infrastructure Sydney Metro City & Southwest Sydenham to Bankstown Conditions of Approval (SSI 8256). The approval process includes specific planning conditions and commitments that must be addressed in this EMP and delivered during the project.

A Conditions of Approval Compliance Tracking Matrix will be established upon commencement to ensure the approval conditions are captured, addressed and closed out. The Matrix includes all conditions relevant to JHLOR's scope of work and will be updated as the works progress and reviewed on a quarterly basis to verify compliance with each condition.

Specific conditions of approval relevant to construction activities are included in the project's Operational Controls in the aspect specific Environmental Risk Action Plans (ERAPs).

Non-compliances with the conditions will be documented and addressed through Impact's Assurance application.

This CEMP will be endorsed by the ER and then submitted to the Planning Secretary for approval no later than one month before the commencement of Construction.

It is noted that any of the CEMP Sub-plans may be submitted along with, or subsequent to, the submission of the CEMP but in any event, no later than one month before Construction in accordance with **CoA-C6**.

8.2 Additional Environmental Assessments

Changes to the project may require an assessment to determine consistency with the Project Approval and Environmental Documents. This assessment would be carried out in accordance with the Sydney Metro Planning Approval Consistency Assessment Procedure (SM ES-PW314).

The assessment will include:

- A description of the existing surrounding environment.

- Details of the ancillary works and construction activities required to be carried out including the hours of works.
- An assessment of the environmental impacts of the works, including, but not necessarily limited to traffic, noise and vibration, air quality, soil and water, ecology and heritage.
- Details of mitigation measures and monitoring specific to the works that would be implemented to minimise environmental impacts.
- Identification of the timing for completion of the construction works, and how the sites would be reinstated (including any necessary rehabilitation)

8.3 Standards and Codes

The project will be constructed in accordance with relevant standards and codes.

Access to the latest Australian standards is available via the through iGATE.

The environmental publications, standards, codes of practice and guidelines included in Table 8 are relevant to SMEW and are referenced throughout this Plan. Other aspect specific guidelines are discussed in the relevant CEMP sub-plans and other project management plans.

Table 8: Relevant Standards/Guidelines

Standard/Guideline	Relevant Authority
ISO 14001 Environmental Management Systems – Requirements with Guidelines for use	DPI&E
Guideline for the Preparation of Environmental Management Plans (Department of Infrastructure, Planning and Natural Resources, 2001)	DPI&E
AS/ NZS 1940: 2004 - The Storage and Handling of Flammable and Combustible Liquids	NSW EPA

8.4 Environmental Protection Licence

This project includes the following Scheduled Activities:

– Railway Systems Activities

The SMEW works will be delivered in accordance with the Laing O'Rourke EPL 21147. It is noted that this EPL also includes the Sydenham Station Junction works, occurring under the Sydney Metro City and Southwest - Chatswood to Sydenham Planning Approval (SSI_7400).

Compliance with all relevant licence conditions will be tracked, monitored and ensured. If any inconsistencies between the EPL and planning approval arise, the planning approval will take precedence.

For any works being undertaken under EPL 21147, if an inconsistency is identified, JHLOR will consult with the EPA for any licence variations as required.

The environmental authority or licence includes specific minimum requirements which are addressed within this EMP through the Operational Controls and specifically included in Environmental Risk Action Plans (ERAPs). These will be addressed and implemented by JHLOR as the project progresses.

A copy of relevant Permits, Licences and Development Consents will be kept on site as controlled documents in the project's Document Management System.

8.5 Stakeholder Consultation and Approval of Plans

The Minister's Condition of Approval C7 requires that the CEMP be endorsed by Environmental Representative (ER) and to be submitted to DPI&E for approval. The CEMP will be submitted to the ER for endorsement prior to approval by DPI&E.

CEMP sub-plans are required to be prepared in consultation with the relevant government agencies as listed in Condition of Approval C3. The sub-plans relevant to the SMEW project and associated stakeholder consultation are listed in Table 1.

Comments received on the CEMP sub-plan will be considered and, where relevant, incorporated in the respective sub-plan and recorded in Appendix 12 – Stakeholder Consultation.

Other sub-plans required in accordance with the CEMF do not require consultation with any government agencies and will be reviewed by the Project Manager and Sydney Metro/ER. These plans include;

- Visual Amenity Management Plan

In addition to the CEMP sub-plans listed above, there are two Sustainability Management Plan sub-plans that are required under the CEMF. These sub-plans, required in accordance with the CEMF, do not require consultation with any government agencies and will be reviewed by the Project Manager and Sydney Metro/ER. Refer to the Sustainability Management Plan for further information. The plans include;

- Carbon and Energy Management Plan
- Materials Management Plan

In respect to changes to management plans and in accordance with CoA-A26 (i), the ER will "*consider any minor amendments to be made to the documents listed in Conditions C1, C3 and C8 and any document that requires the approval of the Planning Secretary that comprise updating or are of an administrative or minor nature and are consistent with the terms of this approval and the documents listed in Conditions C1, C3 and C8 or other documents approved by the Planning Secretary and, if satisfied such amendment is necessary, approve the amendment*."

Where changes to management plans are greater than minor in nature, these changes will be considered by the ER and DPIE. The changes may be subject to further government agency consultation as directed by the ER or DPIE.

All changes to the management plans will be undertaken in accordance with the requirements of the Planning Approval SSI_8256, including any approved modification.

It is noted that due to the limited environmental risk associated with the following aspects, management of these aspects is considered appropriate and effective as outlined in this CEMP document in Appendix 4 – Environmental Risk Action Plans;

- Biodiversity (Flora and Fauna Management)
- Delivery and Storage of Chemicals
- Groundwater
- Air Quality
- Waste and Spoil

9.0 Environmental Risk Assessment and Control

Laing O'Rourke has established a business-wide Environmental Aspects and Impacts Register in accordance with the HSEMS Environmental System Requirement Environmental Aspects and Impacts. The register outlines the environmental aspects that need to be assessed and effectively managed to meet Laing O'Rourke's environmental obligations with respect to the context of the organisation and its projects. The register is to be used to inform the development of the project-specific aspects and impacts register and associated risk and opportunity assessment.

The Environmental Risk and Opportunity Environmental System Requirement outlines the process by which environmental aspects and impacts are assessed at a project level. Project-wide environmental risks and opportunities are assessed in the project's Risk and Opportunity Register. Site specific environmental aspects and impacts have been identified and assessed in Appendix 3 of the management plan.

This assessment must consider the following as a minimum as outlined in System Requirement – Risk and Opportunity:

- Obligations and requirements associated with the environmental approval conditions
- Emissions to air
- Releases to water
- Releases to land
- Waste management
- Contamination
- Emission of noise including vibration
- Impact on the natural environment including wildlife, biodiversity and cultural heritage
- Resource efficiency and the use of materials
- Consumption of energy

Assessing significant environmental aspects is based on the risk and opportunity assessment matrix established in the Risk and Opportunity Management Procedure and the Risk and Opportunity Register.

Project risk and opportunity assessments must be reviewed and updated as the project progresses and as a minimum as part of the EMP management review. The project's Risk and Opportunity Register must be maintained on a monthly basis or as required and must include project-wide environmental risks and opportunities.

By way of definition, the following applies to this environmental risk and opportunity assessment process and the associated matrix.

Green Risk – environmental impacts associated with the action are generally constrained to the project site and in accordance with the environmental assessment documentation. There is a low probability of occurrence.

Amber Risk – environmental impacts associated with the actions have the potential to result in offsite impacts, where the environment recovers over the medium term. There is reasonable probability that the impact would occur with the absence of suitable controls.

Red Risk – environmental impacts that have significant offsite impacts. The environment recovers over the long term, there is impacts to the local community. There is a high probability that the impact would occur. Environmental impacts occur offsite are considered major. Impacts have resulted in the destruction of protected species, sensitive habits or other impacts not envisaged as part of the environmental assessment process. The environment is not able to recover without substantial intervention.

Significant environmental issues will be controlled to a degree which is commensurate with the level of risk and the level of influence which the Company has over these issues.

An Environmental Risk Action Plan (ERAP) or environmental issue specific Sub-Plans must be developed for aspects or impacts representing an amber or red risk after the initial risk assessment. The ERAP or Sub-Plan must reference and address the strategic mitigation and control measures determined following the initial risk assessment and as outlined in the Laing O'Rourke Environmental Primary Standards. In addition, an ERAP is required to be developed and implemented where an environmental obligation, environmental mitigation requirement or legal requirement dictates issues specific controls are required even though there may be a low risk to the environment. Activities, aspects and potential impacts considered to represent an extreme risk following the application of the strategic mitigation and control measures must be redesigned or re-sequenced or have the approval of the relevant HSE Leader or delegate.

If additional risks are encountered on site during the delivery phase, these will be addressed either by updating this EMP or by using separate Environmental Risk Action Plans (E-T-8-1200).

An overview of this process is contained in Appendix 3.

9.1 Severe Environmental Risk Controls

The Severe Environmental Risks (SERs) Controls Standard describes the various minimum mandatory requirements which must be in place, demonstrated and working effectively with the intent of managing severe environmental harm risks on the project. Severe environmental risks relevant to the project are outlined in Appendix 3.

Severe Environmental Risks relate to environmental harm caused by site operations which can result in long term damage to the environment. The focus of these risks is on high consequence environmental harm risks rather than regulatory exposure.

The SER Controls Standard provides clear guidance on the required controls and expectations for preventing high-consequence environmental impact. The SER Controls Standard describes the various minimum mandatory requirements that must be implemented and working effectively to manage severe environmental harm risks on all Laing O'Rourke projects. Additional SER controls have been included as necessary to address site-specific conditions.

The applicable SERs on this project as determined by the risk assessment are as follows:

Standard SERs	Project specific SERs
Biodiversity	None. Standard SERs are sufficient.
Heritage (Aboriginal and European)	
Water Quality and Wastewater Storage	
Erosion and Sedimentation	
Temporary Waterway Crossings	
Piling	

The required elements for the successful completion of the monthly SER activities are described below.

- The monthly field check should be recorded on the SER Field Report and form part of evidence to meet the monthly SER review. The field check is to be completed by the Package Manager or delegate from the operational team.
- System-based controls are to be reviewed for application and effectiveness on a monthly basis with the bounds of the project's construction environmental management plan. System checks are assessed through the SER Planning and Control Report.
- The monitoring activity frequency will be dependent on occurrence of activities with the potential to cause high-consequence environmental impact on the project and reflect the current construction risk processes and methodologies.
- If all aspects of the performance criteria are working effectively in all areas where the risk applies, then the risk can be deemed to be managed and controlled.
- The SER Field Report and SER Planning and Control Report shall be completed on a monthly basis
- SER outcomes shall be monitored monthly during the Portion/Project Review
- Impact will be used to document the completed monitoring activities.

The Severe Environmental Risks Control Adequacy Assessment Tool will be used as guidance for the implementation of the standard.

The Severe Environmental Risks Control Adequacy Assessment Work Instruction defines the procedural requirements for completing the monitoring activities.

10.0 Training, Awareness and Competence

Requirements for training, awareness and competence for environmental aspects and impacts are outlined in System Requirement Onboarding, Training, Induction and VOC and this management plan.

All employees will receive suitable environmental induction / training to ensure that they are aware of their responsibilities and are competent to carry out the work.

Environmental requirements will be explained to employees during site induction and on-going training via tool box meetings, briefings, notifications and the like.

All employees (including subcontractors) will receive induction/ training in the following:

– Environmental Policy
– Site environmental objectives and targets
– Understanding individual authorities and responsibilities
– Site environmental rules
– Potential consequences of departure from rules
– Emergency procedure and response (e.g. Spill clean-up)
– Basic understanding of their legal obligations
– Relevant project specific and standard noise and vibration mitigation measures
– Relevant licence and approval conditions
– Permissible hours of work
– Any limitations on high noise generating activities
– Location of nearest sensitive receivers
– Designated loading/unloading areas and procedures
– Site opening/closing times (including deliveries).

Personnel performing tasks which can cause significant environmental impacts will be competent on the basis of appropriate education, training and / or experience.

All JHLOR operational staff on this project will be provided with training in the requirements and implementation of this Environmental Management Plan and the HSEMS. EMP training for new staff members shall be completed within 1 month of their commencement on the project.

Training in the operation and implementation of Laing O'Rourke's Environmental Management System shall be provided for all operational staff.

The Project Environmental Manager will establish a schedule of environmental training in conjunction with the development of this EMP.

Training in high risk aspects shall be undertaken as the project progresses. An outline of the proposed training is provided below. The training shall be scheduled to reflect the requirements of the construction program.

Aspect	Training Inclusion	Personnel Required	Timing / Frequency/Means
Leadership	• Effective leadership • Environmental Management System	Management	Frontline Leadership Modules – ongoing basis
Emergency Spill Response	• Use and location of spill kits • Spill control • Emergency response procedures • Presentation and assessment • Spill response drill • Identification of hydraulic hose fatigue	Operational personnel Management	Project Induction Project Toolbox Talks Internal LOR course run as required for site personnel

Erosion and Sediment Control	• Standard erosion and sediment controls from the Landcom 'Blue Book' • Implementation of controls on site • Erosion and Sediment Control Plans	Operational personnel Management	Project Induction Project Toolbox Talks Internal LOR course run as required for site personnel
Heritage Awareness	• Stop works and reporting protocols for discovery of previously unknown heritage and archaeological items • Exclusion zones for Government Pier	Operational personnel Management	Project Induction Project Toolbox Talks Protocol posted on message boards
Contamination Awareness	• Contamination status of site • Stop works protocols for unidentified potential contamination (hydrocarbons, asbestos, etc)	Operational personnel Management	Project Induction Project Toolbox Talks Protocol distributed to workers and posted on message boards
Environmental Legal Obligations	• POEO Act and other project requirements • Applicable fines and prosecutions	Operational personnel Management	Project Induction Project Toolbox Talks
Energy and Resource Usage	• Awareness training of energy and resource efficiency in the workplace including office/compound and site initiatives such as harvesting rainwater for dust suppression instead of potable mains water and use of bio-fuels	Operational personnel Management	Project Induction Project Toolbox Talks
Community / Stakeholder Awareness	• Adjacent community and Project involvement • Relevant Project stakeholders • Accepted behaviours • Approved hours of work	Operational personnel Management	Project Induction Project Toolbox Talks
Biodiversity	• Wildlife status of project and surrounds • Stop work and reporting protocols for injured wildlife • Measures to stop feral animals coming to site	Operational personnel Management	Project Induction Project Toolbox Talks
Noise and Vibration	• Work hours • CNVMP and OOHW Protocol • EPL requirements • POEO Act and other project requirements	Operational personnel Management	Project Induction Project Toolbox Talks
Air Quality	• Minimisation of dust and plant emissions	Operational personnel Management	Project Induction Project Toolbox Talks ECM Briefing

All evidence of training is maintained as per the Workforce Development and Training Management Plan.

Environmental content is to be included in Toolbox talks and pre-start briefings. All training and tool box meetings will be recorded.

11.0 Communication and Reporting

Laing O'Rourke's HSEMS includes specific organisational requirements related to communication and reporting within the System Requirement – Communication and Reporting. With respect to the functioning of the project's environmental system, Company employees, the client and other interested parties will be kept informed as necessary with specific requirements outlined in the section below.

11.1 Internal

Internal communication methods include:

- Digital Contract Reviews
- Management reports
- Site inspection reports
- Audit reports
- Incident reports
- Noticeboards
- Site meetings
- Employee induction, training and tool box sessions
- Briefings, notifications and alerts

11.2 External

External communication methods include:

- Site meetings with the Client
- All significant incidents notified to the client
- Project reports to client at progress meetings and in the Project Report
- Meetings and correspondence with interested parties (e.g. Local council and EPA) as necessary
- Discussions with adjoining land owners / neighbours and the community who may be affected by the project
- ER inspection reports and action close out tracking
- Consultation on the CEMP, sub-plans and construction monitoring programs with external government agencies as shown in Section 8.5
- Providing information for Compliance tracking and any other external notifications under the Instrument of Approval.
- Any other measures as outlined within the Community Communication Strategy

It is noted that a project website will be established in accordance with CoA B14. The website will be established prior to Work and will be maintained for a period of 12 months following the completion of construction. Details of the website will be made public by community notifications.

Section 2 and Section 3 of the Community Communication Strategy outline the approach to the community engagement and the consultation measures to be utilised.

12.0 System Documentation

Laing O'Rourke's integrated Health, Safety and Environmental Management System (HSEMS) is part of a business wide management system which is known as iGATE. The core elements of the system are described in this EMP with reference to relevant HSEMS System Requirements, Primary Standards and Severe Environmental Risk Protocols.

13.0 Document Control and Records

All project documentation, including environmental records, will be controlled in accordance with JHLOR Project requirements using TeamBinder and Asite – the Project's main Document Control System. Records will be retained on site for the duration of works. Additionally records will be retained by JHLOR for a period of no less than 7 years in total. Records will be made available in a timely manner to TfNSW (or their representative) upon request.

Environmental records will be:

- Kept as objective evidence of compliance with environmental requirements; and
- Filed in the Document Control System, TeamBinder, and made available to all Project personnel, subcontractors and the Client.

Typical records may include:

- Site inspections, audits, monitoring, reviews or remedial actions.
- Documentation as required by performance conditions, approvals, licences and legislation.
- Modifications to site environmental documentation (e.g. CEMP, sub-plans and procedures).
- Other records as required by the Construction Environmental Management Framework
- Environmental Training Records

Document control requirements associated with the Laing O'Rourke Health, Safety and Environmental Management System shall be implemented in accordance with E-P-8-0136 Document Control – Records and Filing.

Individuals with responsibilities for work packages are responsible for the proper maintenance and upkeep of the workplace / project record management system to ensure:

– Files and records are kept up-to-date
– Records are not lost, damaged or inadvertently destroyed
– Records are maintained in accordance with the contractual, statutory requirements and timeframes
– Kept as objective evidence of compliance with environmental requirements
– Filed in accordance with -P-8-0136 Document Control – Records and Filing.

14.0 Operational Control

14.1 General

Activities and business processes that have the potential to significantly affect our environmental performance must be identified, planned, documented and controls measures implemented to ensure the Company's policy, objectives and compliance obligations are met.

Within Laing O'Rourke's HSEMS and with respect to the context of the business, operational controls are documented in Environmental Primary Standards. Environmental Primary Standards have been developed from aspects and impacts and compliance obligations. They provide the framework for eliminating or minimising risk of environmental harm as well as creating opportunity for innovation and enhancing environmental benefits.

At a project level, specific operational controls to manage environmental issues are defined in either or all of the following:

- ERAPs contained in Appendix 4
- Sub-plans
- SWMS, EWMS, JSEA's, HAZID, CRAW, Inspection and Test Plans / check sheets (as appropriate)
- Work instructions (e.g. refuelling and servicing)

Significant environmental issues as identified in the Risk and Opportunity assessment in Appendix 3, will be controlled through Environmental Risk Action Plans and issue specific Sub-plans as required.

Additional controls and criteria identified from the project's compliance obligations (conditions of approval, environmental mitigation measures and contract requirements) will be established and maintained where the absence of such could result in the environmental policy, objectives and targets not being met.

14.2 Hold Points

The activities outlined in the table below are not to proceed without objective review and approval by the nominated authority. These activities below are considered hold points. These hold points should be incorporated into the working plans for the project (SWMS, work instructions, construction methodologies, etc.).

Item	Process Held	Acceptance Criteria	Approval Authority
Construction Environmental Management Plan and sub-plans	Site activities	Site specific Construction Environmental Management Plan and sub-plans have been developed, reviewed and approved.	Department of Planning, Industry and Environment.
Works that require a Project Approval Consistency Assessment	Specific site activities related to Consistency Assessment.	Consistency Assessment approval	Sydney Metro (Approval)
Dewatering	Dewatering / pumping water off the site.	Verification that the water quality criteria have been met.	Environment Manager (or delegate)
Sediment and erosion control measures	Construction activities involving ground disturbance.	Sediment and Erosion Control Plan has been developed, reviewed, approved and implemented	Environment Manager (or delegate)
Vegetation removal	Commencement of site clearing or vegetation removal.	Clearing limits have been verified against the project approval environmental assessment, limits have been set-out and vegetation to be retained has been delineated and or protected. Tree Report has been completed and submitted to the DPI&E	Environment Manager (or delegate)

Item	Process Held	Acceptance Criteria	Approval Authority
Construction Methodologies – direct delivery and subcontract works.	Construction process representing potential medium or high impact to the environment.	Construction methodology / SWMS / JSEA have been reviewed by the Site Environmental Management Representative and addresses the relevant requirements of the CEMP ERAPs.	Project Engineer
Out of Hours Work (OOHW)	Works to be performed outside of approved construction hours	OOHW Protocol Application Form and Community Notification	ER (Endorsement) Sydney Metro (Approval)
Dangerous Goods	Transport of dangerous goods	Verification that transport vehicles meet the requirements.	Construction Manager (or delegate)
Dangerous Goods	Storage of dangerous goods	Verification that bunded storage is provided and that offset distances are maintained for the storage area.	Construction Manager (or delegate)
Controlled/ Hazardous Waste	Transport of Controlled / Hazardous waste from the site	Verification that the waste has been classified in accordance with the guidelines, transport licensing in place and landfill can lawfully receive the waste Section 143 notice or equivalent from waste receiver has been received	Construction Manager (or delegate)
Spoil Transport	Spoil import and removal	Verification that the spoil has been classified and the disposal location can lawfully receive the waste. Section 143 notice or equivalent from waste receiver has been received Imported material has classification reports or appropriate testing to demonstrate that it meets any EPA exemptions	Construction Manager (or delegate) Environmental Manager (or delegate)
Encounter of Unexpected Heritage Item	Commencement of works in the affected area	A ‘Stop Works’ protocol is developed as part of CHMP and must be applied in the event of encountering unexpected/potential heritage items.	Construction Manager (or delegate) Environmental Manager (or delegate)
Ancillary Facilities	Establishment of new ancillary facilities not identified in the planning approval documents	Preparation of an Ancillary Facilities Management Plan and approval by the DPI&E as per CoA A17 Endorsement by the ER for minor ancillary facilities in accordance with CoA A18	DPI&E (outside rail corridor) ER
Pre-construction compliance report	Construction works	Pre-construction compliance report to be completed in accordance with CoA A32 and submitted to the DPI&E at least one month prior to the commencement of construction	DPI&E
Construction Monitoring Programs	Construction Works	Endorsement of the programs by the ER and submission to the DPI&E for approval at least one month prior to the commencement construction Relevant baseline data for the specific construction activity has been collected.	ER DPI&E

Proceeding past a specified Hold Point without authorisation is a system non-conformance.

14.3 Environmental Control Map

The project Environmental Control Map(s) is prepared to assist in the planning and delivery of the project. It is specific to the site or work area and outlines the location of protection measures, monitoring requirements, conditions of approval and environmentally sensitive areas. It is the practical application of the proposed control measures.

The Environmental Control Map is to be used in project inductions, work site set-up, reviewing ongoing environmental performance, included as information in tender documents to subcontractors were applicable and in support of ancillary environmental approvals.

It is noted that the SMEW ECM is a 'live' document and will be updated to reflect the relevant works stage as works progress. The ECM will be endorsed by the Environment Manager. The Independent Environmental Representative will endorse any revised versions of the ECM. The ECM is to be endorsed before it is utilised.

The project Environmental Control Map shall include but not limited to:

- The worksite layout and boundary, including entry/exit points and internal roads and clearing limits
- Location of adjoining land-use and nearest noise sensitive receivers
- Location and type of sediment and erosion control measures, including size / capacity of detention basins and wheel wash facilities
- Location of site offices
- Location of spill containment and clean-up equipment
- Location of worksite waste management facilities
- Hours of work applicable to the worksite (including deliveries and any restrictions on high noise generating activities).
- Document control and approval details
- Location of environmentally sensitive areas (e.g. threatened species, critical habitat, contaminated areas, heritage zones, etc.)
- Vegetation and trees to be protected
- Location of known heritage (indigenous and non-indigenous) items
- Location of stormwater drainage and watercourses leading to / from the worksite
- Specific environmental management requirements from licenses, approvals or permit conditions
- Key environmental risk issues and the specific mitigation measures

The plan is in addition to any erosion and sediment control plans or other documentation that specify the location of environmental controls on site.

A base ECM is included in Appendix 5.

14.4 Design

Environmental design requirements are to be managed in accordance with System Requirement Environmental Design.

The following environmental issues should be considered during the design phase:

- How to minimise any adverse impacts on the environment including energy efficient operation, incorporation of sustainable or recycled materials
- How to improve design efficiency to conserve natural resources
- Address the requirements of JHLOR's sustainability agenda
- How to meet environmental codes, regulations and other requirements
- Conditions of approval and development consent requirements
- Mitigation measures outlines in the environmental assessments
- Contractual environmental design requirements and Scope of Works and Technical Criteria (SWTC)

These issues should be considered, while taking into account the environmental, economic and social aspects of the project.

It is noted that in accordance with REM HSR1 a hazard analysis would be undertaken during the detailed design stage to identify risks to public safety from the project, and how these can be mitigated through safety in design. This assessment will be included within the Design report package.

14.5 Procurement

The supply of goods and/or services by suppliers and subcontractors will be managed in accordance with the Environmental System Requirement Procurement and Supply Chain and the business processes outlined in iGMS. In particular:

- During the tender phase, supply chain partners will be evaluated for their ability to meet the project's environmental obligations. Environmental issues will be taken into account when selecting subcontractors and suppliers and as provided in the project's Procurement Management Plan and using ITT Part E HSES Supply Chain Evaluation.
- Supply, subcontract and consultancy agreements must address the relevant environmental compliance
- Obligations. Agreements will outline the contractual requirements to be delivered by the supply chain through their scope of works and as outlined in the System Requirement Procurement and Supply Chain.
- Suppliers of chemicals and hazardous substances will be required to submit SDS's with delivery or prior to chemicals arriving at site.
- Supply chain partners are to be required to nominate relevant environmental risks and proposed mitigation measures associated with their scope of work within their project specific documentation. As a minimum subcontractors, SWMS must address the environmental risks associated with their site activities.
- The environmental performance of subcontractors will be monitored during site inspections and in accordance with the obligations in their agreements and contracts.

14.6 Handling, Storage, Packaging and Transport

The handling, storage, packaging and transport of goods will be managed in accordance with the project Quality Management Plan.

Dangerous Goods/Hazardous materials will be stored and handled in accordance with Material Safety Data Sheets and the requirements of the Australian Dangerous Goods Code.

The Dangerous Goods (Road and Rail Transport) Act includes specific requirements in relation to the transport of dangerous goods. Where dangerous goods are to be transported as a result of the project, the requirements of the Act must be complied with by JHLOR and third parties.

In particular, regardless of the quantity, appropriate transport documentation must be included with each load unless a specific exemption exists.

Transport documentation must include the following:

- Project/workplace name, contact number
- Transporter name, contact number
- Transport date, origin and destination
- Product name, classification, container type, quantity

Form E-T-8-1232 Dangerous Goods Transport Note may be used.

These materials will be stored in a safe area (e.g. bunded and/or store) which will prevent or contain accidental spillage and harm to the environment. Further details are provided in Appendix 4 in the ERAP - Delivery and Storage of Chemicals, Fuels & Oils and including Dangerous Goods requirements.

SDS's must be stored along with or at the point of storage.

14.7 Manufacture, Construction and Fabrication Processes

These processes will be controlled in accordance with Laing O'Rourke Primary Standards and management processes.

Environmental requirements, relating to manufacture, construction and fabrication processes, are defined in:

- Construction methodologies, Safe Work Method Statements and JSEAs

- Inspection and Test Plans, Task Complete Checklists and associated documents
- Contract documents
- Environmental control procedures

14.7.1 Life cycle perspective

The life cycle approach (or life cycle perspective) means understanding the relevant stages of a product or service system, from raw material acquisition or generation from natural resources to final disposal. Laing O'Rourke's System Requirement Life Cycle Perspective outlines the process for ensuing this approach is taken on our projects.

From a project perspective, the life cycle approach applies to the following:
- Work Winning (estimating & cost planning, business development, bids & proposals)
- Commercial (head & sub-contract formation)
- Engineering (feasibility studies, concept design, front-end engineering design, detailed design)
- Procurement (supply and delivery of goods and services)
- Delivery (construction, commissioning)

At each stage of project delivery JHLOR will determine the aspects and opportunities to influence lifecycle Outcomes including but not limited to:

- Stage in the life cycle of the product or service
- Degree of control the business has over the life cycle stages
- Degree of influence it has over the life cycle
- Life of the product
- Ability to influence on the supply chain

The lifecycle approach is a function of the project sustainability management and is included within this plan for information only.

14.7.2 Planning for high environmental risk activities

Works site planning processes for high environmental risk activities is outlined in the System Requirement Environmental Planning which forms part of the Laing O'Rourke HSEMS. Details of specific activities considered high risk are provided in the system requirement. Additional activities may be identified in the project environmental risk assessment.

For all activities that have the potential to cause high-risk environmental impacts or are nominated as high risk activities as determined by the project environment risk assessment activity specific method statements are to be developed and implemented.

The activity specific method statement to address environmental high risk activities may be combined with existing construction planning documentation. It is to be developed in consultation with the environmental team, engineering team and relevant workplace supervisors.

Prior to the commencement of the activity, the site team shall be instructed on the key environmental risks and the required mitigation measures provided in the activity specific work method statement to address high risk activities.

This also applies to supply chain partners operating on the site. Supply chain partners involved in activities that represent a high risk to the environment are to address the above requirements in their activity methodologies and method statements. Supply chain partners involved in these activities are to complete an environmental risk assessment workshop prior to the commencement of the activity.

14.8 Plant and Equipment

Environmental Primary Standard Spill Prevention includes requirements related to the fuelling and servicing of plant and equipment. These requirements represent the minimum requirements within Laing O'Rourke HSEMS. Additional project specific requirements and specific controls may be included in the issue specific sub-plans or ERAPs.

Plant and equipment owned by Laing O'Rourke and/or John Holland will be maintained in a safe and serviceable manner in accordance with Project Team (Operations/Construction & HSEQ) Swim Lane and the procedures provided in 2113 Plant Operational Control.
In particular the following requirements apply:

- Plant will be inspected prior to operation on site. In particular fuel lines, hydraulic hoses or other items with the potential to impact the environment are to be inspected. Items found to be worn, damaged or otherwise degraded are to be replaced prior to operation
- Plant will be serviced, re-fuelled and washed-down only in approved areas where hydrocarbons can be captured and then properly disposed
- Fuelling will be carried out in bunded areas when fuelling from bulk tanks
- Plant and equipment will be maintained to prevent / fix oil leaks
- Plant will be driven and operated only in approved areas
- Plant will have effective pollution control and sound attenuation devices fitted

A list of plant to be used on the Project is included within Section 2.6, Table 5. The list is indicative and may be refined as the project progresses.

Further project specific information on environmental controls is contained in Appendix 4.

15.0 Emergency Preparedness and Response

The types of environmental emergencies which could occur on this site are shown in Appendix 6.

The client and relevant statutory and regulatory authorities (such as the EPA) will also be informed as necessary. Environmental emergencies will be handled as follows:

- Immediately report all incidents to the Project Leader and Site/Construction Manager who will assess the situation and manage the following steps:
- Immediately take all reasonable steps to contain further damage or danger to personnel, public, property and the environment
- Inform relevant authorities in accordance with the regulatory requirements provided in Section 17 below.
- Contact emergency service personnel as necessary (e.g. fire dept., spill clean-up services, etc.). Site emergency response team will also be contacted.
- Provide notification to the Environmental Leader, HSE General Manager and Head of Legal immediately via phone and email.
- Inform the Client's Representative as necessary and in accordance with contractual requirements (nominated in Section 17 below)
- Complete a detailed report of the incident using IMPACT.
- Liaise with the Client's Representative regarding corrective and preventive actions required and the timeframes within which these actions must occur.
- The designated personnel will undertake the corrective and preventive actions.

Reporting will also occur in accordance with Section 6.3 *Crisis Communication* of the Community Communications Strategy.

The Project Environmental Manager (or delegate) will be available 24hours per day, 7 days per week to respond to environmental related emergencies, primarily by phone. The Project Environmental Manager (or delegate) is able to stop work if an Environmental Emergency occurs.

Information on the handling of hazardous materials is contained in the *SDS* file.

Emergency Services contact numbers are to be displayed in the main site office.

The emergency response process is to be periodically tested via an environmental emergency drill at intervals not exceeding 12 months.

Specific system requirements related to environmental emergencies are outlined in System Requirement Emergency Planning and Response.

Project Emergency contact numbers are included in the table below:

Table 9 Emergency Contact Details

Contact	Phone Number	Address
EPA Pollution Hotline	131 555 or (02) 9995 5555 (if calling from outside NSW).	City of Parramatta, 10 Valentine Ave, Parramatta NSW 2150
Ministry of Health	(02) 9391 9000	73 Miller Street North Sydney NSW 2060 Australia
SafeWork NSW	13 10 50	92-100 Donnison Street, Gosford NSW 2250
Fire and Rescue NSW	000	211-217 Castlereagh St, Sydney NSW 2000
City of Canterbury Bankstown	(02) 9707 9000	Bankstown Civic Tower, 66-72 Rickard Rd, Bankstown NSW 2200
Inner West Council	(02) 9392 5000	7-15 Wetherill St, Leichhardt NSW 2040

Sydney Metro 24-hour Enquiries Line	1800 171 386	22 Giffnock Avenue, Macquarie Park NSW

15.1 Site Shutdown Planning

Site shutdown periods must be planned and coordinated to ensure the risk of environmental impact is minimised. Shutdown periods are considered to be any period in which construction activities are not planned to take place on the site for more than 3 consecutive days. This includes public holiday and RDO periods. Site shutdown planning must be undertaken in accordance with System Requirement Environmental Planning. Planning activities must ensure that inspections, resources and contingency measures are agreed and implemented for the shutdown period. This is to be document in a specific Shutdown Go Pack.

16.0 Monitoring and Measurement

Key characteristics of the project operations and activities which have a significant impact on the environment will be regularly monitored and measured.

This will include:

– recording of information to track performance
– monitoring operational controls
– level of conformance with objectives and targets

The Environmental Inspection Report will be used to monitor environmental issues on site and issued to the Project Leader. The report will be completed on a weekly basis. The Environmental Inspection Report may be updated for Project specific risks.

The Management Site Safety and Environment Inspection Report will be completed each week by the project's Supervisors to monitor environmental issues on site. The reports will be issued to the Project Leader/ Site Manager for review and signing.

Issues identified during environmental inspections requiring further action beyond normal practice or maintenance (i.e. where an issue cannot be addressed within a reasonable time-frame, based on the risk associated with the issue, or where an issue is re-occurring) are to be logged into Impact via the Assurance Application or retained in Fieldview as defined in the project procedures. Further details on non-conformances are presented in Section 17.

Impact is a LOR software application which records, collates and distributes Health, Safety and Environmental (HSE) data. HSE Dashboards in Impact will be included as part of a Monthly Project Review and issued to the Business Unit Managers on a monthly basis. Where environmental inspection or monitoring outcomes are required to be logged into Impact, a workplace visit is to be created and the associated actions generated.

Where deemed necessary by the Project Environmental Manager and as a result of revisions to project scope or changes to project risks, additional ERAPs to control potential impacts will be developed.

Regular site inspections will be completed by the ER and Sydney Metro representatives at a frequency to be agreed with by all parties.
As required under **CoA-C8**, Construction Monitoring Programs will be prepared in consultation with the relevant government agencies. Each construction monitoring program has been incorporated into the relevant CEMP Sub-plan and are listed below:

- Construction Noise and Vibration Monitoring Program – included within Section 8 of the CNVMP;
- Water Quality Monitoring Program – included within Section 7 of the CSWMP

The Construction Monitoring Programs, as approved by the Secretary including any minor amendments reviewed 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 Secretary, whichever is the greater.

The Environmental Manager (or delegate) would be in attendance at any ER site inspections and would be responsible for actioning and responding to any identified corrective actions in accordance with the Corrective Action Request (CAR) Register timeframes outlined in Section 16.1 and as agreed with the ER.

The results of any monitoring undertaken as a requirement of the EPL will be published on the project website within 14 days of obtaining the results.

If monitoring and measuring equipment is required, it must be calibrated, maintained and controlled in accordance with the procedures in iGMS and requirements outlined in the project Quality Management Plan. Records of calibration will be kept in the document management system.

Further monitoring and reporting activities against operational objectives and targets are listed in Section 7 of this Plan.

16.1 Monthly Environmental Reporting

JHLOR's approach to environmental reporting is outlined in Environmental System Requirement Communication and Reporting.

Monthly environmental reporting is to be completed through LOR's Digital Contract Review process. The Project Leader or Workplace Leader is responsible for ensuring environmental performance information is included in each months Digital Contract Review such as the following as necessary:

- Summary discussion on project risks and opportunities – to be read in conjunction with the risk register
- Environmental performance outcomes, improvement initiatives or corrective measures
- Client and stakeholder engagement and interface. In particular, client feedback on project environmental performance.
- Environmental incident and event management including the outcomes from incident investigations and corrective actions
- Content for the environmental project dashboard

The project shall complete a monthly report using the Sydney Metro City & Southwest Environmental Reporting Template SM ES-FT-421. Each report is to be included in the Monthly Project Review. The reporting will be undertaken by the Project Environmental Manager (or delegate).

Subcontracts and supply chain agreements must include supply chain reporting requirements as necessary. This may include the following:

- Environmental management reporting requirements and key performance indicators
- Waste management reporting
- Project specific conditions of approval or environmental compliance reporting requirements
- Greenhouse gas and life cycle reporting
- Supply chain environmental performance reporting shall be used as necessary to inform project and workplace environmental reporting.

16.1.1 Monthly Project Environmental System Self-check

On a monthly basis, the project will assess the performance and implementation of the project environmental system through the project Environmental System Self-check. Outcomes of the project environmental system self-check are to be retained in the project records.

Table 13 outlines the requirement and criteria to be revised and the relevant frequency.

Table 13: Monthly Project Environmental System Checks

System Requirement	Criteria	Frequency
SER Program	Program implemented and actions complete	Monthly
Site inspection implementation	Site inspections have been completed in accordance with the environmental management plan requirements.	Monthly
Event management	Environmental incidents have been reviewed, investigations completed and actions closed out.	Monthly
Environmental Monitoring Program	Environmental monitoring has been completed and reviewed for compliance. Non-compliances have been actioned and closed out	Monthly
Waste management	Project waste management register is up to date including spoil management and disposal	Monthly
Conditions of Approval tracking	Conditions of approval compliance matrix has been reviewed and updated demonstrating compliance with conditions	Quarterly
Environmental Licences	Environmental licence compliance has been reviewed and reporting completed as nominated.	Quarterly

16.1.2 Supply Chain Environmental Compliance Obligations Review

Suppliers and subcontractors operating on the project will be subject to environmental performance requirements. Environmental performance requirements will apply to all suppliers and subcontractors in accordance with the supply or subcontract agreements.
To ensure supply chain environmental performance requirements are being met on the project the following will be implemented:

- Supply chain audits - audits of the implementation of supply chain environmental systems on projects will be undertaken. Supply chain audits will verify implementation of the environmental requirements from their respective agreements.

- Environmental inspections on the project will review supply chain performance.
- Monthly Environmental Reports - as required to report on environmental performance and as outlined in supply chain agreements
- Waste disposal reporting - all supply chain partners operating on site with obligations for waste disposal will maintain waste disposal records and provide reports on a monthly basis
- Environmental Monitoring - where required by their supply chain agreement environmental monitoring to verify environmental performance targets are being met is to be undertaken and reported.

If contractor work on the site is being performed contrary to the contractor's plan and / or applicable legislative requirements, action will be taken immediately. This may include a direction to stop work and issuing a relevant site instruction to address the non-compliance to works procedures and environmental controls.

16.2 Compliance Reporting

In accordance with CoA A29 to A32, a compliance tracking program must be developed and implemented during construction works in order to monitor compliance with the terms of the project approval. Compliance reporting on the project will be undertaken in accordance with the requirements of the *City and Southwest – Sydenham to Bankstown Compliance Monitoring and Reporting Program Report* (Sydney Metro, 2019).

It is the responsibility of Sydney Metro to undertake the Compliance Tracking Program in accordance with the Conditions of Approval with input from JHLOR as required.

A compliance matrix has been established for the project, incorporating CoA, licence conditions, permits and other approvals relevant to the SMEW works to track issues and ensure compliance issues are addressed and closed out.

As per the requirements of MR-E, within 5 Business Days of each Calendar Quarter Date, a register of Environmental Compliance Requirements (ECRs), which identifies progress, and evidence of compliance against each ECR, must be submitted to the Principal's Representative for review in accordance with the Contract. The register of ECRs must classify each ECR as:

(i) Ongoing or Complete, to indicate their progress; and
(ii) Compliant or Non compliant, to indicate compliance

The Reports will also include:

(a) a results summary and analysis of environmental monitoring;
(b) the number of any complaints received, including a summary of main areas of complaint, action taken, response given and proposed strategies for reducing the recurrence of such complaints;
(c) details of any review of, and minor amendments made to, the CEMP as a result of construction carried out during the reporting period;
(d) a register of any consistency assessments undertaken and their status;
(e) results of any independent Environmental Audits and details of any actions taken in response to the recommendations of an audit;
(f) a summary of all incidents notified in accordance with **CoA A36** of the Conditions of Approval; and
(g) any other matter relating to compliance with the terms of this approval or as requested by the Secretary.

The Compliance Tracking Reports will be provided to the ER for information.

17.0 Incidents, Non-Compliance, Complaints, Corrective and Preventative Action

The management, investigation, reporting and notification process for environmental events, including positive events, is to be undertaken in accordance with the Environmental System Requirement Event Management and Reporting and Appendix 8: Environmental incident investigation guidelines.

All incidents and complaints (including potential incidents) must be reported so that they can be investigated and prevented from recurring.

The Environmental Incident and Complaint Report shall be completed and issued to the Project Leader for all Potential or Actual Class 1 or Class 2 incidents. The completion Environmental Incident and Complaint Report for Class 3 incidents is at the discretion of the Project Leader. Notwithstanding Class 1, Class 2 and Class 3 incidents are to be recorded in IMPACT.

Incident Reporting & Investigation from the project sites is to be recorded in IMPACT, LORA's Online Incident Investigation Reporting Tool. IMPACT can be accessed from the LORA Intranet Home Page or remotely connected via the Internet where connection is possible and direct access to the LORA Intranet is not available. Incidents are to be logged in Impact within 48 hours of occurrence. For Class 1 and Class 2 incidents, an investigation must also be logged in Impact.

The Environmental Leader, HSE General Manager and Head of Legal shall be notified by telephone as soon as practicable after any Actual or Potential Class 1 or Class 2 Incidents with the potential to result in regulatory action.

Environmental Incident is classified into three classes:

Class 3 Incidents
Where a Class 3 incident has occurred, the JHLOR Site Manager or immediate supervisor is to be informed. Class 3 incidents must be logged directly into IMPACT.

Actual or Potential Class 2 Incidents
Where an actual or potential Class 2 incident has occurred, Group Management is to be informed via the Project Leader. Class 2 incidents are to be investigated using a recognised investigation protocol.

Class 1 Incidents
Where a Class 1 incident occurs the Environmental Leader, HSE General Manager and the Head of Legal are to be informed immediately. The requirements of the flow chart in Appendix 1 are to be applied to all actual or potential Class 1 environmental incidents.

The classifications are explained in detail with examples in the LOR Environmental Incident Classification Guidelines which is available in the System Requirement Event Management and Reporting.

Class 1 incidents shall be subject to an ICAM or Tap Root investigation.

All environmental incidents and non-conformances must also be reported to the ER and Sydney Metro in accordance with Sydney Metro Environmental Incident Classification Procedure SMNW ES-PW-303/1.0, see Appendix 16. The corresponding Sydney Metro incident classifications are outlined in Table .

Table 14 Incident Classification

LOR Incident Classification					
Class 3			Class 2	Class 1	
Class Three Environmental Incidents typically cause short term or nuisance damage. The damage is easily rectified usually within one day. Class 3 incidents do not cause medium or long term damage.			Class Two Environmental Incidents create short to medium term damage to the environment. This damage will result in the environment taking up to 12 months to return to pre-existing conditions. Potential for prosecution or infringement notice.	Class One Environmental Incidents create permanent or long term damage to the environment. This damage will result in the environment taking 12 months or more to return to pre-existing conditions. Major environmental investigation and potential for large prosecution.	
Corresponding Sydney Metro Incident Classification					
C6	C5	C4	C3	C2	C1
No appreciable changes to environment and/or highly localised event	Change from normal conditions within environmental regulatory limits and environmental effects are within site boundaries	Short-term and/or well-contained environmental effects. Minor remedial actions probably required	Impacts external ecosystem and considerable remediation is required	Long-term environmental impairment in neighbouring or valued ecosystems Extensive remediation required	Irreversible large-scale environmental impact with loss of valued ecosystems

Where complaints are received at project sites or workplaces involving the media or where the company image is likely to be affected, they must be considered potential Class 2 incidents and notified accordingly.

All Class 1 & Class 2 incidents will be reported to the relevant State & Federal Authorities as required under relevant Acts & Regulations. Further details are provided in the section External Incident Reporting below.

Complaints will be reported to external authorities in accordance with specific licence/permit or approval requirements.

Refer to the Environmental Legislation page on iGMS for information on the applicable legislation.

Initial incident details must be provided in IMPACT for all actual and potential Class 1 and Class 2 incidents within 24 hours of the incident occurring. Notifications will be sent automatically to the relevant LOR leadership team members from IMPACT once the incident details have been entered.

17.1 Non-Conformances, Non-Compliances

In accordance with the LOR HSEMS, a non-conformance is a failure to comply with a requirement, standard or procedure. A non-compliance is the failure to adhere with an Act or its Regulations, including licences and approvals granted under an Act. For internal reporting purposes, reporting will occur in accordance with these definitions. It is also noted that within the *Sydney Metro Environmental Incident and Non-Compliance Reporting Procedure,* non=compliances are defined as; 'a breach of any Environmental Requirement originating from Planning Approvals, Environment Protection Licenses, lease agreements, and other requirements documented in environmental management plans.' This is a broader definition of the term non-compliances. Reporting to Sydney Metro, the ER and DPIE will occur in accordance with the Sydney Metro definition of 'non-compliance'.

Non-conformance/non-compliance to operational control procedures or to the HSEMS that cannot be rectified immediately must be recorded and addressed by raising a Non-conformance Report F0103 and logged into the Assurance application in Impact. Non-conformances/non-compliances can arise out of monitoring, inspections or audits.

The Non-Conformance report includes details of the project, the cause of the non-conformance, proposed remediation action (and approval), and close-out. Sydney Metro or the ER may raise non-compliances against environmental requirements.

The following environmental issues / non-conformances are to be included within Impact as corrective actions.

– Internal inspection outcomes that cannot be rectified immediately – actions nominated on the Environmental Inspection Report and Management Site Environmental Inspection Report
– Incidents and associated corrective actions
– Internal audit observations/non-compliance
– Sydney Metro audits or other notice of non-compliance
– Notices or action from regulatory authorities

17.2 Corrective Actions

Management system non-conformances and recurring environmental incidents will be handled in accordance with the LOR HSEMS – Corrective and Preventative Action Procedure by the Environmental Manger. The Environmental Manager is responsible for the investigation, tracking and ensuring appropriate closeout of non-compliances, corrective and preventative actions.

Corrective and preventative actions may include:

- Site remediation and rehabilitation
- Increased site inspections and monitoring
- Increased environmental awareness (re-training, tool-box meetings)
- Review and improve existing environmental controls and job safety analyses/work method statements

Corrective actions are differentiated by risk ranking. The nominated timeframes to resolve items on the CAR Register are presented in Table 15.

Table 15: CAR Risks and Resolution Timeframes

CAR Risk Ranking	Timeframe for resolution
1	Action needs to be commenced immediately to resolve the issue
2	Action needs to be resolved within 1 week.
3	Action needs to be resolved within 1 month.

17.3 Incident and Complaints Reporting

Environmental incidents and complaints are to be investigated, documented, actioned and closed out as per the details provided in the investigation process above.

Environmental incidents and complaints must be recorded in Impact within two working days of the incident.

JHLOR will provide notification of the incident to the Client's Representative as required and in accordance with the contract.

On this project and in accordance with the contract requirements, the Client is to be notified as detailed in Table 16.

Table 16: Client Notification Requirements

Notification Type	Contract Requirement

Initial verbal notification	Notify Sydney Metro/Sydney Metro Representative regarding the incident as soon as possible. If the incident is a notifiable event, JHLOR will notify the EPA and relevant authorities immediately. JHLOR will inform Sydney Metro of this notification status. Secretary to be informed as soon as possible and at least within 24 hours.
Environmental Incident Report requirements	Prepare an incident / non-conformance report and submit to Sydney Metro within 48 hours.

Class 1 & Class 2 reportable incidents shall be reviewed by the HSE Leader or Regional Environmental Manager, HSE General Manager and Head of Legal from both John Holland and LOR prior to the issue of formal correspondence to external parties or regulatory authorities.

Management system non-conformances and recurring environmental incidents will be handled in accordance with the Continual Improvement Corrective and Preventative Action Procedure in iGMS.

Where an environmental non-conformance or incident is identified, Corrective and preventive actions shall be developed and may include:

– Review and improve existing environmental controls and job safety analyses/ work method statements
– Site rehabilitation
– Increased site inspections and monitoring
– Modify construction or installation methods
– Increase environmental awareness including re-training and tool-box meetings

Each incident must be sufficiently investigated to allow specific and detailed corrective and preventative actions to be identified, actioned and closed out as outlined in Impact or in the Environmental Incident and Complaint Report.

Specific procedures relating to heritage finds are outlined in the SMEW Construction Heritage Management Plan (Doc SMCSWSSJ-JHL-WEC-EM-PLN-000002).

Note: where a Class 1 Incident has occurred the HSE General Manager will initiate the investigation and allocate responsibilities, an external consultant may be engaged. Authorities are to be notified in accordance with the legislative time frames.

17.3.1 Senior Leaders Environmental incident review

For all Class 1 & Class 2 incidents, within 3 days the Project Leader will convene a briefing with the relevant Senior Business Leader/Area/Operations Manager to provide an update on the incident investigation and to allow the Area/Operations Manager to be actively involved in the investigation process. The briefing will include discussion on the progress of the investigation and any specific initial findings. A status report on any rectification work or maintenance activities to the relevant environmental controls will also be provided.

The following information relating to the incident investigation shall be forwarded to the Senior Business Leader/Area/Operations Manager and Regional HSE Manager.

- The condition of the environment and the status of any rectification or remediation works,
- The completed incident investigation report, including appropriate causal analysis and corrective actions,
- Program for the implementation of the corrective actions and any maintenance activities,
- A completed HSE Learning Bulletin template to be included in the monthly Learning Bulletin,
- Any other relevant information.

17.4 External Incident Notification

DPIE notification requirements are outlined in CoA A36-A37 and Appendix A of the Sydney Metro City and Southwest – Sydenham to Bankstown Instrument of Approval as tabulated below. Any incidents will be notified to the Secretary in accordance with these requirements.

Table 17 Incident Notification to DPIE

CoA/Requirement	Details
CoA-A36	The Department must be notified in writing to compliance@planning.nsw.gov.au immediately after the Proponent becomes aware of an incident. The notification must identify the CSSI (including the application number and the name of the CSSI if it has one) and set out the location and nature of the incident.
CoA-A37	Subsequent notification must be given, and reports submitted in accordance with the requirements set out in **Appendix A (of the CoA, as detailed below)**.
Appendix A - 1	A written incident notification addressing the requirements set out below must be emailed to the Department at the following address: compliance@planning.nsw.gov.au within seven (7) days after the Proponent becomes aware of an incident. Notification is required to be given under this condition even if the Proponent fails to give the notification required under Condition A37 or, having given such notification, subsequently forms the view that an incident has not occurred.
Appendix A - 2	Written notification of an incident must: (a) identify the CSSI and application number; (b) provide details of the incident (date, time, location, a brief description of what occurred and why it is classified as an incident); (c) identify how the incident was detected; (d) identify when the Proponent became aware of the incident; (e) identify any actual or potential non-compliance with conditions of approval; (f) describe what immediate steps were taken in relation to the incident; (g) identify further action that will be taken in relation to the incident; and (h) identify a project contact for further communication regarding the incident.
Appendix A - 3	Within 30 days of the date on which the incident occurred or as otherwise agreed to by the Planning Secretary, the Proponent must provide the Planning Secretary and any relevant public authorities (as determined by the Planning Secretary) with a detailed report on the incident addressing all requirements below, and such further reports as may be requested.
Appendix A - 4	The Incident Report must include: (a) a summary of the incident; (b) outcomes of an incident investigation, including identification of the cause of the incident; (c) details of the corrective and preventative actions that have been, or will be, implemented to address the incident and prevent recurrence; and (d) details of any communication with other stakeholders regarding the incident.

Note: The Conditions of Approval define an incident as follows “An occurrence or set of circumstances that causes or threatens to cause material harm and which may or may not cause a non-compliance with this approval.”

17.4.1 State Matters

The EPA must be notified immediately of all pollution incidents that cause or threaten material harm to the environment. JHLOR will enact the Pollution Incident Response Management Plan (PIRMP) if an incident causes, or has the potential to cause material harm. The PIRMP is part of the overarching SMEW Emergency Response Plan.

Harm to the environment is "material" if the effect (or potential effect) from an incident on the health or safety of humans or ecosystems is not trivial and or results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding $10,000.

Incidents requiring notification to the EPA must also be immediately notified to the HSE Leader and the Head of Legal for both John Holland and Laing O'Rourke.

If an incident presents an immediate threat to human health or property, 000 is to be called in accordance with the procedures outlined in the Construction Health and Safety Management Plan.

The EPA Environment Line is to be contacted on 131555.

The notification will need to include information on:

– The time, date, nature, duration and location of the incident
– The location of the place where pollution is occurring or is likely to occur
– The nature, the estimated quantity or volume and the concentration of any pollutants involved
– The circumstances in which the incident occurred (including the cause of the incident, if known)
– The action taken or proposed to be taken to deal with the incident and any resulting pollution or threatened pollution
– Other information prescribed by the regulations

In addition to notifying the EPA of pollution incidents other authorities as outlined below must also be notified immediately:

– The Ministry of Health (via the local Public Health Unit - 02 9391 9000)
– SafeWork NSW (13 10 50)
– Inner West Council (where the incident has occurred with this LGA) – 02 9707 9000
– City of Canterbury Bankstown (where the incident has occurred with this LGA) - 02 9392 5000
– Fire and Rescue NSW on 000

Regardless of the actual or potential impact, these authorities must be notified under the amended legislation for all notifiable pollution incidents.

Further information in relation to the incident must be provided immediately if it becomes available after the initial notification.
Records of contact with and details of the information provided to external authorities must be maintained in the project records. The LOR form E-T-8-0161 Record of Conversation may be used to record contact with the regulatory authorities.

17.4.2 Commonwealth Matters
Environmental incidents relating to the Environmental Protection and Biodiversity Conservation Act 1999 must be notified to the Secretary within 7 days of the event.

These types of incidents include the death or injury to the following:

– Migratory bird species
– Listed marine species
– Threatened species or listed ecological community (includes taking)

17.5 Client Complaints
All communications from the Client (including CAR's and Audit reports) expressing concern or dissatisfaction with the implementation or operation of the CEMP shall be documented in the Assurance application in Impact. Client complaints cannot be rated risk ranking 3.

Public complaints must be handled as outlined in Clause 18 above using Form Environmental Incident and Complaint Report and logged into IMPACT. Public complaints are to be responded to in accordance with the Sydney Metro Community Consultation Strategy (CCS). Environmental management related complaints will be forwarded to the Environmental Manager.

Management system non-conformances and recurring environmental incidents will be handled in accordance with the Environmental System Requirement Inspections, Audits and Corrective Actions.

Corrective and preventive actions may include:

- Site remediation and rehabilitation
- Increased site inspections and monitoring
- Increase environmental awareness (re-training, tool-box meetings)
- Review and improve existing environmental controls and job safety analyses/ work method statements

18.0 Environmental Management System Audit

Auditing of the project Environmental Management System will be carried out in accordance with the System Requirement Compliance, Review and Assurance. The audit will evaluate compliance with this EMP and associated documentation including legal, contractual and other requirements.

The audits will be conducted by either the Laing O'Rourke Environment Leader (or delegate), the John Holland Regional Manager (or delegate) or the Project Quality Manager.

JHLOR will undertake internal Environmental Management System Audits on a 6 monthly basis. The scope of these audits will alternate between covering the general implementation of the EMS, and how the Construction Environmental Management Plan and sub-plans are implemented (noting that the CEMP and sub-plans dictate how the EMS is applied to the Project). The audit schedule is contained in Appendix 13.

It is expected that the project will be audited within 3 months of commencing on site and approximately every6 months thereafter and in accordance with the Audit Schedule. The relevant HSE Leader, in consultation with the project leadership team, will decide on the frequency, scope and timing of project/site audits.

An audit report will be issued to management for action. Actions will be followed up for close-out of actions within 1 month of the issue of the audit report.

Audits shall be captured within the Assurance application in Impact. Actions associated with audits shall also be logged in the Assurance application in Impact.

In addition to internal audits as described above, the Project will be subject to independent audits in accordance with conditions A33 to A35. The Independent (Environmental) Audit Program will be managed by Sydney Metro. Sydney Metro will submit a copy of the Independent Audit Program to DPI&E no later than one month before the commencement of Construction. JHLOR will participate in these audits as required by the audit program. The audits undertaken in accordance with conditions A33 to A35 will be undertaken on an annual basis.

19.0 Management Review

Project Management, will check the status and adequacy of the Construction Environmental Management Plan to ensure that it meets current client and Company requirements as well as relevant environmental standards.

The Plan will be reviewed as and when required during the course of the contract when the following situations arise:

– Client recommendations for changes (particularly following initial review)
– Changes to the Company's standard system
– Opportunities for improvement or deficiencies in the project system are identified.
– Following an audit of the system or the occurrence of significant incidents and non-conformances

The management review may be undertaken during the HSEQ re-launch process which is undertaken at 6 monthly intervals.

20.0 Environmental Schedules

Below is a list of relevant Environmental Schedules that will be utilised on the project. These records are kept electronically.

- Weekly Environmental Inspection
- Management HSE Inspection form
- Incident/Complaint form
- Corrective Actions Register
- Erosion and Sediment Control Plans
- Waste records
- Internal and external audit reports

Refer to Appendix 15 for a copy of the schedule templates. Note that these templates may evolve over the duration of the project to maximise environmental outcomes

21.0 Other Key Items of Note

21.1 Ancillary Facilities and Compound Set out

An ancillary facility may be set-up to support the works. The location of any proposed ancillary facility is yet to be determined. The ancillary facility will comply with the requirements of CoA-16 to CoA- A21 as appropriate.

JHLOR will consider the following when determining the layout of construction sites:

- The location of noise intensive works and 24 hour activities in relation to noise sensitive receivers
- The location of site access and egress points in relation to noise and light sensitive receivers, especially for sites proposed to be utilised 24 hours per day (e.g. during possession works only)
- The use of site buildings to shield noisy activities from receivers
- The use of noise barriers and / or acoustic sheds where feasible and reasonable for sites proposed to be regularly used outside of daytime hours
- Aim to minimise the requirement for reversing, especially of heavy vehicles.
- The location of any ancillary facility or site compound will not worsen the existing flooding characteristics of the area

21.2 Trees and Vegetation

A number of trees, as defined by the Planning Approval, are located within the design footprint of the SMEW works and future Sydney Metro works. These trees will be subject to assessment under a Tree Report under **CoA-E5** and will be trimmed or removed accordingly.

In addition to the trees to be removed, SMEW will also remove other vegetation, including;

- Grasses and weeds
- Shrubs and small plants

This vegetation is generally healthy in nature.

In accordance with REMM LV4 the management of trees during detailed design and construction planning would be guided by the project's Tree Management Strategy, which would be developed in consultation with councils and include consideration of relevant local plans and strategies. Where removal cannot be avoided, trees would be replaced in accordance with the Tree Management Strategy, including replacement of removed trees in a two for one ratio.
Opportunities to retain and protect existing trees would be defined during detailed design and construction planning, in accordance with the project's Tree Management Strategy. The design would aim to reduce tree removal to the extent practicable, particularly where they contribute to screening vegetation or landscape character.

Also, in accordance with REMM LV12, trees to be retained would be protected prior to the commencement of construction in accordance with AS4970-2009 Protection of trees on development sites and the project's Tree Management Strategy.
Any tree pruning would be undertaken in accordance with the project's Tree Management Strategy, guided by a tree report prepared by a qualified arborist.

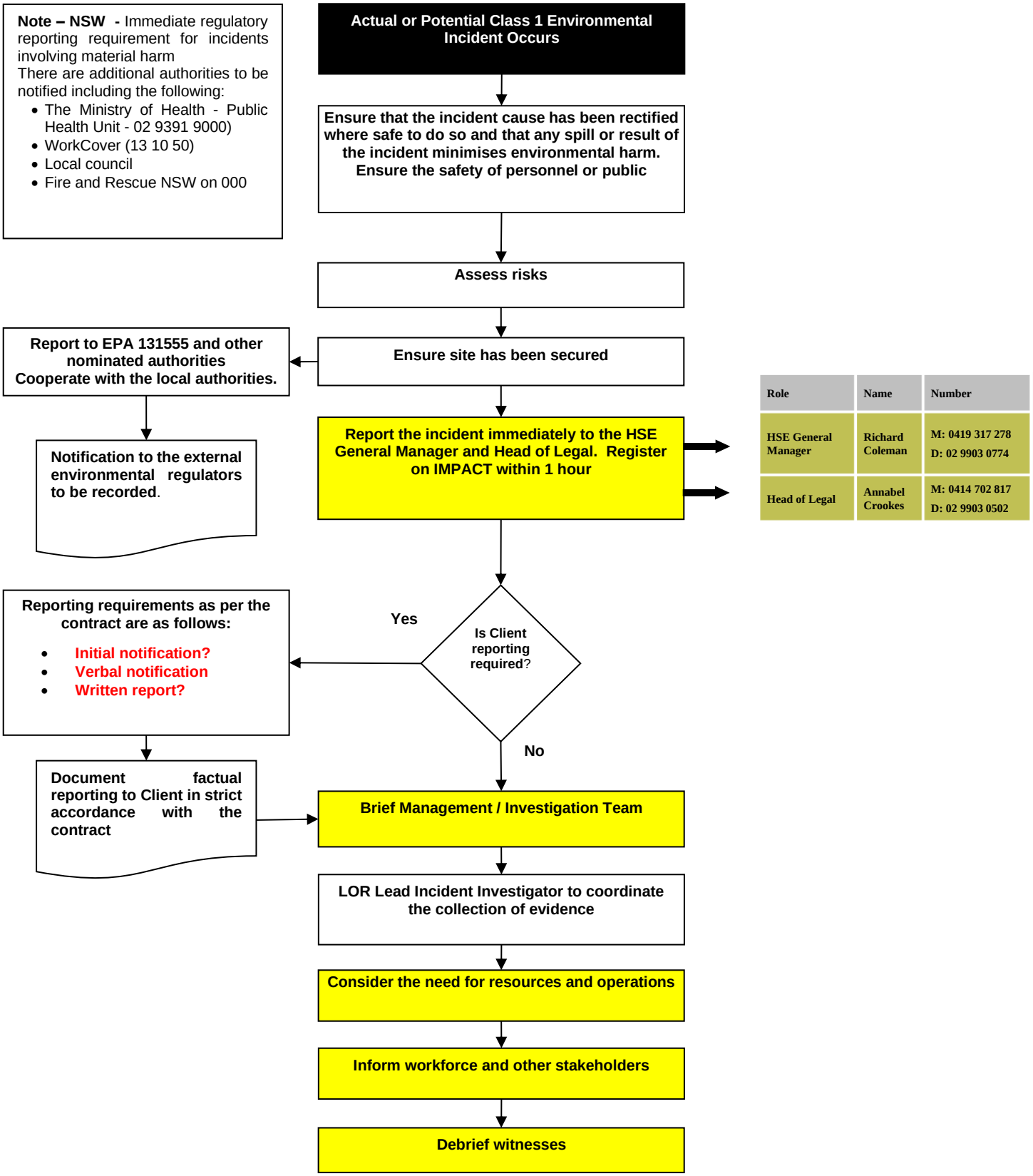
21.3 Site Restoration

JHLOR will consult with Sydney Metro, stakeholders and, where appropriate, the community in regards to site reinstatement.

JHLOR will implement the following measures in regards to site reinstatement following construction:

- JHLOR will clear and clean all working areas and accesses at project completion
- At the completion of construction all plant, temporary buildings or vehicles not required for the subsequent stage of construction will be removed from the site
- All land, including roadways, footpaths, loading facilities or other land having been occupied temporarily will be returned to their pre-existing condition or better
- Reinstatement of community spaces, infrastructure and services will occur as soon as possible after completion of construction.

APPENDIX 1 – Class 1 Incident Management Flow Chart



APPENDIX 2 – Legal and Other Requirements

The relevant legal and other requirements are shown in the table below. Access to this legislation is available on iGATE.

Legal and Other Requirements	Summary of Obligations	Relevance to the Project / Notes and System
Environmental Planning Legislation		
Environmental Planning and Assessment Act 1979	This Act establishes a system of environmental planning and assessment of development proposals for the State.	**High Relevance** The development consent conditions and obligations are incorporated into the specification documents JHLOR's CEMP.
Local Government Act 1993 ***Local Government (General) Regulation 2005***	The Local Government Act and Local Government (General) Regulation provide a legal framework for an environmentally responsible system of Local Government including the responsibility to administer various regulatory systems (e.g. Environmental Planning, Development Consents and Conditions of Approval).	**No Relevance** The project is approved under Part 5.1 of the EP&A Act.
Roads Act 1993	This Act and Regulation primarily provide for such things as the opening and closing of public roads, identification of road boundaries and road widening, road levels, classification of public roads, road work, protection of public road and regulation of traffic, regulation of work, structures and activities.	**Medium Relevance** This act governs Road Occupancy Licences (ROL) that will be required for works on and round roads. An ROL cannot be refused to carry out works required under an SSI approval as per Section 115ZH of the EP&A Act.
Soil Conservation Act 1938	This Act makes provision for the conservation of soil resources, farm water resources and the mitigation of erosion. The Act is binding on the Crown, however the Crown is not liable for prosecution. The Act provides for notification in the government gazette catchments where erosion is liable to cause degradation of rivers; lakes etc. (i.e. protected land).	**No Relevance** This Act has low relevance as the SMEW site is not located within "protected land". Further, such notification has not been given to the owner of the land.
Environment Protection and Biodiversity Conservation Act 1999 (Cwth)	The main purpose of this Act is to provide for the protection of the environment especially those aspects that are of national environmental importance and to promote ecological sustainable development. The Act binds the Crown. Do not take, use, keep or interfere with "nationally	**No Relevance** This Act is of little relevance to SMEW as it has been determined

	significant" cultural and natural resources, protected wildlife and protected plants without Approval.	not to trigger the provisions of the act.
Land and Environment Court Act 1979	The Land and Environment Court is constituted under this Act. The jurisdiction of the Court is divided into numerous classes. The relevant classes for the project covers matter such as the prosecution for offences under various environmental legislation and to appeal against conditions of approvals, permits or orders.	**Low Relevance** The relevance of this Act would only apply to work under the contract if JHLOR were prosecuted for an Environmental Offence.
Greenhouse Gas (GHG) Emissions ***National Greenhouse and Energy Reporting Act 2007***	Corporations emitting more than 50kT of carbon dioxide equivalent units are required to register and report their Scope 1 and Scope 2 emissions for all Facilities in which they have Operational Control. Facilities emitting more than 25kT of carbon dioxide equivalent units must register and report Scope 1 and Scope 2 emissions.	**High Relevance** Laing O'Rourke Australia and John Holland are registered entities under this act. As such, where Laing O'Rourke or John Holland has Operational Control, the Scope 1 and Scope 2 emissions associated with the project must be reported. This includes the collation and reporting of subcontractors site emissions. JHLOR does have Operational Control of the SMEW site.
Contaminated Land Legislation		
Contaminated Land Management Act 1997	This Act provides for a process to investigate and remediate land that has been contaminated and presents a significant risk of harm to human health. Section 60 of the Act is a "Duty to Report Contamination". This duty applies to owners of land and persons who become aware their activities have contaminated the land.	**Medium Relevance** The relevance of this Act to the contractor will be in the event suspected or potentially contaminated ground is found during construction activities.
Fire Control Legislation		
Rural Fires Act 1997	This Act is intended to prevent, mitigate and suppress bush and other fires. It places a duty on JHLOR as the occupier of the site to extinguish fires during bush fire danger periods or if unable to do so notify appropriate firefighting authorities of the existence of the fire and its location.	**Low Relevance** This SMEW site and surrounding areas are not prone to bush fires.

Hazardous Substances Legislation		
Environmentally Hazardous Chemicals Act 1985	This Act prohibits the manufacturing, processing, keeping, distributing, conveying, using, selling or disposing of an environmental hazardous chemical or waste (prescribed activity) except under the provisions of a chemical control or a licence. The EPA is required to prepare inventories of environmentally hazardous chemicals and declared chemical wastes.	**Low Relevance** It is not anticipated any environmentally hazardous chemicals or declared chemical waste will be used or stored on the site. The Act therefore has little relevance to the site other than being aware of the existence of registers of declared chemical wastes and environmentally hazardous chemicals.
Dangerous Goods (Road and Rail Transport) Act 2008	The purpose of this Act is to regulate the transport of Dangerous Goods by road and rail in order to promote public safety and protect property and the environment. The transport of Dangerous Goods is required to be appropriately licensed (both vehicle and driver). Depending on the quantities being transported, the Act outlines specific requirements for including appropriate placards on the transport vehicle, emergency procedures, PPE, manifest documentation and fire extinguishers.	**High Relevance** The relevance of the Act is in respect to the transport of dangerous good to & from the site. The project will require the use of a variety of dangerous goods. JHLOR will need to review and ensure Dangerous Goods requirements are addressed where transported by its vehicles, plant and equipment.
Other Legislation		
Water Management Act 2000 ***Water Management (General) Regulation 2004***	This Act repeals the Rivers and Foreshores Improvement Act, 1948 and the Water Act, 1912. The provisions of both the aforesaid Acts are progressively rescinded as Water Management Plans are prepared and gazetted for catchment areas within the state. This Act and Regulation provide for the protection, conservation and ecologically sustainable development of water sources of the State and in particular to protect, enhance and restore water sources and their associated ecosystems.	**No Relevance** Sydney Metro projects assessed under Part 5.1 of the Environmental Planning and Assessment Act 1979 (EP&A Act) are exempt from obtaining water use approval under section 89, a water management work approval under section 90 or an activity approval (other than an aquifer

		interference approval) under section 91
Dams Safety Act 1978	This Act constitutes the Dams Safety Committee and confers and imposes on the Committee functions relating to the safety of certain prescribed dams.	**No Relevance** It is unlikely any action in respect to this project will endanger the safety of any prescribed dam
Coastal Protection Act 1979	This Act requires public authorities to notify the Coastal Council of NSW of any information, proposed activity or work that in the opinion of the public authority is relevant to the exercise of the function of the Coastal Council. It further empowers the Minister for the Department of Commerce to require public authorities to obtain consent prior to carrying out development in the coastal zone or giving consent to a person to occupy or carry out development in the coastal zone.	**No Relevance** The project is not located in areas associated with this act.
National Parks and Wildlife Act 1974	The relevance of this Act is firstly in respect to the protection and preservation of aboriginal artefacts. Discovery of material on site suspected as being of aboriginal origin must be reported and protected pending assessment and direction by the Client's Representative. Secondly it is an offence under Part 8A of this Act to pick or harm threatened species.	**Low Relevance** No identified aboriginal artefacts have been identified within the SMEW construction area. Sydney Metro projects assessed under Part 5.1 of the Environmental Planning and Assessment Act 1979 (EP&A Act) are exempt from obtaining an Aboriginal Heritage Impact Permit required under section 90.
Fisheries Management Act 1994	This Act is applicable to all waters within the state including private and public waters and all permanent and intermittent waters. The Act is most relevant in respect to maintaining water quality and ensuring no polluted water from site works enters streams, creeks and waterways. In addition this Act also has relevance for the removal of marine vegetation.	**Low Relevance** Along with the POEO Act water discharging from the site must not pollute the adjacent streams or watercourses. Sydney Metro projects assessed under Part 5.1 of the Environmental Planning and Assessment Act 1979 (EP&A Act) are exempt from permits required under sections 201, 205 or 219.
Marine Pollution Act 2012	This Act creates offences for discharges of oil, oily mixtures and noxious liquid substances from ships into State waters.	**No Relevance**

		The site is located adjacent to state waters and may involve the use of applicable vessels.
Biosecurity Act 2015 ***Biosecurity Regulation 2017***	This Act relates to diseases and pests that may cause harm to human, animal or plant health or the environment, and for related purposes. Declared weeds are listed in Schedule 8 of the Biosecurity Regulation 2017. This act repeals the *Noxious Weeds Act 1993*.	**Low Relevance** The Act relates to the management of vegetation during and removal activities and the duty to notify should certain pests and diseases be identified. No such species have been identified on the SMEW site.
Water Act 1912	This Act provides for licences to extract water for construction purposes either from surface or artesian sources. Should construction water be extracted from surface (other than sedimentation ponds) or artesian sources a licence will be required.	**Low Relevance** It is not proposed that construction water will be obtained from surface (e.g. creeks, lakes etc.) or artesian sources.
Heritage Act 1977	This Act provides for the preservation and conservation of heritage items such as building, works, relic, places of historic interest, scientific, cultural, social, archaeological, architectural, natural or aesthetic significance. Under this Act a relic means any deposit, object or material evidence which is 50 or more years old and relates to the settlement of the area (not being an aboriginal settlement). It is an offence under this Act to wilfully and knowingly damage or destroy items of heritage value. Do not demolish damage, move or develop around any place, building, work, relic, moveable object, precinct, or land that is the subject of an interim heritage order or listing on the State Heritage Register or heritage listing in a Local Environmental Plan without an approval from the Heritage Council (NSW) or local council.	**Medium Relevance** Works will be undertaken adjacent to State Heritage Registered Marrickville Railway Station Group and Canterbury Railway Station Group. Sydney Metro projects assessed under Part 5.1 of the Environmental Planning and Assessment Act 1979 (EP&A Act) are exempt from approvals required under Part 4 and permits required under section 139. It is noted that an Archaeological Assessment and Research Design Report (AARD) undertaken as part of the Submissions and Preferred Infrastructure Report has identified archaeological investigation areas within and surrounding the Marrickville

		Railway Station Group and Canterbury Railway Station Group. Appropriate measures are to be implemented in accordance with the AARD. The Canterbury Compound area is a known archaeological management zone. Remains of buildings associated with the Sugar Mill may be present within the area. The test methodology within the Archaeological Method Statement is to be implemented.
Wilderness Act 1987	An Act to provide for the permanent protection of and proper management of Wilderness Areas and to promote the education of the public in the appreciation, protection and management of wilderness. The Act and associated Regulations provides a mechanism for the identification and declaration of Wilderness areas.	**No Relevance** This project is not within or immediately adjacent to a declared Wilderness area. This Act has little or no relevance to the project.
Plantations and Re-afforestation Act 1999	This Act is intended to facilitate the reforestation of land and development of timber plantations. It provides codified environmental standards together with a streamlined integrated scheme for the establishment and management and harvesting of timber and other forest plantation products.	**No Relevance** The location of work under this contract is not located within or adjacent to reforested or plantation forest land.
Australian Heritage Council (Consequential & Transitional Provisions) Act 2003 ***Australian Heritage Council Act 2003 (Cwth)***	The Australian Heritage Council (Consequential and Transitional Provisions) Act 2003 repealed the Australian Heritage Commission Act 1975. The Australian Heritage Council Act 2003 establishes the Australian Heritage Council. The Council is required to identify places to be included in the National Estate and to maintain a Register of the National Estate of places.	**No Relevance** The site is not on Register of the National Estate of places.
Aboriginal and Torres Strait Islander Heritage Protection Act 1984 (Cwth)	This Act provides for the preservation and protection from injury or desecration to areas and objects of particular significance to Aboriginals. Areas and objects can be protected by Ministerial Declaration and it is then and offence to contravene such a declaration.	**No Relevance** No areas or objects within the works site have been identified as being subject to such a declaration and this Act is of little relevance to the project.

Ozone Protection Act 1989	This Act provides for a system of controls and to regulate and prohibit the manufacture, sale, distribution, use, emission, re-cycling & disposal of stratospheric ozone depleting substances and articles that contain these substances. The impact is that appropriately qualified people in accordance with this Act must undertake all servicing and maintenance of this type of equipment.	**Low Relevance** The relevance of this Act will relate to the use of refrigerators and air conditioning units in site buildings and vehicles which still contain CFCs. Such items are unlikely to be found on site.
Protection of the Environment Operations Act 1997	This Act is of most relevance to work being carried out under this contract. It integrates into one Act all the controls necessary to regulate pollution and reduce degradation of the environment, provides for licensing of scheduled development work, scheduled activities and for offences and prosecution under this Act.	**High Relevance** The Act provides for the issuing of environmental protection notices to control work and activities not covered by licences. Section 148 of the Act requires a pollution incident causing or threatening material harm to the environment to be notified to the EPA and other authorities immediately. The SMEW project will be completed under the Laing O'Rourke EPL 21147
Sydney Water Act 1994	This Act establishes the Sydney Water Corporation as a statutory State owned corporation. The functions of the Sydney Water Corporation is to supply and store water, provide sewerage services, provide stormwater drainage and dispose of waste water within it area of operations.	**High Relevance** Coordination will be required with Sydney Water during the works
Sydney Water Catchment Management Act 1999	This Act establishes the Sydney Catchment Authority as a statutory corporation representing the Crown. The role of the Sydney Catchment Authority is to manage and protect the catchment areas and catchment infrastructure works, be a bulk water supplier and to regulate activities within or affecting the catchment areas	**Low Relevance** This project will not impact on areas regulated by the Sydney Catchment Authority.
Pesticides Act 1999 ***Pesticides Regulation 1995***	This Act and Regulation establish a legislative framework to regulate the use of pesticides. They have the objective to promote the protection of human health, the environment, property and trade in relation to pesticides. It is an offence under this Act and Regulation to wilfully or negligently misuse pesticides.	**Low Relevance** It is not envisaged that pesticides will be used on the project by JHLOR.
Waste Avoidance and Resource Recovery Act 2001	This Act repeals the Waste Minimisation and Management Act, 1995.The purpose of the Act is to encourage the most efficient use of resources and to reduce environmental harm in accordance with the principles of ecological sustainable development. The Act provides for the	**High Relevance** The relevance of the Act to this project is to implement the

	making of policies and strategies to achieve these ends. It is an offence under the Protection of the Environment Operations Act to wilfully or negligently dispose of waste in a manner that harms or is likely to harm the environment.	strategies by adopting the hierarchy of avoidance; avoidance of unnecessary resource consumption; resource recovery (including reuse, reprocessing, recycling and energy recovery), disposal (as a last resort).
Biodiversity Conservation Act 2016	The Biodiversity Conservation Act 2016 provides provision for listing of species and ecological communities in NSW, protection of animals and plants, private land conservation agreements, the biodiversity offsetting scheme, Biodiversity Assessment under the EP&A Act 1979, biodiversity certification of land, public consultation on biodiversity matters, the functions of the Biodiversity Conservation Trust, regulatory compliance mechanisms, investigative powers and criminal proceedings under the Act	**Medium Relevance** SSI projects are exempt for regulatory compliance mechanisms set out under Part 11 of the Biodiversity Conservation Act. Species listed within the act are recognised and are to be protected.

APPENDIX 3 – Risk Assessment

All environmental issues have been assessed in accordance with the table below:

Risk Assessment Rankings: >17 = Extreme 10 - 16 = High 5 - 9 = Medium 1 - 4 = Low

Environmental issues which have an initial risk ranking of Medium or High will require the development and implementation of Environmental Risk Action Plans.

Issues which have an initial Extreme risk will require the development and implementation of an issue specific sub-plan.

The risks must be reassessed following the consideration of control measures. An owner for the implementation of the management measures must be nominated.

Issues or activities that represent an Extreme risk after the application of control measures are not to be undertaken.

Aspect	Potential Environmental Impact	Initial Risk Rating			Control Measures	Residual Risk Rating			Management of Residual Risk
		P X	C =	Risk		P X	C =	Risk	
Approvals and Licensing									
Not identifying appropriate approvals, licenses or permits required and proceeding without them.	Works delayed, infringements, prosecution, poor community relations and reputational loss.	2	4	8	Review the project EIS, modification and statutory documentation for requirements relevant to the SMEW works. Identify and implement approval requirements within the CEMP, sub-plans and ERAPs. Check contract documentation. Identify and implement requirements from the Contract. Establish a register of approvals, licenses, permits. Pre-construction Compliance Report	1	4	4	Maintain Compliance Risk Matrix Undertake environmental audits as per Section 14 of this plan
Noise									
Noise from general construction activities resulting in impact to residents.	Disturbance to residents or neighbouring businesses. Potential for complaints.	4	2	8	Control measures as per SMEW CNVMP are to be implemented. Respond to community enquiries and complaints in accordance with Sydney Metro requirements and Community & Stakeholder Manager (Sydney Metro), control measures as per Community Consultation Strategy (CCS) are to be implemented. Consult with the community in relation to upcoming activities that may result in concern. Monitor noise for compliance as the works progress at receiver locations. Provide periods of respite for high noise generating activities.	3	2	6	Noise performance will be continually monitored as per the requirements of the Construction Noise and Vibration Management Plan. Where high impact noise is required, it will be restricted to the conditions of EPL 21147 with respite periods implemented.

					Apply noise mitigation measures during entire project. Noise efficient equipment to be used on site.				
Noise during works required to be undertaken out of standard construction hours.	Disturbance to residents or neighbouring businesses with potential for complaints.	4	2	8	Implement noise mitigation strategies for out of standard hours work. Monitor noise for compliance to project goals. Control Measures as per the CNVMP are to be implemented.	3	3	6	Noise performance will be continually monitored as per the requirements of the Construction Noise and Vibration Management Plan. Where high impact noise is required, it will be restricted to the conditions of EPL 21147 with respite periods implemented.
Vibration									
Vibration intensive activities undertaken on the site such as impact piling, vibratory rolling, etc.	Disruption, annoyance and nuisance to residents. Potential damage to adjacent residential and commercial residences and structures. Disruption to businesses as a result of vibration nuisance	3	2	6	Control Measures as per the CNVMP are to be implemented. Determine vibration limits and structure/receiver offset distances. Consult with potentially affected parties prior to commencement of works on their upcoming activities that may be impacted by construction vibration. Ongoing vibration monitoring during vibration intensive works.	2	2	4	Standard and specific mitigation measures for sensitive receptors around the SMEW works will be applied as per the Construction Nosie and Vibration Management Plan and the Construction Noise and Vibration Impact Statement.
Water Quality, Erosion & Sedimentation									
Sediment laden runoff from construction works leaving site.	Degradation of local watercourses. Increased turbidity in local water ways resulting in impact on aquatic life. Fines for sediment escaping site.	2	3	6	Control Measures as per Soil and Water Management Plan and any Erosion and Sediment Control Plan to be implemented. Install stormwater drainage protection within the project area.	1	3	3	Undertake regular inspections of work areas pre, during and after works to ensure controls are in good condition.

					Ensure measures are inspected and maintained as the works progress and also prior to and post rainfall events. Provide training and awareness on the need to prevent pollution. Relevant people to undertake Erosion and Sediment Control training.				
Stockpiling of vegetation and topsoil.	Wind and water erosion causing weed/seed dispersion offsite. Location of stockpiling next to waterways causing weeds/seeds to disperse from construction site.	2	3	6	Develop Environmental Control Maps to show stockpile areas. Utilise appropriate locations for stockpiling (away from waterways, watercourses, drains where feasible and reasonable). Designated vegetation stockpiling areas. Minimise stockpiling / Use temporary stockpiling Cover stockpiles if left for extended periods.	1	3	3	Implement stockpile controls prior to the work commencing. Undertake regular inspections of work areas pre, during and after works to ensure controls are in good condition.
Non-compliant water from construction works discharged from site	Non-compliant water entering stormwater system waterways (i.e. polluting - not compliant with discharge criteria).	2	3	6	Environmental Manager (or delegate) to approve all water discharges from site. Induction and toolbox talks Toolbox training on site procedures for water discharge Educate site staff on licence conditions and consequences of prosecution	1	3	3	Undertake regular inspections of work areas pre, during and after works to ensure controls are in good condition.
Works with the potential to intercept Ground water table	Ground water entering excavations Without appropriate safeguards onsite could lead to ground water contamination	2	3	6	Induction and toolbox talks Toolbox training on site procedures for water discharge Educate site staff on licence conditions and consequences of prosecution Environmental Manager (or delegate) to approve all water discharges from site.	1	3	3	Undertake regular inspections of work areas pre, during and after works to ensure controls are in good condition.

Groundwater	Ground water entering excavations Without appropriate safeguards onsite could lead to ground water contamination	2	2	4	Induction and toolbox talks Toolbox training on site procedures for water discharge Educate site staff on licence conditions and consequences of prosecution	1	2	2	Undertake regular inspections of work areas pre, during and after works to ensure controls are in good condition.
Waste									
Waste disposal during construction.	Incorrect disposal of waste, further costs incurred for classifications and disposal, fines may be issued.	3	2	6	Implement the controls within the Waste and Spoil Management Plan. Identify opportunities to incorporate recovered materials into the permanent works. Provide facilities on site for source separation and recycling. Ensure accurate waste records are retained. Removal of wastes from the site would only be undertaken by a licensed contractor as required by the POEO Act and with appropriate approvals, if required, for contaminated materials, etc. All material to be recovered off-site to be appropriately classified in accordance with the Resource Recovery Exemptions. All material that requires off-site disposal to be appropriately tested and classified against the Waste Classification Guidelines (NSW EPA, 2014)	2	2	4	Undertake regular inspections of work areas pre, during and after works to ensure controls are in good condition. Monitor and ensure reporting of all movements of waste form the worksite
Earthworks spoil disposal.	Incorrect classification of waste (spoil) resulting in	3	2	6	Inductions, toolbox talks and training on recycling facilities and waste segregation practices.	2	2	4	Regular inspections of work areas

	incorrect / illegal disposal/re-use.				Separation of waste on site. Tracking of disposal processes. All contamination hotspots would be clearly marked in the field (where possible). Hot spots will be shown within contamination mapping and will be included in the Permit to Disturb process.				Monitor and ensure reporting of all movements of waste form the worksite
Washout of concrete in undesignated areas.	Sediment laden/alkaline water polluting surrounding stormwater system / watercourses.	3	2	6	Concrete washout areas clearly marked on Environmental Control Maps and delineated. Inductions on designated concrete washout areas. Subcontractor's agreements to include project compliant waste management principles.	1	2	2	Regular inspections of concrete washout areas and controls
Contamination									
Management of contaminated or untreated materials	Non-compliant material and contaminated water entering surrounding waterways. Decrease in health of nearby ecosystems.	3	3	9	Implement contamination management procedures and protocols from within Soil and Water Management Plan. Identify any contamination hotspots and incorporate procedures for these locations into construction documentation. Develop unexpected finds procedures. Induct personnel on unexpected finds procedure.	2	3	6	Undertake regular inspections of work areas pre, during and after works to ensure controls are in good condition. Monitor and ensure reporting of all movements of waste form the worksite
Potential for discovery of unexpected contaminated spoil during construction.	Health effects resulting from airborne contamination, e.g. asbestos. Complaints received from odours released during excavations.	2	3	6	If contaminated soil is encountered, all works are to stop in the vicinity of the find and investigations commence. Induct personnel on location, type, nature, concentration of contaminants on site if found.	1	3	3	Undertake regular inspections of work areas pre, during and after works to ensure controls are in good condition. Complete regular toolbox talks on how to

	Classification of spoil is changed and disposal options altered, costs incurred associated with disposal of higher classification of waste.								manage unexpected finds.
Encountering asbestos / contaminated material on site.	Transfer of material into previously uncontaminated area (outside work site) causing new contamination.	3	3	9	Inspections of excavated and filled surfaces would be made during construction to determine the presence of visible asbestos. Conduct further site investigations to determine the presence and extent of contamination prior to construction works commencing Contaminated soils would not be stockpiled on the structural fill layer or formation layers to avoid cross contamination.	2	3	6	Undertake regular inspections of work areas pre, during and after works to ensure controls are in good condition. Complete regular toolbox talks on how to manage unexpected finds.
Hazardous Materials									
Storage of hazardous substances, leaking plant and equipment and spillage from refuelling.	Localised ground contamination / pollution of stormwater and requiring clean-up and/or receiving fines. Risk of igniting volatile substances. Unauthorised access to site / potential vandalism/damage leading to pollution.	3	3	9	Induction, toolbox talks and training on appropriate handling and storage of liquids. All storm water drains should be identified prior to works and protection installed. Storage areas to be away from sensitive areas and appropriately bunded. SDS approved prior to bringing hazardous substances on site including risk assessment. Plans showing storage locations and associated controls e.g. spill kits, etc. (Environmental Control Maps). Training in use of spill kits.	1	3	3	Regular inspections of storage areas.

					Contingency plans would be developed to deal with any spills which might occur during construction. Clearly label containers. Regular auditing and inspection of storage areas and materials. Make storage areas restricted access areas. Reduce/eliminate need for hazardous substances. Ensure all work sites are secure before leaving the site. All liquids i.e. paint etc. are to be securely locked away at the end of each day.				
Fuel contaminated runoff from construction works leaving site	Fuel contaminated runoff entering stormwater or waterways (i.e. polluting - not compliant with discharge criteria).	3	3	9	All storm water drains should be identified prior to works and controls implemented. Appropriate bunding/storage of substances. Toolbox on site procedures for sediment controls and chemical storage. Educate site staff on project conditions and consequences of prosecution.	1	3	3	Regular inspections of works site to ensure all controls are in good health and working.
Biodiversity									
Vegetation trimming / clearing required outside approved work area.	Unauthorised works / removal of vegetation outside defined work area, possibility of removing threatened species, fines incurred.	2	3	6	Implement the controls within ERAP 1 - Biodiversity Induction and tool box training on clearance zones and required protection measures If vegetation, other than grass and weeds, needs to be trimmed or removed, further assessment would be undertaken and approval sought from	1	3	3	Implement Vegetation Removal Permit System. Undertake regular inspections of work areas pre, during and after works to ensure controls are in good condition.

					Sydney Metro prior to trimming or removal. Inspections during clearing activities. Fencing in place/ clear marking of trees to be retained and cleared / demarcation areas / plans showing clearing areas. Pre clearing checklist to be completed before any clearing of vegetation.				
Clearing and grubbing of vegetation within work site.	Erosion of soils, uncontrolled runoff, sediment deposited into surrounding vegetated areas and water courses, and invasion of weeds. Wrong vegetation removed. Potential for injury to native fauna.	3	2	6	Inductions and toolbox training on erosion and sediment controls. Where possible works to be staged so environmental controls can be implemented after clearance works. If vegetation, other than grass and weeds, needs to be trimmed or removed, further assessment would be undertaken and approval sought from Sydney Metro prior to trimming or removal. A Tree Report is to be prepared for each tree to be removed or pruned. The tree report is to be submitted to DPI&E before the removal or trimming of trees. Consider impacts to visual amenity relating to vegetation removal. Approved Erosion and Sediment Control Plans in place prior to starting works. Where applicable, mature trees and other native vegetation to be retained would be clearly delineated, with all construction activities excluded from these areas. Pre clearing checklist to be completed before any clearing of vegetation.	2	2	4	Undertake regular inspections of work areas pre, during and after works to ensure controls are in good condition.

Weeds	Weeds are not contained or are spread on or off-site	3	3	9	Regular inspections of worksite for weeds Segregate and weed impacted waste material and dispose of to a licenced facility Inspect plant and machinery before entering and leaving worksite to ensure no dirt remains as it may cause weeds to spread. Educate work force on common weeds within Bankstown rail corridor.	1	3	3	Undertake regular inspections of work areas pre, during and after works to ensure controls are in good condition.
Air Quality									
General construction works; site establishment, excavations, piling	Dust activity in close proximity to residential and commercial premises, complaints received.	3	2	6	Implement the controls within the Air Quality ERAP Toolbox training on Dust and Air Quality Management. Provide dust mitigation measures through water sprays/misting as required. Cover stockpiles that are not to be worked on for a period of greater than 10 days. Erosion and Sediment Control Plans approved before works commence. Controls are then reviewed for maintenance.	2	2	4	Undertake regular inspections of work areas pre, during and after works to ensure controls are in good condition.
Exhaust from plant and equipment.	Emissions resulting in air pollution.	3	2	6	Inductions and toolbox training on Dust and Air Quality Management. Well maintained plant/ equipment and pre-start checks and servicing. Non-complaint vehicles removed from site / repaired.	2	2	4	Review plant check list prior to operating on site. Undertake verification checks a required.
Abrasive Blasting Activities	Uncontrolled/uncontained airborne fines from abrasive	3	4	12	Inductions and toolbox training on Dust and Air Quality Management.	2	2	4	Undertake regular inspections of work areas pre, during and

	blasting process resulting in air pollution				Encapsulation on abrasive blasting activities Monitoring and inspections of encapsulation				after works to ensure controls are in good condition.
Heritage									
Unexpected heritage items encountered.	Work delays, additional studies, approvals required, damage to heritage item.	3	3	9	Implement the controls within the Construction Heritage Management Plan General inductions toolbox training on heritage management protocols. Label any known heritage items on Environmental Control Maps. If suspected heritage item encountered. Works to stop immediately and Environment Manager contacted. Clearly highlight no-go zones on the ECM and communicate requirements to construction personnel during pre-start briefs, inductions and tool-box talks.	2	3	6	Undertake regular inspections of work areas pre, during and after works to ensure controls are in good condition. Provide frequent toolbox talks on Unexpected Finds Procedure
Impact to Heritage Structures	Damage to station fabric by works and construction traffic. Visual impacts.	3	3	9	General inductions toolbox training on heritage management protocols. Label any known heritage items on Environmental Control Maps. Work within the safe working distances nominated in the CNVMP. Undertake vibration compliance monitoring as per the CNVMP. Clearly highlight no-go zones on the ECM and communicate requirements to construction personnel during pre-start briefs, inductions and tool-box talks. Demarcation of worksites and communicate it clearly with all construction personnel.	2	3	6	Undertake regular inspections of work areas pre, during and after works to ensure controls are in good condition. Provide frequent toolbox talks on managing change

					The method for the demolition of existing buildings and / or structures at the Project Site would be developed to minimise direct and indirect impacts to adjacent and / or adjoining heritage items.				
Acid Sulphate Soils									
Disturbance of Potential Acid Sulphate soils and Actual Acid Sulphate Soils during excavations.	Mobilisation of metals within runoff to levels toxic to natural systems. Release of acidic runoff.	2	2	4	Assess risk for acid sulphate soils, and if the risk is determined to be high then implement the Acid Sulphate Soils Procedure. Awareness training in the identification and management of ASS. Provide containment and treatment facility on site. Ensure ASS material is left under the water table, disposed off-site or appropriately treated in a bunded area with sump.	1	2	2	Undertake regular inspections of work areas pre, during and after works to ensure controls are in good condition.
Flora and Fauna									
Loss, damage or injury to endangered or threatened species.	Removal, death, damage or injury to endangered or threatened species by plant and equipment	2	4	8	Implement the controls within ERAP 1 – Biodiversity. All personnel attending site will be advised of controls and management during the onsite induction. A Toolbox talk will be carried out prior to ground disturbance /site clearing works to ensure onsite personnel are made aware of potential loss of endangered species If vegetation, other than grass and weeds, needs to be trimmed or removed, further assessment would be	1	4	4	Implement Vegetation Removal Permit System. Undertake regular inspections of work areas pre, during and after works to ensure controls are in good condition.

					undertaken in accordance with the Vegetation Removal Permit System. If threatened flora or fauna species are identified on site, work in the vicinity of these species would stop immediately. spotter/catcher/botanist would be engaged to survey the site and advise on species management.				
Traffic									
Loss of on-street car parking in adjacent residential streets and commercial areas during construction.	Loss of parking availability to adjacent residential and commercial properties could result in community complaints.	3	2	6	Community notifications in accordance with Sydney Metro Community Consultation Strategy. Site vehicles shall be parked within the rail corridor and not affect public parking area where possible Develop Traffic Management Plan / Traffic control procedures.	2	2	4	Complete regular toolbox talks on how to minimise impacts in relation to traffic. Undertake regular inspections of worksite and adjacent streets. Supervisor and traffic controller to enforce traffic management requirements
General construction traffic disturbing public access between local roads.	Disturbance to local residents resulting in complaints being made, limited access, potential for delays at local road access points resulting in complaints.	3	2	6	Deliveries of plant and materials shall be undertaken outside of peak periods where possible Site vehicles shall be parked within the rail corridor and not affect public parking areas Scheduled road movements shall be minimised where possible Oversized deliveries would be undertaken in accordance with the requirements of NSW Police or Roads and Maritime Services. Approved Traffic Management Plans in consultation with relevant authorities. Detour routes to be advertised/ notified.	2	2	4	Complete regular toolbox talks on how to minimise impacts in relation to traffic. Undertake regular inspections of worksite and adjacent streets.

					Approved access routes, detailed Traffic Control Plans. Clear notifications / signage.				
Management of heavy vehicles / access routes.	Complaints from sensitive receivers due to increased level and frequency of noise.	3	2	6	Deliveries of plant and materials shall be undertaken outside of peak periods where possible Site vehicles shall be parked within the rail corridor and not affect public parking areas Scheduled road movements shall be minimised where possible Oversized deliveries would be undertaken in accordance with the requirements of NSW Police or Roads and Maritime Services. Designated access routes. Approved Traffic Management Plans. Community Notifications. Pedestrian management with traffic controller in place where required.	2	2	4	Complete regular toolbox talks on how to minimise impacts in relation to traffic. Permits from local council and/or RMS
Truck deliveries out of normal working hours	Un-approved deliveries resulting in non-conformance with project requirements. Noise impact to community / potential complaints.	3	2	6	Personnel training of noise awareness to community included in induction and toolboxes. Induction on Construction Hours for deliveries. Communication of delivery times to suppliers. Community Notifications on project activities occurring locally. Code of conduct / selection criteria in place for subcontractors. Out of hours works approval where required Approved traffic/access routes.	2	2	4	Delivery drivers provided with haulage routes prior to travelling to site and delivery times. Complete regular toolbox talks on how to minimise impacts in relation to traffic.

					Planning and staging of works in approved hours as much as practical.				
Pedestrian/Cyclist access	Loss or disruption of pedestrian and/or cyclist access around the project site	3	2	6	Construction Traffic Management Plan to be in place Traffic Control Plans to be in place Clear signage Appropriate barriers, fencing or other to direct pedestrians and cyclists	2	2	4	Regular inspections of work fronts
Visual Amenity									
Building Materials Stockpiles Temporary construction sheds and storage containers Plant and equipment movement Lighting	Surrounding aesthetic temporary altered during construction Lighting towers used during out of hours works may spill on nearby residents	2	3	6	The work area shall be maintained in an orderly manner Lighting required during night works shall be directed towards the work area and are from adjacent sensitive receivers	1	3	3	Undertake regular inspections of work areas pre, during and after works to ensure controls are in good condition.

Ancillary Facilities									
Appropriate management of ancillary facilities under approval CSSI 8256	Inadequate assessment of impacts to surrounding business and residential receivers and environmental receptors. Potential for complaints.	2	3	6	Any ancillary facility not identified in the documents listed within **Condition A1** can only be established if; they are located within the Construction boundary of the CSSI; and they are not located next to a sensitive receiver (including access roads) (unless landowners and occupiers have accepted in writing the carrying out of the relevant facility in the proposed location); and they have no impacts on heritage items (including areas of archaeological sensitivity), and threatened species, populations or ecological communities beyond the impacts approved under the terms of the planning approval CSSI 8256; and the establishment and use of the facility can be carried out and managed within the outcomes set out in the terms of the approval, including in relation to environmental, social and economic impacts. Ancillary facilities that are not identified by description and location in the documents listed in **Condition A1** and do not meet the requirements of **Condition A16**, can only be established and used with the approval of the Planning Secretary except where they are located within the rail corridor, in which case they may be endorsed by the ER. A review of environmental impacts must be submitted with the request for Planning Secretary's approval or ER's endorsement.	1	3	3	Undertake regular inspections of work areas pre, during and after works to ensure controls are in good condition.

Minor Ancillary Facilities									
Appropriate management of minor ancillary facilities under approval CSSI 8256	Inadequate assessment of impacts to surrounding business and residential receivers and environmental receptors. Potential for complaints.	2	3	6	Any site compound not identified in the EIS/PIR must have no greater environmental and amenity impacts than those that can be managed through the implementation of environmental measures detailed in this CEMP and will be assessed by the ER to have; Minor amenity impacts to surrounding residences and businesses, after consideration of matters such as compliance with the Interim Construction Noise Guideline (DECC 2009), traffic and access impacts, dust and odour impacts, and visual (including light spill) impacts; Minor environmental impact with respect to waste management and flooding; and No impacts on biodiversity, soil and water, and heritage items beyond those already approved under the planning approval CSSI 8256.	1	3	3	Undertake regular inspections of work areas pre, during and after works to ensure controls are in good condition.
Utilities									
Utility management	Service strike leading to environmental degradation	3	4	12	Develop and implement the Utilities Management Strategy in accordance with the Utilities Management Framework Engage a Utilities Coordination Manager (UCM) to oversee the coordination of utility works across the project and with third part service providers. The UCM will collaborate with the Community and Stakeholder Manager, the Place Manager and,	1	4	4	Permit to Disturb Service searching Detailed Site Survey management

					where required, the Community Complaint Mediator to mitigate impacts to the local community during utility works and to resolve any community complaints relating to utility works. Implement a Permit to Disturb Induction and toolbox talks Detailed Site Survey to be managed by an appropriately qualified surveyor.				

Canterbury Compound									
Community sensitive issues	Noise from compound Light pollution from the compound Impacts to trees Privacy	3	4	12	If permitted, install double stack office to provide noise attenuation and to block light where possible Add louvers or shading to windows for privacy Tree protection and signage *It is noted that community consultation is still to occur and some control measures may change in response to this	1	4	4	Toolbox talks to workers and staff on being sensitive to neighbours.

Environmental Risk Assessment Rankings
This table may be used as a guide in determining the level of risk for each environmental issue.
For each identified issue, consider the 'maximum credible' (not absolute worst case) risk that could result with **minimal or no controls** other than existing and using normal construction practices.
Note: Any one of the listed consequences must result in the use of the applicable consequence grading.

Probability:		Consequence:
	5 = Certain 4 = Likely 3 = Possible 2 = Unlikely 1 = Rare	5 = Severe 4 = Major 3 = Moderate 2 = Minor 1= Incidental
1- 4 Acceptable 5 - 9 Acceptable with control measures 10 - 16 Requires the implementation of best practice 17 and Above = UNACCEPTABLE		

Likelihood (Probability and Frequency of Occurrence)			Consequence (Outcome or Severity of Occurrence)		
5	Certain	Common or repeating occurrence Consequence can reasonably be expected to occur in life of Project.	5	Severe	• Major pollution incident causing significant and widespread damage or potential to health or the environment • Persistent reduction in ecosystem function and value. • Ongoing disruption and loss of protected species. • Major prosecution likely, outcome in excess of $500,000
4	Likely	Known to have occurred / "has happened" Conditions may allow the consequence to occur on the Project during its lifetime The event has occurred within the Business Unit within the previous 5 years.	4	Major	• Significant widespread and persistent changes to habitat, species or environmental media • Significant pollution incident causing damage or potential damage to health or the environment external to the site. • Potential for prosecution. Potential outcome between $50,000 - $500,000 • Numerous substantial complaints • Actual material environmental harm
3	Possible	Could occur / "heard of it happening" Exceptional conditions may allow consequences to occur on the Project, or has occurred nationally within the Australian Business.	3	Moderate	• Localised irreversible habitat loss or effects on habitat, species or environmental media • Reportable incident to the relevant environmental regulator or other authority. • Demonstrated breach of legislative, licence or guideline requirements. • Likely infringement notice or fine, potential for prosecution up to $50,000. • Will cause complaints.
2	Unlikely	Not likely to occur	2	Minor	• Localised degradation of habitat or short term impacts to habitat, species or environmental media.

		Reasonable to expect that the consequence will not occur on the Project. Has occurred in industry but not in Business Unit.			• Pollution incident that marginally exceeds licence conditions or guidelines for acceptable pollution. • Fine unlikely. • Potential for complaints.
1	Rare	Practically impossible Not known to have occurred in industry or unheard of.	1	Incidental	• Localised or short term effects on habitat, species or environmental media. • Fully contained on site and can be fully remediated. Little potential for fine or complaints. • Insignificant or trivial incident

Probability ► ▼Consequence	CERTAIN 5	LIKELY 4	POSSIBLE 3	UNLIKELY 2	RARE 1
5 – Severe	25	20	15	10	5
4 – Major	20	16	12	8	4
3 – Moderate	15	12	9	6	3
2 – Minor	10	8	6	4	2
1 – Incidental	5	4	3	2	1

APPENDIX 4 – Operational Control Procedures – Environmental Risk Action Plans
Environmental Risk Action Plans will be developed for each environmental issue which has an initial risk ranking of Medium or High and where a sub-plan is not required. The ERAPs developed for SMEW include;

1. Biodiversity
2. Delivery and Storage of Chemicals; Fuels and Oils including Dangerous Goods Requirements
3. Groundwater
4. Air Quality
5. Waste and Spoil

ERAP 1 – Biodiversity (Flora and Fauna Management)

Impact – Biodiversity impacts related to SMEW are expected to be minor. There will be some removal of trees and vegetation associated with site establishment, the installation of CSR and the construction of retaining walls. Pre-clearance inspections will be undertaken prior to the removal of any trees.

Objective	To comply with contractual and legislative requirements and ensure that native fauna and flora are protected from construction activities.			
Targets	No death or injury to fauna No unapproved destruction of flora			
Legal, Contractual & Other Requirements	Planning consent conditions – SSI 17_8256			
Site specific planning / approval conditions / licence conditions	CoA – E3-E6 Mitigation measures committed in the EIS & PIR			
Potential Impacts and Initial Risk Rating* ***Refer to CEMP – Appendix 3 for Risk Rating Matrix**	**Potential impact**	Initial Risk Rating		
		P X	C	Risk
	Death or injury of fauna	2	4	8
	Unapproved damage or removal to threatened plant species, threatened vegetation community or habitat resource	2	4	8
	Unapproved removal or trimming of vegetation	2	2	4

Controls (means & resources)

Commitments & Mitigation Measures outlined in the EIS / PIR:

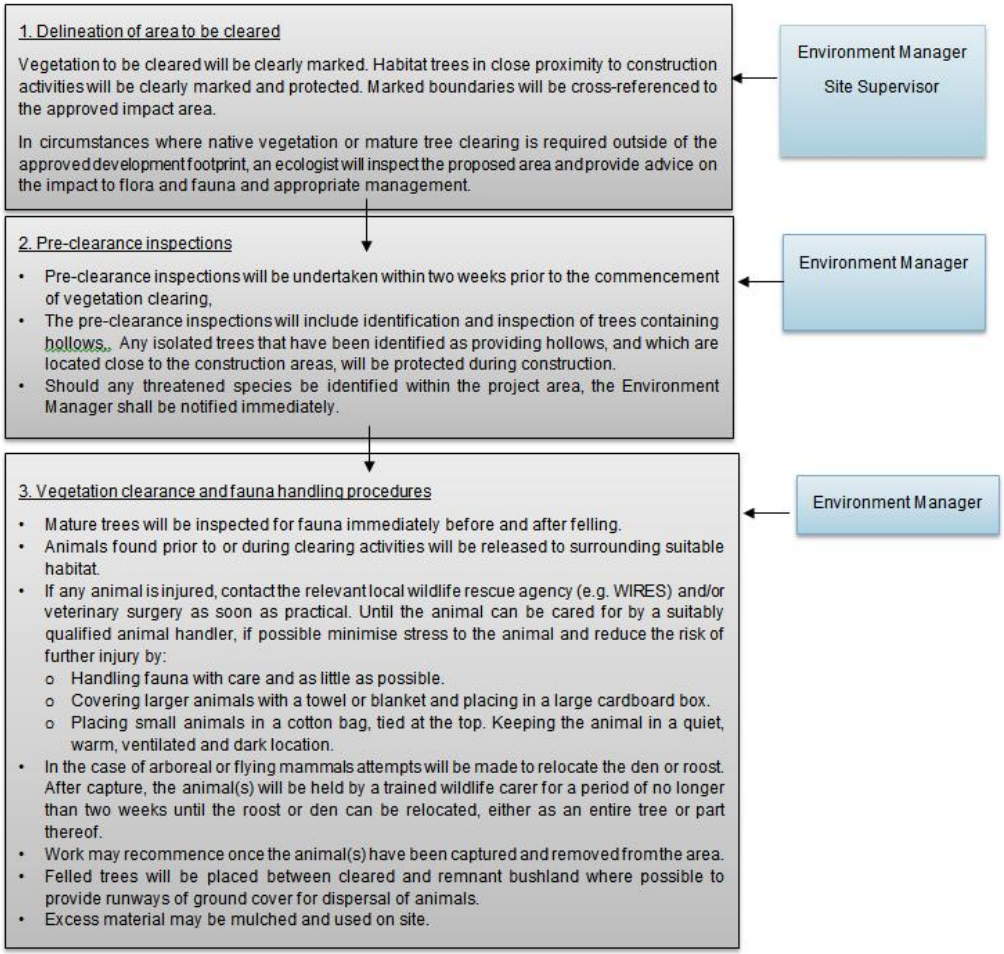
Mitigation Measure	Applicable to SMEW Locality	Responsibility
EPO Biodiversity 1 - The project is designed to minimise impacts on biodiversity. Where practicable, the design minimises the need to clear vegetation.	Applicable	Environmental Manager Design Manager
EPO Biodiversity 2 - Potential impacts on biodiversity are managed in accordance with relevant legislation, including the EP&A Act, TSC Act, EPBC Act, and the *Noxious Weeds Act 1993.*	Applicable	Environmental Manager Construction Manager Site Supervisor
EPO Biodiversity 3 – The biodiversity outcome is consistent with the *Framework for Biodiversity Assessment* (OEH, 2014a).	Applicable	Environmental Manager Construction Manager Site Supervisor
EPO Biodiversity 4 - Offsets are provided in accordance with the NSW Biodiversity Offsets Policy for Major Projects (OEH, 2014).	Applicable	Environmental Manager Construction Manager
REMM B1 - Detailed design and construction planning would avoid direct impacts to vegetation mapped as threatened ecological communities or native plant community types, specifically Downy Wattle Turpentine - Grey Ironbark open forest on shale, Degraded Turpentine - Grey Ironbark open forest on shale and Broad-leaved Ironbark – Grey Box.	Applicable	Environmental Manager Design Manager Construction Manager Site Supervisor
REMM B2 - Pre-clearing surveys and inspections for endangered and threatened flora and fauna species would be undertaken by qualified ecologists prior to any clearing occurring. The surveys and inspections, and any subsequent relocation of species, would be undertaken in accordance with the measures provided in the biodiversity assessment report.	Applicable	Environmental Manager Construction Manager Site Supervisor
REMM B3 - Areas of biodiversity value outside the project area would be marked on plans, and fenced or signposted where practicable, to prevent unnecessary disturbance.	Applicable	Environmental Manager Construction Manager Site Supervisor
REMM B4 - Impacts to Downy Wattle Turpentine - Grey Ironbark open forest on shale, Degraded Turpentine – Grey Ironbark open forest on shale and Broad-leaved Ironbark – Grey Box would be avoided. The locations of these species and communities would be marked on plans, fenced on site, and avoided.	Applicable	Environmental Manager Construction Manager Site Supervisor
REMM B5 - Equipment storage and stockpiling would be restricted to identified compound sites and already cleared land.	Applicable	Environmental Manager Construction Manager Site Supervisor
REMM B6 - A trained ecologist would be present during the clearing of native vegetation or removal of potential fauna habitat to avoid impacts on resident fauna and to salvage habitat resources as far as is practicable.	Applicable	Environmental Manager Construction Manager Site Supervisor
REMM B7 - Priority weeds would be managed in accordance with the Biosecurity Act 2015. Weeds of national environmental significance would be managed in accordance with the Weeds of National Significance Weed	Applicable	Environmental Manager Construction Manager Site Supervisor

Management Guide.		
REMM B8 - Annual inspections would be undertaken for weed infestations and to assess the need for control measures.	Applicable	Environmental Manager Construction Manager Site Supervisor
REMM B9 - Any outbreak of priority weeds and/or weeds of national environmental significance would be managed in accordance with the relevant guidelines.	Applicable	Environmental Manager Construction Manager Site Supervisor
REMM B10 – Sydney Metro would take necessary steps to locate and protect threatened species and habitats where they occur inside the Sydenham to Bankstown rail corridor. Suitable protection measures would include fencing, signage and other measures where this would not impede the safe maintenance and operation of trains and related infrastructure.	Applicable	Environmental Manager Construction Manager Site Supervisor

Site Specific Mitigation & Control Measures developed as part of this CEMP:

Mitigation Measure	**Responsible**
The design will take into consideration the location of vegetation and will aim to minimise vegetation clearing, tree trimming and tree removal, particularly in relation to threatened plant species, threatened vegetation communities and habitat resources. Appropriate justification will be provided for impacts to trees within the Tree Report	Design Manager Environmental Manager
A Biodiversity Management Procedure will be developed prior to the commencement of construction.	Environmental Manager Construction Manager Site Supervisor
A Tree Report is to be produced by a qualified arborist in consultation with the design team and Environmental Manager.	Environmental Manager Construction Manager
Appropriately trained and qualified tree removal contractors to be used.	Construction Manager Site Supervisor
Awareness training in the need to preserve vegetation to be retained.	Environmental Manager Construction Manager
Provide barricading or other suitable protection measures for trees to be retained	Construction Manager Site Supervisor
Biodiversity offsetting will occur in accordance with CoA-E3 where impacts to threatened ecological communities or endangered species cannot be avoided.	Environmental Manager
Vegetation on the SMEW site includes trees within the corridor and planted street trees. Where required in accordance with the design some trees will be removed and offset in accordance with requirements of CoA-E4 and CoA-E6.	Environmental Manager Site Supervisor
If native fauna is identified within the disturbance footprint, the JHLOR environmental manager will be contacted immediately. All necessary steps to minimise harm and mortality to such animals is required.	Construction Manager Site Supervisor
Open excavations and storage areas to be inspected regularly for the presence of fauna species.	Site Supervisor
No clearing or vegetation removal to occur without approval.	Environmental Manager Construction Manager

	Site Supervisor
All vegetation to be retained shall be protected and demarcated. These areas will be highlighted on the SMEW Environmental Control Maps. The clearing limits and protected vegetation is to be clearly communicated to site personnel during site inductions and toolbox talks.	Environmental Manager Construction Manager Site Supervisor
Works will only be undertaken in designated areas.	Construction Manager Site Supervisor
JHLOR will identify and remove any weeds within their work area. Any weeds will be lawfully disposed of to a licenced facility.	Environmental Manager Construction Manager Site Supervisor
Segregate and weed impacted waste material and dispose of to a licenced facility	Construction Manager Site Supervisor
Inspect plant and machinery before entering and leaving worksite to ensure no dirt remains as it may cause weeds to spread.	Construction Manager Site Supervisor
Educate work force on common weeds within Bankstown rail corridor.	Environmental Manager
Plant and equipment brought on to site must be cleaned and free of deleterious material, mud and other material that may harbour weed seeds.	Site Supervisor
Construction plant, equipment and materials are not to be stored within the dripline of any trees or vegetation to be retained.	Construction Manager Site Supervisor
The following clearing procedure will be implemented should additional clearing be required	See flow chart



Timeframe	Duration of the works.
Monitoring & Reporting	Tree Report Weekly inspections

	Vegetation Removal or Trimming Permits Pre-clearance inspections Daily Clearance reports			
Potential Impacts and Residual Risk Rating* ***Refer to CEMP – Appendix 3 for Risk Rating Matrix**	**Potential impact**	Residual Risk Rating		
		P X	C	Risk
	Death or injury of fauna	1	4	4
	Unapproved damage or removal to threatened plant species, threatened vegetation community or habitat resource	1	4	4
	Unapproved removal or trimming of vegetation	1	2	2

ERAP 2 – Delivery and Storage of Chemicals; Fuels and Oils including Dangerous Goods Requirements
Impact – There is a low risk associated with the delivery and storage of chemicals on the Southwest Metro Early Works. JHLOR will provide appropriate storage facilities on the project site and will engage companies that are reputable (and licenced where required) to transport such chemicals.

<table>
<tr><td>Objective</td><td colspan="4">• To comply with contractual and legislative requirements in relations to the transport of dangerous goods
• To comply with contractual and legislative requirements in relation to the storage of chemicals, fuels and oils on the site.
• To ensure contractual and legislative requirements in relation to hazardous substances and dangerous goods are adequately addressed for all operations – there are specific additional requirements relating to the storage and transport of dangerous goods</td></tr>
<tr><td>Targets</td><td colspan="4">• Zero spills or uncontrolled release of fuel, oils or chemicals associated with JHLOR’s Operations.
• Compliance with relevant transport and storage requirements
• All vehicles transporting dangerous goods have appropriate placards, licenses and emergency equipment and procedures</td></tr>
<tr><td>Legal, Contractual & Other Requirements</td><td colspan="4">• AS/ NZS 1940: 2004 – The Storage and Handling of Flammable and Combustible Liquids
• Dangerous goods (Road and Rail Transport) Act 2008
• Dangerous goods (Road and Rail Transport) Regulation 2008
• Australian Dangerous Goods Code, 7th Edition</td></tr>
<tr><td>Site specific planning / approval conditions / licence conditions</td><td colspan="4">N/A</td></tr>
<tr><td rowspan="4">Potential Impacts and Initial Risk Rating*

*Refer to CEMP – Appendix 3 for Risk Rating Matrix</td><td>Potential impact</td><td colspan="3">Initial Risk Rating</td></tr>
<tr><td></td><td>P X</td><td>C</td><td>Risk</td></tr>
<tr><td>Fuel or chemical leaks impacting on receiving environment</td><td>3</td><td>3</td><td>9</td></tr>
<tr><td>Inappropriate transport and handling of dangerous/hazardous goods leading to impacts to human health or environment</td><td>2</td><td>4</td><td>8</td></tr>
<tr><td>Controls (means and resources)</td><td colspan="4">Commitments & Mitigation Measures outlined in the EIS / PIR
<table>
<tr><th>Mitigation Measure</th><th>Applicable to SMEW Locality</th><th>Responsible</th></tr>
</table></td></tr>
</table>

REMM HRS4 - All hazardous substances that may be required for construction and operation would be stored and managed in accordance with the *Storage and Handling of Dangerous Goods Code of Practice* (WorkCover NSW, 2005) and the *Hazardous and Offensive Development Application Guidelines: Applying SEPP* 33 (Department of Planning, 2011).	Applicable	Safety Manager Environmental Manager Construction Manager Site Supervisor

Site Specific Mitigation & Control Measures developed as part of this CEMP:

The following are the minimum general control measures to be implemented on the project, however additional control measures may be required following the completion of the construction process procedure/work method statement for the proposed activity.

Mitigation Measures	**Responsible**
Minimise storage of fuel, oil, chemicals or other dangerous goods on site, though efficient and timely ordering.	Construction Manager Site Supervisor
The SDS and material risk assessment and including any specific control measures are to be submitted where required to the Client's Representative for each and every substance to be brought on to site.	Safety Manager
A risk assessment relating to the use of these materials is to be completed in accordance with the Construction Health and Safety Plan prior to the arrival of these goods to site.	Safety Manager
SDS and associated documentation for each material to be reviewed prior to the completion of the risk assessment for the relevant construction process. A copy to be included with the SWMS.	Safety Manager Environmental Manager Construction Manager Site Supervisor
Ensure SDSs are available on site for all fuels, oils, chemicals and dangerous goods. Suppliers are to provide SDS prior to dispatch of the material.	Construction Manager Site Supervisor
Chemicals, fuels and oils to be stored in a securely bunded area with appropriate signage, at all times when not specifically in use.	Construction Manager Site Supervisor
Chemicals fuels, oils and chemicals to be stored inside impervious bunds of sufficient capacity to contain 110% of the stored volume. Bunded areas must have sufficient cover to prevent ingress of rain.	Construction Manager Site Supervisor
Materials removed from the bunded storage area for use are to be returned to the bund at the end of each shift	Construction Manager Site Supervisor
Storage sites are to be > 20m away from operational facilities, drainage lines, and areas prone to flooding or on slopes > 1V:10H.	Construction Manager Site Supervisor

Driver or Supervisor to be in attendance at all times when unloading of fuel, oil or chemicals takes place on site.	Site Supervisor
No water to be discharged from bunded areas into site drainage system. Contaminated water to be removed by appropriately licensed contractor & discharged to a suitably licensed waste facility.	Construction Manager Site Supervisor
Delivery drivers are to be provided with specific drop off and storage instructions.	Construction Manager Site Supervisor
Spill kits & absorbent material to be located adjacent to storage bunds.	Environmental Manager Construction Manager Site Supervisor
Training is to be provided to the workforce in the application of this ERAP and the use of spill kits.	Environmental Manager Construction Manager Site Supervisor
Absorbent material used to clean up spills to be disposed of in accordance with the EPA Waste Classification Guidelines.	Environmental Manager Construction Manager Site Supervisor
A register of Chemicals, Fuels/Oils and Hazardous materials is to be kept onsite and maintained for the duration of the project.	Safety Manager Construction Manager Site Supervisor
Each construction method statement shall identify the use of chemicals, fuels & oils and hazardous materials.	Safety Manager Construction Manager Site Supervisor
SWMSs to address the specific requirements relevant to the work to be undertaken and document relevant site control measures.	Safety Manager Construction Manager Site Supervisor

Dangerous Goods

Mitigation Measures	**Responsible**
Ensure transporters of these materials are appropriately licensed. This includes relevant licenses for vehicles and drivers.	Safety Manager Construction Manager Site Supervisor

Dangerous goods that are to be transported in receptacles greater than 500lt or 500kg may require specific licenses and shall not be transported by JHLOR without the Project Manager/Workplace Manager's approval.	Safety Manager Construction Manager Site Supervisor
Where dangerous goods are transported by JHLOR, a SWMS must be developed and include dangerous goods requirements.	Safety Manager Construction Manager Site Supervisor
Transport information/manifest is required to be included with any quantity of Dangerous Goods transported by JHLOR – Form 1232 Dangerous Goods Transport Note is to be used unless it can be demonstrated that the activity is exempt.	Safety Manager Construction Manager Site Supervisor
The SWMS statement must address the requirement for Licensing, Placards or other specific regulatory requirements	Safety Manager Construction Manager Site Supervisor

• Transport activities in quantities that trigger the requirements of a "Placard Load" under the regulations require the following:
  • Transport vehicle to have appropriate Dangerous Goods Placard
  • Transport documents including manifests
  • Emergency procedures and information in an appropriate holder
  • 30B fire extinguisher
  • Double-sided reflectors
  • Driver safety equipment and PPE
  • Goods must be secured and where required segregated from incompatible goods.
  • Dangerous goods must be appropriately marked in accordance with the Australian Dangerous Goods Code
	Safety Manager
	Construction Manager
	Site Supervisor

Typical dangerous goods associated with our operations include the following:

Type of Goods	DG Class	Type of Goods	DG Class	Type of Goods	
LPG Gas	2.1	Epoxy paint including hardener	8	Plumbing adhesive	3
Open Gear Lubricant	2.1	Chemical Anchor - parts A & B	8	Diesel	3
Marker Paint	2.1	Chemical Anchor	8	Joint/gap sealant	3

Silicone Lubricant	2.1	Chemical Anchor	8	Dry Film Lubricating Paint	3
Fuel Gas for welding/cutting	2.1	Adhesive Mortar	8	Joint/gap sealant	5.2
Fuel Gas for welding/cutting	2.2	Acid	8	Sealant	6.1
Air Operated Tool Lubrication	3	Degreaser (Pile Rigs)	9	Flocculent	8
Zinc Primer Paint	3	Engine Coolant	9	Rail Welding Consumables	1.4 S
Air tool lubricant - workshop	3	Antifreeze	9	Adhesive	3
Petrol-Unleaded	3	Grout	9		
Sealant	3	Form Oil	9		

Dangerous Goods Storage

Mitigation Measures	Responsible
Dangerous goods storage on site must comply with the requirements of AS 1940:2004 including maintaining separation distances for incompatible materials.	Safety Manager Construction Manager Site Supervisor
The proposed materials need to be assessed for compatibility and required separation distances or control measures implemented.	Safety Manager Construction Manager Site Supervisor
Flammable materials storage is to be >15m from site facilities, officers, amenities or protected places.	Construction Manager Site Supervisor
Quantities to be stored must be assessed to determine if they are considered manifest quantities - manifest quantities will require notification to WorkCover.	Construction Manager Site Supervisor
A storage location plan is required and needs to include internal layout, location of registers/manifests for the storage location.	Safety Manager Construction Manager
Bunding to be impervious and of sufficient capacity to contain 110% of the stored volume	Construction Manager Site Supervisor

	Appropriate spill containment material and fire extinguishers are also required.	Safety Manager Environmental Manager Construction Manager Site Supervisor

Timeframe	Duration of operations. The requirements apply to goods transported by JHLOR and third parties.
Monitoring and Reporting	• Plant / project risk assessments • Weekly inspections. • Register of Chemicals, Fuels/Oils and Hazardous Materials • Incidents or spills to be recorded on form Environmental Incident and Complaint Report (E-T-8-1222 Environmental Incident and Complaint Report). • Storage areas are to be inspected by the Supervisory personnel on a weekly basis.

Potential Impacts and Residual Risk Rating*	**Potential impact**	Residual Risk Rating		
		P X	C	Risk
***Refer to CEMP – Appendix 3 for Risk Rating Matrix**	Fuel or chemical leaks impacting on receiving environment	1	3	3
	Inappropriate transport and handling of dangerous/hazardous goods leading to impacts to human health or environment	1	4	4
	Inappropriate spill management	1	3	3

ERAP 3 – Groundwater
Impact - Minimal impact at retaining walls adjacent to Cooks River. There is some potential for piles associated with the retaining wall to intersect the groundwater table.

<table>
<tr><td>Objective</td><td>• To comply with contractual and legislative requirements in relations to the management of groundwater
• Reduce the potential for drawdown of surrounding groundwater resources
• Prevent the pollution of groundwater through appropriate controls
• Reduce the potential impacts of groundwater dependant ecosystems</td></tr>
<tr><td>Targets</td><td>• All groundwater to be tested before dewatering occurs</td></tr>
<tr><td>Legal, Contractual & Other Requirements</td><td>• Planning consent conditions – SSI 8256
• CEMF Section 7.1
• Water Management Act 2000
• NSW Aquifer Interference Policy (NSW Office of Water, 2012)
• Protection of the Environment Operations Act 1997</td></tr>
<tr><td>Site specific planning / approval conditions / licence conditions</td><td>• In accordance with the Sydney Metro City & Southwest –Sydenham to Bankstown Staging Report the SMEW project does not require a specific Groundwater Management Plan as the chances of impacting on groundwater during the works are low. As such management of any groundwater encountered during the works is to be managed in accordance with this ERAP</td></tr>
<tr><td>Potential Impacts and Initial Risk Rating*

*Refer to CEMP – Appendix 3 for Risk Rating Matrix</td><td>
<table>
<tr><th rowspan="2">Potential Impact</th><th colspan="3">Initial Risk Rating</th></tr>
<tr><th>P x</th><th>C</th><th>Risk</th></tr>
<tr><td>Inappropriate dewatering of groundwater impacting on receiving environment or groundwater source</td><td>2</td><td>2</td><td>4</td></tr>
</table>
</td></tr>
<tr><td>Controls (means and resources)</td><td>Commitments & Mitigation Measures outlined in the EIS / PIR
<table>
<tr><th>Mitigation Measure</th><th>Applicable to SMEW Locality</th><th>Responsible</th></tr>
<tr><td>N/A</td><td>N/A</td><td>N/A</td></tr>
</table>
Site Specific Mitigation & Control Measures developed as part of this CEMP:
<table>
<tr><th>Mitigation Measure</th><th>Responsible</th></tr>
<tr><td>A Groundwater Management Procedure will be developed prior to the commencement of construction.</td><td>Environmental Manager</td></tr>
<tr><td>A dewatering permit is to be in place for all dewatering activities, including the dewatering of any groundwater</td><td>Environmental Manager</td></tr>
</table>
</td></tr>
</table>

			Site Supervisor
		Awareness training is to be provided to workers as required	Environmental Manager Site Supervisor
		Water treatment units are to be utilised and maintained where water testing indicates treatment is required.	Environmental Manager Construction Manager Site Supervisor
		Dewatering may only occur on site or to licenced discharge points	Environmental Manager Construction Manager Site Supervisor
		Control of chemicals as per the requirements of ERAP 2	Refer ERAP 2

Responsibilities	• Engineering personnel are responsible for identifying any works that may interact with known groundwater sources • Engineering personnel are responsible for determining any potential subsidence impacts associated with dewatering of groundwater • The Environmental Manager is to organise testing of any groundwater prior to discharge • Engineering personnel are responsible for implementing appropriate treatment methods based on the results of groundwater quality testing			
Timeframe	• Duration of operations.			
Monitoring and Reporting	• Dewatering permit • Weekly inspections • Inspection and maintenance of treatment units (where applicable). • Incidents are to be recorded on form Environmental Incident and Complaint Report (E-T-8-1222 Environmental Incident and Complaint Report).			
Potential Impacts and Residual Risk Rating* ***Refer to CEMP – Appendix 3 for Risk Rating Matrix**	**Potential Impact**	Residual Risk Rating		
		P x	C	Risk
	Inappropriate dewatering of groundwater impacting on receiving environment or groundwater source	1	2	2

ERAP 4 – Air Quality
Impact - Minimal impact expected due to the small area of disturbance associated with the works.

<table>
<tr><td>Objectives</td><td colspan="4">• To comply with contractual and legislative requirements in relations to the management of air quality
• Minimise gaseous and particulate pollutant emissions from construction activities as far as feasible and reasonable
• Identify and control potential dust and air pollution sources.</td></tr>
<tr><td>Targets</td><td colspan="4">• No dust impacting on offsite activities or surrounding residences.
• No release of contaminants, (odour, smoke etc.) into the air.</td></tr>
<tr><td>Legal, Contractual and Other Requirements</td><td colspan="4">• Planning consent conditions – SSI 8256
• CEMF Section 16
• Protection of the Environment Operations Act 1997
• Protection of the Environment Operations (Clean Air) Regulation 2002</td></tr>
<tr><td>Site specific planning / approval conditions / licence conditions</td><td colspan="4">CoA – E2
Mitigation measures committed in the EIS & SPIR
EPL 21147</td></tr>
<tr><td rowspan="4">Potential Impacts and Initial Risk Rating*

*Refer to CEMP – Appendix 3 for Risk Rating Matrix</td><td rowspan="2">Potential Impact</td><td colspan="3">Initial Risk Rating</td></tr>
<tr><td>P x</td><td>C</td><td>Risk</td></tr>
<tr><td>Dust or plant emission impacting on the receiving environment and human health</td><td>3</td><td>2</td><td>6</td></tr>
<tr><td>Abrasive blasting waste emissions impacting on the receiving environment and human health</td><td>3</td><td>4</td><td>12</td></tr>
<tr><td></td><td>Odour from works causing disturbance to local receivers</td><td>2</td><td>2</td><td>4</td></tr>
<tr><td>Controls (means and resources)</td><td colspan="4">Commitments & Mitigation Measures outlined in the EIS / SPIR
<table>
<tr><th>Mitigation Measure</th><th>Applicable to SMEW Locality</th><th>Responsible</th></tr>
<tr><td>CoA E2 - In addition to the performance outcomes, commitments and mitigation measures specified in the documents listed in Condition A1, all reasonably practicable measures must be implemented to minimise the emission of dust and other air pollutants during the Construction and Operation of the CSSI.</td><td>Applicable</td><td>Environmental Manager
Construction Manager
Site Supervisor</td></tr>
</table>
Site Specific Mitigation & Control Measures developed as part of this CEMP:
The following are the minimum general control measures to be implemented on the project, however additional control measures may be required following the completion of the construction process procedure/work method statement for the proposed activity.
<table>
<tr><th>Mitigation Measures</th><th>Responsible</th></tr>
</table></td></tr>
</table>

All plant and machinery would be fitted with emission control devices complying with relevant Australian Standards	Construction Manager Site Supervisor
Machinery would be turned off when not in use and not left to idle for prolonged periods.	Site Supervisor
Machinery and plant that will be kept on site will be serviced as per manufactures specifications.	Site Supervisor
Vehicle movements would be limited to designed entries and exits, haulage routes and parking areas.	Construction Manager Site Supervisor
Dust generation would be monitored visually, and where required, dust control measures such as water spraying would be implemented to control the generation of dust.	Environmental Manager Site Supervisor
Materials transported to and from the site would be covered to reduce dust generation in transit.	Site Supervisor
Access points would be inspected to determine whether sediment is being transferred to the surrounding road network. If required, sediment would be promptly removed from roads to minimise dust generation.	Environmental Manager Site Supervisor
Provide shaker grids, rumble strip or equivalent stabilisation at site egress points.	Site Supervisor
Remove mud from haul vehicles prior to entering public roads.	Site Supervisor
Stabilisation of any exposed surfaces as soon as practicable, including implementation of final landscaping as early as possible.	Construction Manager Site Supervisor
Shade cloth would be fastened to the perimeter fence on the project site, where practicable, to minimise dust transported from the site during construction.	Construction Manager Site Supervisor
Daily inspections and regular surveillance would be undertaken to identify any vehicles, plant or equipment that is causing visible emissions. If any defective vehicles, plants or equipment are identified, operation of this machinery would cease and service/maintenance would be undertaken.	Site Supervisor
Works (including the spraying of paint and other materials) would be suspended during strong winds or in weather conditions where high levels of dust or airborne particulates are likely.	Construction Manager Site Supervisor
Stockpiles will be maintained and contained appropriately, which could include covering or regular watering to minimise dust.	Construction Manager Site Supervisor
Provision of Water tankers where necessary.	Construction Manager Site Supervisor

	Cover haul vehicles loads & ensure tail gates are closed when operating on public roads.	Construction Manager Site Supervisor
	Provide awareness training in the need to minimise dust.	Environmental Manager
	Note any odours during site inspections, particularly from any effluent tanks, and apply de-odourising agents as required.	Environmental Manager Construction Manager Site Supervisor

Responsibilities	• The Site Manager to implement the requirements of this ERAP. • Site Manager and Environmental Manager (or delegate) are to inspect the works at regular intervals.
Timeframe	• Duration of site works.
Monitoring and Reporting	• Weekly inspections. • Incidents or complaints to be recorded on form Environmental Incident and Complaint Report (E-T-8-1222 Environmental Incident and Complaint Report).

Potential Impacts and Residual Risk Rating*	**Potential Impact**	Residual Risk Rating		
		P x	C	Risk
***Refer to CEMP – Appendix 3 for Risk Rating Matrix**	Dust or plant emission impacting on the receiving environment and human health	2	2	4
	Abrasive blasting waste emissions impacting on the receiving environment and human health	2	2	4
	Odour from works causing disturbance to local receivers	1	2	2

ERAP 5 – Waste and Spoil
Impact - Minimal impact expected due to the small amount of waste generated and spoil to be handled.

<table>
<tr><td>Objectives</td><td colspan="4">• Minimise spoil generation where possible
• The project will mandate 100% reuse or recycling (on or off site) of usable spoil
• Spoil will be managed with consideration to minimising adverse traffic related issues
• Spoil will be managed to avoid contamination of land or water
• Spoil will be managed with consideration of the impacts on residents and other sensitive receivers
• Site contamination will be effectively managed to limit the potential risk to human health and the environment
• Minimise waste throughout the project life-cycle
• Waste management strategies will be implemented in accordance with the Waste Avoidance and Resource Recovery Act 2001 management hierarchy as follows:
o Avoidance of unnecessary resource consumption
o Resource recovery (including reuse, reprocessing, recycling and energy recovery)
o Disposal.</td></tr>
<tr><td>Targets</td><td colspan="4">• 100% reuse or recycling of usable spoil.
• 90% recycling target (in accordance with REMM WM2)
• Waste tracking to occur throughout project and records to be maintained
• The principles of the waste management hierarchy will be adopted.</td></tr>
<tr><td>Legal, Contractual and Other Requirements</td><td colspan="4">• Planning consent conditions – SSI 8256
• CEMF Section 6 and Section 17
• Protection of the Environment Operations Act 1997
• Protection of the Environment Operations (Waste) Regulation 2002
• EPL 21147</td></tr>
<tr><td>Site specific planning / approval conditions / licence conditions</td><td colspan="4">CoA – E73 to E76
REMM – WM1 to WM7
Mitigation measures committed in the EIS & SPIR</td></tr>
<tr><td rowspan="2">Potential Impacts and Initial Risk Rating*

*Refer to CEMP – Appendix 3 for Risk Rating Matrix</td><td rowspan="2">Potential impacts</td><td colspan="3">Initial Risk Rating</td></tr>
<tr><td>P x</td><td>C</td><td>Risk</td></tr>
<tr><td></td><td>Inappropriate waste disposal impacting on environmental receivers</td><td>3</td><td>2</td><td>6</td></tr>
<tr><td>Controls (means and resources)</td><td colspan="4">Commitments & Mitigation Measures outlined in the EIS / SPIR
<table>
<tr><th>Mitigation Measure</th><th>Applicable to SMEW Locality</th><th>Responsible</th></tr>
</table></td></tr>
</table>

	CoA–E73 - Any items or infrastructure that are salvageable must be identified in the relevant CEMP Sub-plan (Condition C3). Note: reuse of items may include signal boxes, indicators, ballast or other rail infrastructure. These items should be offered to Sydney Trains or reuse.	Applicable	Construction Manager Site Supervisor
	CoA–E74 - The importation of waste and the storage, treatment, processing, reprocessing or disposal of such waste must comply with the Protection of the Environment Operations Act 1997, under the Protection of the Environment Operations (Waste) Regulation 2014, and orders or exemptions made under the regulation.	Applicable	Environmental Manager Construction Manager Site Supervisor
	CoA–E75 - Waste must only be exported to a site licensed by the EPA for the storage, treatment, processing, reprocessing or disposal of the subject waste, or in accordance with a Resource Recovery Exemption or Order issued under the Protection of the Environment Operations (Waste) Regulation 2014, or to any other place that can lawfully accept such waste.	Applicable	Environmental Manager Construction Manager Site Supervisor
	CoA–E76 - All waste must be classified in accordance with the EPA's Waste Classification Guidelines, with appropriate records and disposal dockets retained for audit purposes.	Applicable	Environmental Manager Construction Manager Site Supervisor
	REMM WM1 - Detailed design would include measures to minimise excess spoil generation. This would include a focus on optimising the design to minimise spoil volumes, and the reuse of material on-site.	Applicable	Design Manager Sustainability Manager Environmental Manager Construction Manager
	REMM WM2 - A recycling target of at least 90 per cent would be adopted.	Applicable	Sustainability Manager Environmental Manager Construction Manager Site Supervisor
	REMM WM3 - Spoil would be managed in accordance with the spoil management hierarchy.	Applicable	Sustainability Manager Environmental Manager Construction Manager Site Supervisor
	REMM WM4 - Target 100 per cent reuse of reusable spoil.	Applicable	Sustainability Manager Environmental Manager Construction Manager Site Supervisor

REMM WM5 - Construction waste would be minimised by accurately calculating materials brought to the site and limiting materials packaging.	Applicable	Sustainability Manager Environmental Manager Construction Manager Site Supervisor
REMM WM6 - All waste would be assessed, classified, managed and disposed of in accordance with the Waste Classification Guidelines (EPA, 2014).	Applicable	Environmental Manager Construction Manager Site Supervisor
REMM WM7 - Waste segregation bins would be located at various locations within the project area, if space permits, to facilitate segregation and prevent cross contamination.	Applicable	Sustainability Manager Environmental Manager Construction Manager Site Supervisor

Site Specific Mitigation & Control Measures developed as part of this CEMP:

The following are the minimum general control measures to be implemented on the project, however additional control measures may be required following the completion of the construction process procedure/work method statement for the proposed activity.

Mitigation Measures	**Responsible**
Minimise spoil generation where possible by undertaking a cut/fill balance exercise	Construction Manager Site Supervisor
Minimise spoil generation where possible by not over-excavating	Construction Manager Site Supervisor
Minimising adverse traffic related issues associated with spoil movement by primarily keeping any movements to within the corridor and by only using approved haulage routes under the Construction Traffic Management Plan	Construction Manager Site Supervisor
Spoil will be managed to avoid contamination of land or water by segregating soils known to contain contaminants	Environmental Manager Construction Manager Site Supervisor
Spoil will be managed to avoid contamination of land or water by implementing appropriate erosion and sedimentation controls, in particular by covering stockpiles where practicable	Environmental Manager Construction Manager Site Supervisor

	Spoil will be managed to avoid contamination of land or water by avoiding overland flow paths and known flood zones as storage areas	Environmental Manager Construction Manager Site Supervisor
	Spoil will be managed with consideration of the impacts on residents and other sensitive receivers by selecting laydown areas that are as far away from receivers as possible	Environmental Manager Construction Manager Site Supervisor
	Spoil will be managed with consideration of the impacts on residents and other sensitive receivers by using approved haulage routes under the Construction Traffic Management Plan	Construction Manager Site Supervisor
	Site contamination will be effectively managed to limit the potential risk to human health and the environment by segregating contaminated spoil	Environmental Manager Construction Manager Site Supervisor
	Site contamination will be effectively managed to limit the potential risk to human health and the environment by implementing the unexpected contamination finds procedure	Environmental Manager Construction Manager Site Supervisor
	Implement the mitigation measures within the Construction Soil and Water Management Plan and other ERAPs within this CEMP.	Environmental Manager Construction Manager Site Supervisor
	Maintain a waste tracking register, including a copy of all waste dockets	Sustainability Manager
	Waste will be lawfully disposed of to a licenced facility	Environmental Manager Construction Manager Site Supervisor
	Any materials sent from the SMEW site to another project site will comply with the NSW EPA Resource Recovery Exemptions. Appropriate testing and reporting in accordance with the Resource Recovery Exemption will be undertaken by an Environmental Consultant. All records will be kept on file and provided to the receiver.	Environmental Manager Construction Manager
	A spoil import and export form will be completed for any spoil coming to and leaving from the site.	Environmental Manager Construction Manager
Responsibilities	• The Site Manager to implement the requirements of this ERAP. • Site Manager and Environmental Manager (or delegate) are to inspect the works at regular intervals.	

<table>
<tr><td>Timeframe</td><td colspan="4">• Duration of site works until all JHLOR waste obligations are met</td></tr>
<tr><td>Monitoring and Reporting</td><td colspan="4">• Skips monitored visually by the Site Manager on a daily basis.
• Weekly inspections.
• Incidents or complaints to be recorded on form Environmental Incident and Complaint Report (E-T-8-1222 Environmental Incident and Complaint Report).
• Waste disposal records to be recorded in JHLOR Waste Register.</td></tr>
<tr><td rowspan="2">Potential Impacts and Initial Risk Rating*

*Refer to CEMP – Appendix 3 for Risk Rating Matrix</td><td rowspan="2">Potential impacts</td><td colspan="3">Initial Risk Rating</td></tr>
<tr><td>P x</td><td>C</td><td>Risk</td></tr>
<tr><td></td><td>Inappropriate waste disposal impacting on environmental receivers</td><td>2</td><td>2</td><td>4</td></tr>
</table>

APPENDIX 5 – Environmental Control Map

Indicative ECM. The ECMs are considered a "live document" and will continue to evolve as the works progress.

SMEW - Environmental Control Map		
ID	**Environmental Aspect**	**Description**
1	**Project**	• This ECM is a supplementary document to the SMEW Construction Environment Management Plan, Sydney Metro City and Southwest Sydenham to Bankstown Environmental Impact Statement, Submissions and Preferred Infrastructure Report, Instrument of Approval and all related planning documentation
2	**Site Access**	• Site access will be from various existing rail corridor access gates
3	**General**	• The team will be trained on this ECM, general environmental issues, location of sensitive areas and erosion/sediment controls. • Works will be subject to inspections by the ER, Sydney Metro Environment and Planning Manager and JHLOR Environmental Manager (or delegate). • This ECM will be displayed on site sheds.
4	**Contamination**	• If suspected contamination is encountered, works will cease in the immediate area, the area will be demarcated and sign-posted and the Occupational Hygienist will be called upon to confirm the contamination and provide advice on the best way to remove or remediate the contamination • Occupational hygienist and asbestos removalist will be in attendance for all shifts to manage contaminated soil.
5	**Air Quality**	• Air quality issues will be managed in accordance with the mitigation measures specified within the Air Quality Management Plan. • A water cart will be available to supress any dust. • Plant or machinery will not be left idling • Drive to conditions • Temporary spoil stockpiles to be covered to prevent wind erosion and dust.
6	**Waste**	• Waste will be managed in accordance with the mitigation measures specified within the Waste and Spoil Management Plan • Any construction waste generated will be stored within bins as appropriate • Any stockpiles of waste spoil will stockpiled onsite and appropriate erosion and sediments controls will be installed • All waste will be classified in accordance with the Waste Classification Guidelines (EPA, 2014) prior to disposal from site.
7	**Soils and water**	• Soil and water will be managed in accordance with the mitigation measures specified within the Construction Soil and Water Management Plan • Stockpiles will be covered to mitigate the risk of erosion • Drainage and waterways will be protected • Erosion and Sediment Control Plans will be implemented for work fronts and will be updated to reflect the progress of the works. • If water discharge is required, Sydney Metro Water Discharge or Reuse Approval form to be utilised. Form to be approved by JHLOR Environmental Manager (or delegate) prior to discharge.
8	**Heritage**	• Heritage will be managed in accordance with the mitigation measures outlined within the Construction Heritage Management Plan • Unexpected finds of heritage items must be reported to JHLOR Environmental Manager and Sydney Metro. The site is to be isolated and investigated by a heritage consultant. Approval to proceed required prior to re-commencing works. • If material that has the potential to be human remains are uncovered works in the area will cease immediately and the Environmental Manager will be informed.
9	**Noise and Vibration**	• Noise and vibration will be managed in accordance with the mitigation measures outlined within the Construction Noise and Vibration Management Plan • All works will be completed in compliance with Sydney Metro CEMF, Sydenham to Bankstown Planning Approval, OOHW Approval, Construction Noise and Vibration Strategy and EPL 21147 requirements. • All plant will have non-tonal reversing alarms. • Staff and workers will be instructed to avoid shouting both on-site and off-site • The Community will be notified of works in accordance with the Construction Noise and Vibration Strategy. • Noise monitoring will be undertaken in accordance with the Construction Noise and Vibration Strategy and in response to complaints.

10	**Traffic and Transport**	• Traffic will be managed in accordance with the mitigation measures outlines within the Construction Traffic Management Plan. • Road Occupancy Licences will be obtained as required. • Additional traffic controls will be implemented in accordance with TCP(s) as approved by the relevant local council. • All vehicles to enter rail corridor immediately on arrival to gate • Plant and vehicles engines to be switched off when not in use, with engine idling minimised as much as possible. • Pedestrian and cyclist access will be maintained in public spaces or redirected as appropriate.
11	**Utilities**	• Utilities will be managed in accordance with the Utilities Management Strategy • Any impacts to utilities will be reported to site HSE Manager, supervisors, Sydney Trains and Sydney Metro.
12	**Biodiversity**	• No vegetation trimming/removal is must only occur with a valid JHLOR Vegetation Removal or Trimming Permit. • Protection will be put in place around any threatened vegetation communities • Pre-clearance surveys and clearance inspections will be undertaken by a qualified ecologist • If threatened flora or fauna species are identified on site, work in the vicinity of these species would stop immediately. A spotter/catcher/botanist would be engaged to survey the site and advise on species management • Where trenching or excavation is required, the location or route would be modified to avoid any damage to trees or tree roots, where possible • Stockpiles, plant, equipment and materials are to be located on existing cleared areas, away from the drip zone of trees and native vegetation • Soil and vegetation that could contain weed material should be removed from machinery prior to any movements off site
13	**Chemical, fuel storage and use**	• No chemicals or fuel required to be stored onsite. • If you are required to bring any chemicals onto site, they must be verified and registered in an SDS. SDS must be kept on site. • Spill kits located at site compound. Portable spill kits available in site vehicles. • Refuelling is to be undertaken using suitable measure to prevent contamination – this should include the use of absorbent pads, plant nappies, and portable spill trays to prevent splash back spills. • All plant and equipment will be checked daily to ensure there is no leaking oil, fuel or other liquids.
14	**Imported materials**	• Imported materials will include stabilised sand, recovered resources, quarry materials and will be sourced from licenced suppliers. Materials to be stockpiled temporarily within the rail corridor with controls around it.
15	**No-go zones**	• Construction activities will be restricted to the Project boundary. Activities outside site boundary will undergo a review for potential environmental impacts and require approval from Sydney Metro and ER as appropriate.

Contact Information		
Position	**Name**	**Phone**
JHLOR Project Leader	Malachy Breslin	0407 827 187
JHLOR Construction Manager	Paul Fields	0438 792 797
JHLOR Environment Manager	Dan Keegan	0435 859 160
JHLOR WHS Manager	Brian Lockwood	0488 004 154
ER	Jo Robertson/ Jo Heltborg	02 9659 5433
Sydney Metro Environmental Manager	Tim Solomon	0400 034 207
Sydney Metro Northwest Info Line		1800 019 989
Sydney Trains Info Line		131 500
Environmental Line / Pollution Incident Response Line		131 555

Office of Environment & Heritage Pollution Line		131 555
Emergency		000 or 112 (mobiles)
WIRES		1300 094 737

Standard Working Hours

As per EPL 21147, audible construction works within the rail corridor will be restricted to the below hours unless otherwise approved by the Environmental Manager:

- **7:00AM to 6:00PM - Monday to Friday**
- **8:00AM to 1:00PM - Saturdays**
- **No work on Sundays or public holidays**

Any works outside of the hours above require OOHW and Sydney Metro and JHLOR Environmental Manager's Approval

Refer to Section 2.5 of the SMEW CEMP for works occurring outside the rail corridor.

As per EPL 21147,

(a) High noise impact works and activities must only be undertaken:

1. between the hours of 8:00am to 6:00pm Monday to Friday;

2. between the hours of 8:00am to 1:00pm Saturday; and

3. in continuous blocks not exceeding 3 hours each with a minimum respite from those activities and works of not less than 1 hour between each block.

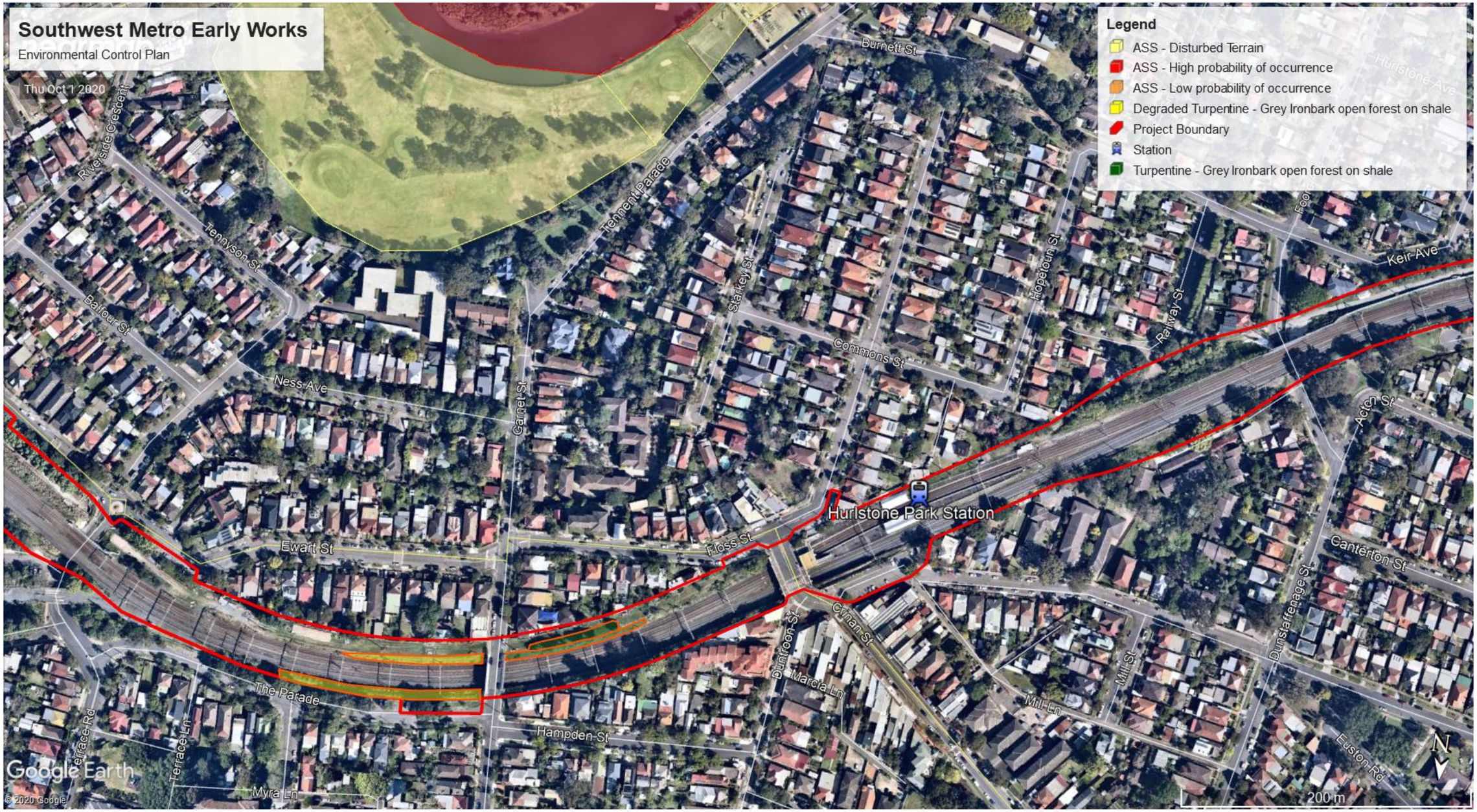
For the purposes of this condition 'continuous' includes any period during which there is less than a 1hour respite between ceasing and recommencing any of the work that is the subject of this condition.

Southwest Metro Early Works
Environmental Control Plan - Overview
Legend
AMS and Archaeological Monitoring Zone
Archaeological Monitoring/Salvage
ASS - Disturbed Terrain
ASS - High probability of occurrence
ASS - Low probability of occurrence
Project Boundary
Station
Marrickville Station
Dulwich Hill Station
Hurlstone Park Station
Canterbury Station
Campsie Station
Cooks River Cycleway
The Parade
Tennent Parade
Hurlstone Ave
Canterbury Rd
N Parade
Ninth Ave
Banks Rd
Bayview Ave
Undercliffe Rd
Osroy Ave
Homer St
Joy Pde
Homer Ln
Coney Rd
Clarke St
Nicoll Ave
Doris Ave
Spark St
Hamilton Ave
Kitchener Ave
Fricourt Ave
Gueudecourt Ave
Flers Ave
Prince Edward Ave
Caroline St
Elsie St
Ann St
Permanent Ave
Glenore Rd
Cressy St
Cross St
Page St
Canterbury Rd
Perry St
Unara St
Hill St
Redman St
Evaline St
Amy St
Warroa St
Moore St
Cowper St
Burns St
Browning St
Shakespeare St
Shelley St
Sixth Ave
Ivy St
Cooks Ave
Allen St
Messiter St
Robertson St
Park St
Duke St
Clunes Ln
Emu St
Emu Ln
Howard St
Canon St
High St
Curtin Ln
Berna St
Fore St
Close St
Jeffrey St
John St
Charles St
King St
Queen St
Ida St
Hardy St
Holden St
Vincent St
Wave Ln
Cobar St
Union St
Terrace Rd
Terrace Ln
Myra Rd
Garnet Ln
Fernhill St
Dunstaffenage St
Floss St
Acton St
Kilbride St
Church St
Minter St
Ness Ave
Starkey St
Dunkerton St
Railway St
Foord Ave
Arlington St
Old Canterbury Rd
Victoria St
Service Ave
Hanks St
First St
Second St
Third St
Fourth St
Mackenzie St
Windsor Rd
Davis St
The Blvd
Lewisham St
Pigott St
Dulwich St
Herbert St
Yule St
Pile St
George St
Charlecot St
Durham St
Hercules St
Kintore St
Margaret St
Harney St
Darley St
Anderton St
Harrison St
South St
Lydiate St
Malakoff St
Centennial St
Holmesdale St
Horton St
Essex St
Neville St
Neville Ln
Park Rd
Albert St
Audley St
Napier St
Bishop St
Jarvie Ave
Vernon St
Worton Ave
Gould Ln
Maria St
Chester St
Petersham Rd
Arthur St
Jersey St
Moncur St
Marrickville Ave
Robert St
Pine St
Tamar St
Osgood Ave
Bayley St
Henson St
Pigott Ln
Glen St
Vera Ave
Flinders Rd
Keith St
Vimy St
Bass Rd
Illawarra Rd
Macquarie Rd
Riverview Rd
Nelson Rd
Paris Ave
Wardell Rd
Thornley St
Day St
Premier St
Cary St
Renwick St
Ruby St
Harriet St
Myrtle St
Schwebel St
Meeks Rd
Victoria Rd
Gerald St
Frampton Ave
Garnes Ave
Silver St
Peace Ln
Gorman St
Holmesdale St
Malakoff St
Toyer St
Unwins Bridge Rd
Bridge St
Stanley St
Grove St
Bedford St
River St
Richmond St
Stone St
Francis St
William St
Fleet St
Birrell St
Gretchen St
Rose Heath Ave
Stewart Ave
Jarrett St
Victoria St
Viking St
Vicliffe Ave
A34
Google Earth
© 2020 Google
1 km
N

Southwest Metro Early Works
Environmental Control Plan - Overview
Legend
AMS and Archaeological Monitoring Zone
Archaeological Monitoring/Salvage
ASS - Disturbed Terrain
ASS - High probability of occurrence
ASS - Low probability of occurrence
Project Boundary
Station
Belmore Station
Lakemba Station
Wiley Park Station
Punchbowl Station
Bankstown
Google Earth
© 2020 Google
1 km
N

Southwest Metro Early Works
Environmental Control Plan
Sat Sep 26 2020
Legend
AMS and Archaeological Monitoring Zone
Archaeological Monitoring/Salvage
ASS - Disturbed Terrain
ASS - High probability of occurrence
ASS - Low probability of occurrence
Project Boundary
Station
Marrickville Station
Route L5 Cycleway
Schwebel St
Blamire Ln
Leofrene Ave
Meeks Rd
Queen St
Calvert St
Gladstone Ln
Fernbank St
Byrnes St
Arthur St
Francis St
Albion St
Jersey St
Moncur St
Warburton St
Petersham Rd
Google Earth
© 2020 Google
200 m

Southwest Metro Early Works
Environmental Control Plan
Thu Oct 1 2020
Legend
Degraded Turpentine - Grey Ironbark open forest on shale
Project Boundary
Station
Harnett Ave
Pigott Ln
Beauchamp St
Osgood Ave
Wicks Ave
Ewart St
Dibble Ave
Pilgrim Ave
Riverside Crescent
Tennyson St
Balfour St
Warren Rd
Tamar St
School Parade
Bayley St
Murray Ln
Dudley St
Dulwich Hill Station
Ewart Ln
Kays Ave E
Route L9 Cycleway
Albermarle St
Wilga Ave
Bedford Crescent
Ness Ave
Livingstone Rd
Randall St
Kays Ave W
Keith Ln
Keith St
Warden Ln
Qallis Ave
Marrickville Ave
Hercules St
Google Earth
© 2020 Google
200 m


Southwest Metro Early Works
Environmental Control Plan
Thu Oct 1 2020
Legend
ASS - Disturbed Terrain
ASS - High probability of occurrence
ASS - Low probability of occurrence
Degraded Turpentine - Grey Ironbark open forest on shale
Project Boundary
Station
Turpentine - Grey Ironbark open forest on shale
Burnett St
Riverside Crescent
Tennyson St
Balfour St
Ness Ave
Garnet St
Tennent Parade
Starkey St
Commons St
Hopetoun St
Railway St
Keir Ave
Acton St
Hurlstone Park Station
Ewart St
Floss St
Canterton St
Dunstaffenage St
Dunloon St
Marcia Ln
Cowan St
Mill St
Mill Ln
The Parade
Terrace Rd
Terrace Ln
Hampden St
Myra Ln
Eusion Rd
Google Earth
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200 m
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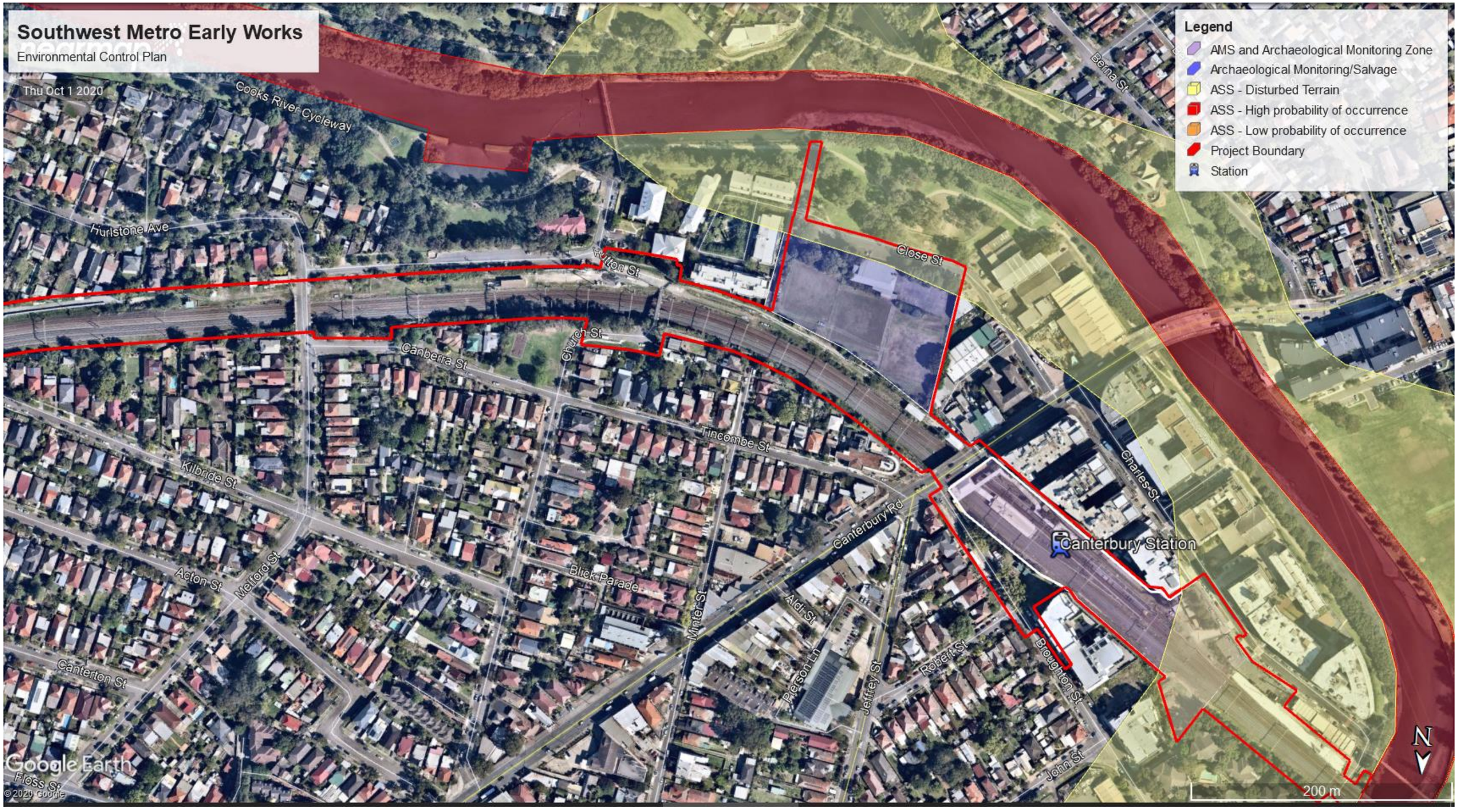
Southwest Metro Early Works
Environmental Control Plan
Thu Oct 1 2020
Legend
AMS and Archaeological Monitoring Zone
Archaeological Monitoring/Salvage
ASS - Disturbed Terrain
ASS - High probability of occurrence
ASS - Low probability of occurrence
Project Boundary
Station
Cooks River Cycleway
Hurlstone Ave
Canberra St
Church St
Tincombe St
Kilbride St
Acton St
Melford St
Canterton St
Floss St
Blick Parade
Minter St
Canterbury Rd
Aldi St
Pierson Ln
Jeffrey St
Robert St
Broughton St
John St
Charles St
Berna St
Close St
Canterbury Station
200 m
N
Google Earth
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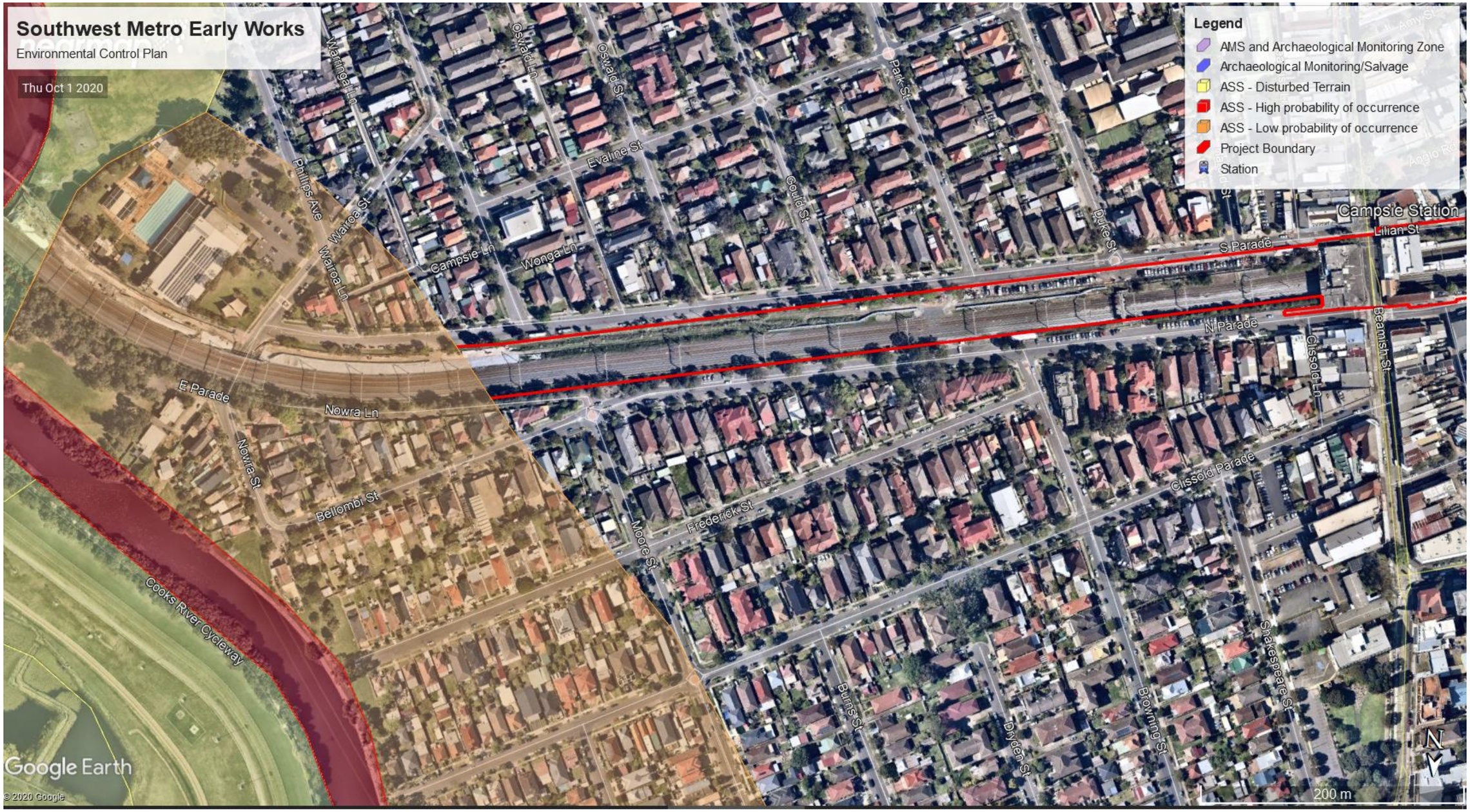
Southwest Metro Early Works
Environmental Control Plan
Thu Oct 1 2020
Legend
AMS and Archaeological Monitoring Zone
Archaeological Monitoring/Salvage
ASS - Disturbed Terrain
ASS - High probability of occurrence
ASS - Low probability of occurrence
Project Boundary
Station
Campsie Station
Wattonga Ln
Oswald Ln
Oswald St
Park St
Evaline St
Gould St
Duke St
Phillips Ave
Wairoa St
Wairoa Ln
Campsie Ln
Wonga Ln
S Parade
Lilian St
N Parade
Beamish St
Cissold Ln
Cissold Parade
E Parade
Nowra Ln
Nowra St
Bellombi St
Frederick St
Moore St
Burns St
Dryden St
Browning St
Shakespeare St
Cooks River Cycleway
Google Earth
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200 m
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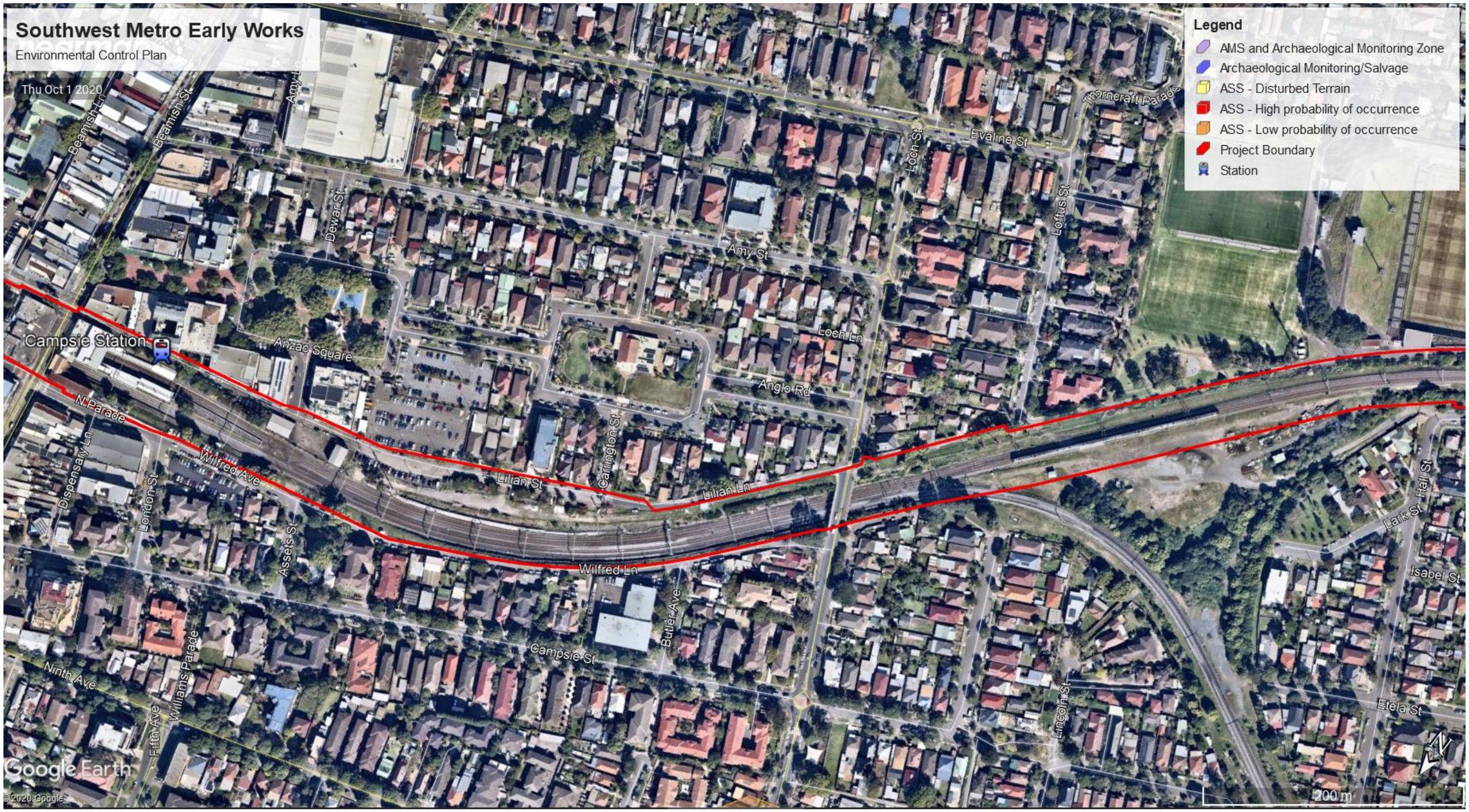
Southwest Metro Early Works
Environmental Control Plan
Thu Oct 1 2020
Legend
AMS and Archaeological Monitoring Zone
Archaeological Monitoring/Salvage
ASS - Disturbed Terrain
ASS - High probability of occurrence
ASS - Low probability of occurrence
Project Boundary
Station
Campsie Station
Anzac Square
N.Parade
Wilfred Ave
Wilfred Ln
Lilian St
Lilian Ln
Amy St
Anglo Rd
Loch Ln
Evaline St
Thorneycraft Parade
Loftus St
Dewar St
Beamish St
Beamish Ln
Carrington St
Butler Ave
Campsie St
Ninth Ave
Fifth Ave
Williams Parade
Assets St
London St
Dispensary Ln
Lark St
Hall St
Isabel St
Etela St
Lincoln St
Google Earth
© 2020 Google
200 m

Southwest Metro Early Works
Environmental Control Plan
Thu Oct 1 2020
Legend
AMS and Archaeological Monitoring Zone
Station
PAD01 - Belmore
Project Boundary
Edison St
Edison Ln
Sharp St
Myall St
Drummond St
Burwood Rd
Acacia St
Tobruk Ave
Paragon Ln
Marie St
Collins St
Redman Parade
Lark St
Hall St
Cecilia St
Sudbury St
Belmore Station
Gladstone St
Bridge Ln
Bridge Rd
Etela St
Wortley Ave
Dean Ave
Cleary Ave
Redman Ln
Adelaide St
Anna Ave
Google Earth
© 2020 Google
200 m

Southwest Metro Early Works
Environmental Control Plan
Thu Oct 1 2020
Legend
AMS and Archaeological Monitoring Zone
Australian White Ibis roost colony
Project Boundary
Station
Turpentine - Grey Ironbark open forest on shale
Dennis St
Quigg St S
Gillies Ln
Haldon St
Oneata St
Oneata Ln
Croydon St
Browning Ave
Ernest St
The Blvd
Lakemba Station
Australian White Ibis roos
Moreton St
Quigg St N
Haldon St N
Croydon Ln
Croydon St N
Bellevue Ave
Ernest St N
Lakemba St
Colin St
Google Earth
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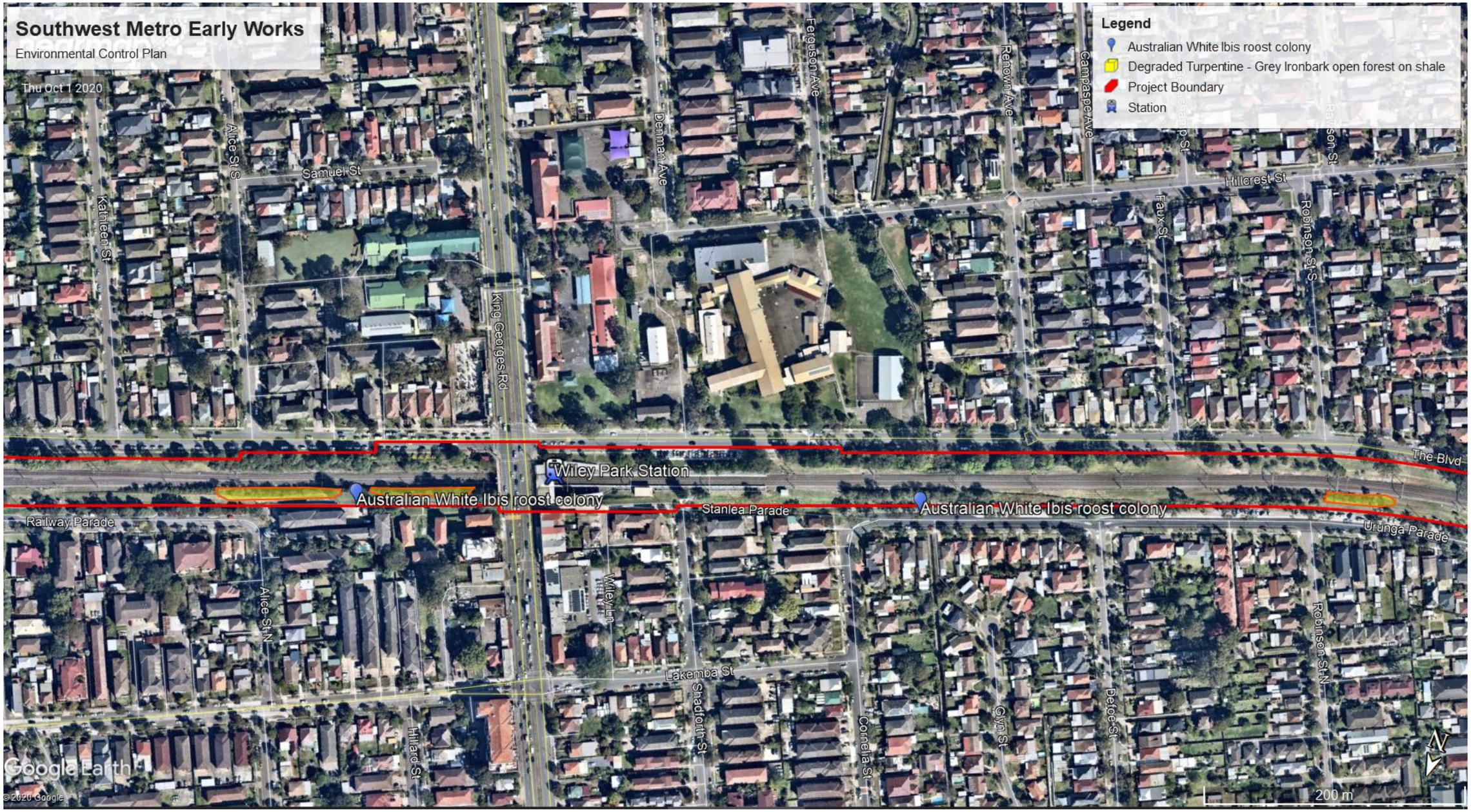
Southwest Metro Early Works
Environmental Control Plan
Thu Oct 1 2020
Legend
Australian White Ibis roost colony
Degraded Turpentine - Grey Ironbark open forest on shale
Project Boundary
Station
Alice St S
Samuel St
Kathleen St
King Georges Rd
Denman Ave
Ferguson Ave
Renown Ave
Campaspe Ave
Hillcrest St
Faux St
Robinson St S
The Blvd
Wiley Park Station
Australian White Ibis roost colony
Australian White Ibis roost colony
Stanlea Parade
Railway Parade
Urunga Parade
Alice St N
Wiley Ln
Lakemba St
Shadforth St
Hilard St
Cornelia St
Glyn St
Defoe St
Robinson St N
Google Earth
© 2020 Google
200 m

Southwest Metro Early Works
Environmental Control Plan
Thu Oct 1 2020
Legend
Acacia Pubescens Patches
Broad-leaved Ironbark - Grey Box - Melaleuca decora grassy open forest
Degraded Turpentine - Grey Ironbark open forest on shale
Grey-headed Flying-fox (vulnerable species under the TSC Act and EPBC Act)
PAD02 - Punchbowl
Project Boundary
Station
Surveyed Acacia Pubescens
Punchbowl Station
Surveyed Acacia Pubescens
Grey-headed Flying-f
Turner Ln
Van Dyke Pl
Heggie Ln
The Blvd
Punchbowl Rd
Griffiths Ave
Myall St
Breust Pl
Urunga Parade
Quine Ln
Rekard St
Gowrie Ave
Scott St
Kelly St
Acacia Ave
Highclere Ave
Henry St
Catherine St
Mt Lewis Ave
Carrisbrook Ave
Stansfield Ave
South Terrace
Google Earth
© 2020 Google
200 m
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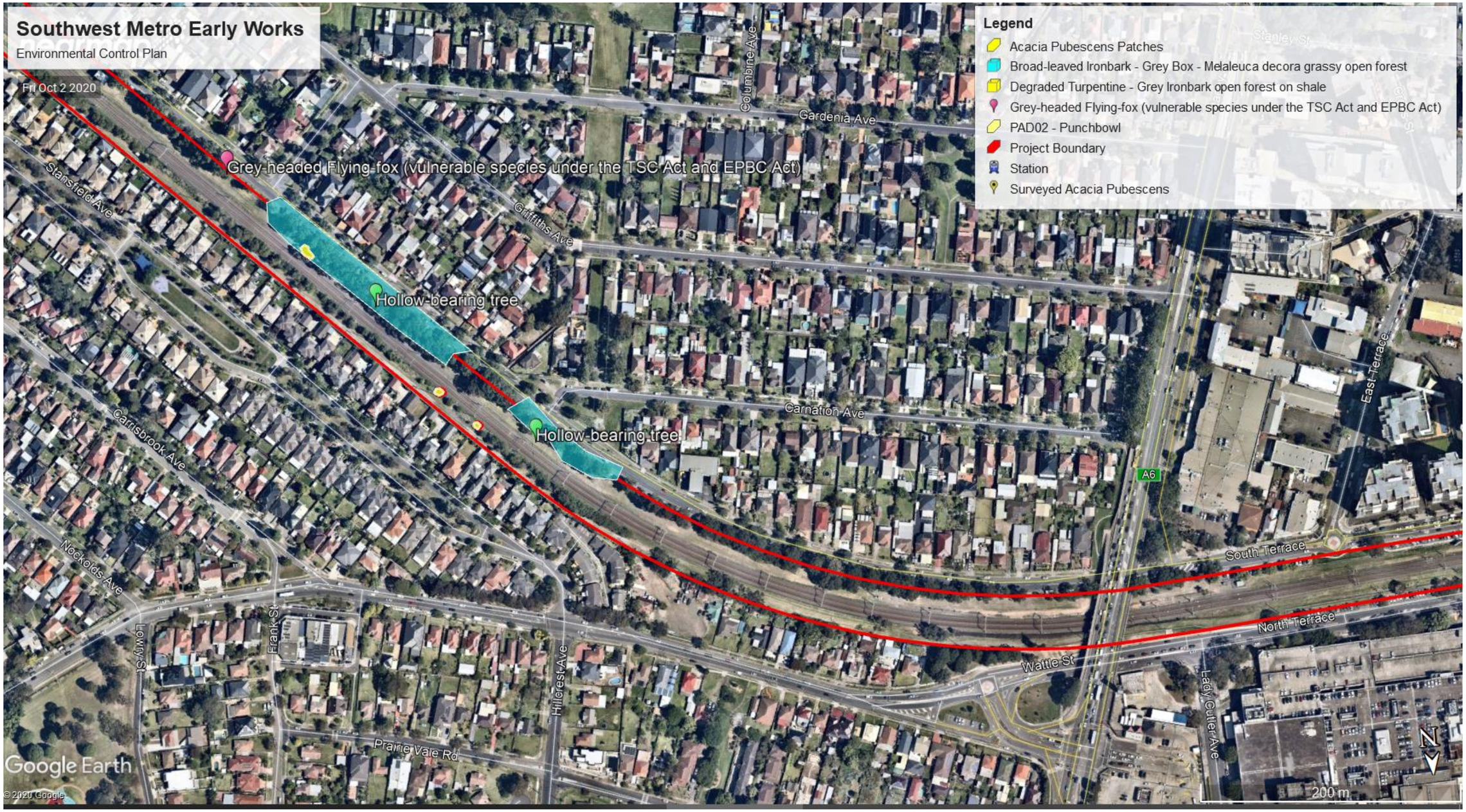

Southwest Metro Early Works
Environmental Control Plan
Fri Oct 2 2020
Legend
Acacia Pubescens Patches
Broad-leaved Ironbark - Grey Box - Melaleuca decora grassy open forest
Degraded Turpentine - Grey Ironbark open forest on shale
Grey-headed Flying-fox (vulnerable species under the TSC Act and EPBC Act)
PAD02 - Punchbowl
Project Boundary
Station
Surveyed Acacia Pubescens
Grey-headed Flying-fox (vulnerable species under the TSC Act and EPBC Act)
Hollow-bearing tree
Hollow-bearing tree
Columbine Ave
Gardenia Ave
Griffiths Ave
Stanfield Ave
Carnation Ave
Carrisbrook Ave
East Terrace
A6
South Terrace
North Terrace
Wattle St
Lady Cutler Ave
Hillcrest Ave
Frank St
Tom's St
Nockolds Ave
Prairie Vale Rd
Google Earth
© 2020 Google
200 m
N

APPENDIX 6 – Emergency Preparedness and Response

The types of environmental emergencies that could occur on this site are tabulated below. These are the key risks based on the project design components, site characteristics and locality.

Note: This plan is designed to supplement the Client's site emergency response plan/s where available. In case of conflict, the Client's plan will apply.

All incidents are to be reported to the Environmental Manager and Community Stakeholder Manager.

Emergency	Preparation	Response	Responsibility
Significant adverse dust event due to weather conditions: High winds	• Monitor meteorological conditions for the area - develop contingency for wind speeds in excess of 16m/s (55km/hr) • High wind 'stop works' protocols in place • Establish contingency strategy for additional dust control measures, additional water carts, dust suppressants, stockpile covers etc.	• Dust generating activities will cease under direction of the Environment Manager or Site Supervisor until adverse conditions subside. • Deploy additional mitigation measures to exposed areas stockpiles and other dust generating items will be water sprayed or covered.	Site Supervisor Environmental Manager
Discovery of friable asbestos.	• Review previous land uses, environmental reports for potential for friable asbestos. • Include asbestos awareness in the site induction where the potential exists • Include contingency in relevant work procedures and SWMSs • Stop works where potential asbestos has been detected. • Identify potential service providers for asbestos control and removal.	• Quarantine suspected area • Cover or provide dust mitigation strategy • Engage licensed/approved removal and disposal organisation • Complete post removal verification	Construction Manager Site Supervisor Environmental Manager Safety Manager
Flooding	• Monitor meteorological conditions – develop contingency strategy for rainfall > 100mm in 24hours or potential for > 1in 5 ARI • All chemicals, fuels and other hazardous substances to be in secured containers and stored within a sealable shipping container • Remove plant and equipment from low lying areas • Secure plant that cannot be removed • Review site drainage flow paths:	• Recover materials washed from site including sediment and other waste. • Check effectiveness of erosion and sedimentation devices and other flood controls, maintain where required and safe to do so.	Site Supervisor Environmental Manager

	• Redirect site drainage to prevent flooding of residential/business premises • Ensure site drainage does not concentrate surface flow • Review and address the potential for excess water entering the site • Review and maintain erosion and sedimentation controls		
Temporary erosion and sediment controls are damaged during rainfall.	• Plan controls to be suitable for expected conditions • Ensure sufficient materials, labour and plant are available for additional controls.	• A review of the site to be undertaken by an Environmental Manager and Site Supervisor. Controls to be repaired or replaced within 24 hours of detection, immediately if inclement weather current.	Site Supervisor Environmental Manager
Spill of hazardous or toxic substance (< 20L)	• Awareness training of appropriate response and procedures to be incorporated into Project Induction • Stop works within vicinity of impacted area if a spill occurs • SDS on site for all materials and kept up to date • Adequate supply of absorbent materials available in the site compound and on vehicles at work location	• Report spills immediately to Site Manager and/or the Project Environment Representative • Attempts to be made to limit or contain the spill using sand bags to construct a bund wall, use of absorbent material, temporary sealing of cracks or leaks in containers, use of geotextile or silt fencing to contain the spill. • Site Manager and Supervisors to coordinate the response, clean up and disposal of the material • Material to be disposed of in accordance with the manufacturers' recommendations and applicable legislation.	Site Supervisor Environmental Manager
Major spill of hazardous or toxic substance off site or to environmentally sensitive area (> 20L)	• Awareness training of appropriate response and procedures to be incorporated into Environmental and Safety Induction • SDS on site for all materials and kept up to date • Stop works within vicinity of impacted area if a spill occurs • Adequate supply of absorbent materials available in the site compound and on vehicles in work location • Emergency telephone numbers for Emergency Response organisations/fire brigade	• Report spill immediately to Project Leader and/or Site Supervisor who will notify the client • Attempts to be made to limit or contain the spill using sand bags to construct a bund wall, use of absorbent material, temporary sealing of cracks or leaks in containers, use of geotextile or silt fencing to contain the spill, transferring remaining material. • Implement procedures to notify the relevant authorities. • Site Manager to coordinate the response, clean up • Fire brigade or emergency organisations should be called if spill cannot be controlled by site resources.	Project Leader Construction Manager Site Supervisor Environmental Manager

	prominently displayed around office and issued to supervisors • Initial contact to be made with relevant organisations at project commencement	• Evacuation procedures are to be implemented to remove non-essential personnel from the affected area • On site client personnel are informed of the incident, internal reporting as per potential Class 1 matter. • Access and egress to the area is established to ensure the appropriate vehicles have effective access and congestion is minimised. • Senior Officer from fire brigade /emergency organisation assumes control of the operation with JHLOR personnel assisting as required. • Commence data gathering and investigation once emergency is contained	
Fire	• Awareness training of appropriate response and procedures to be incorporated into Environmental and Safety Induction • Fire extinguishers maintained, clearly labelled and distributed around site compound and vehicles • Training in the use of fire extinguishers and which one to use for each type of fire • Stop works within the vicinity if a fire is encountered • First Aid supplies are stocked and adequate • Emergency telephone numbers for Emergency Response organisations/fire brigade prominently displayed around office and issued to supervisors • Initial contact to be made with relevant organisations at project commencement	• For small fires, attempts to be made to extinguish the fire or limit its spread with available fire extinguishers or water hoses if appropriate. • Supervisor is to be informed immediately. • Supervisor to contact client and external services where necessary (fire, ambulance) as a precautionary measure. • All personnel in the vicinity to be assembled in the Evacuation Assembly Area and a head count performed • Any resulting fuel or chemical spill to be handled as detailed above • Supervisor to coordinate with emergency services and provide assistance as required.	Site Supervisor Environmental Manager
Vibration causing structural damage	Choose correct plant when working near structures; minimise size and impact Use safe working distances during planning phase Stop works where structural damage (or the potential for structural damage) has been identified	Activities causing vibration would cease under direction of the Environment Manager or Site Supervisor. Any occupants of buildings may be evacuated with due consideration to safety, and the area secured to prevent unauthorised access.	Environmental Manager Construction Manager

	Implement vibration monitoring at commencement of vibration generating works to ensure compliance with standards	A structural assessment to be undertaken; and if any damage is associated with construction, rectification work would be agreed.	
Unapproved clearing / damage to protected vegetation – threatened/endangered species	Clearly demarcate site boundaries Clearly demarcate clearing areas and brief site personnel Identify/mark vegetation to be retained or that is protected. Identify species that may be impacted, include material within the project induction Included requirements within construction planning documentation. Stop works within area where a breach to the above may have occurred	Immediately cease activities Engage consultant to assess damage to vegetation and presence of any endangered or threatened communities.	Site Supervisor Environmental Manager
Injury/death to protected/endangered/threatened fauna	Identify potentially impacted species prior to commencement on site. Identify species that may be impacted, include material within the project induction Stop works within area Review/inspect vegetation to be cleared prior to clearing – utilise ecologist/spotter where there is the potential for endangered/threatened species Engage with local vet/WIRES representative on the appropriate contact/procedure Site procedure for the short term management of injured fauna	Immediately cease activities upon discovery of injured fauna Implement procedure for short-term stabilisation and transport to Vet or WIRES Undertake additional vegetation inspection to identify any remaining fauna prior to recommencement.	Site Supervisor Environmental Manager
Damage / destruction of indigenous heritage item	Ensure site investigations detail any heritage items on or in proximity to the site. Include awareness material within the project induction Develop a 'stop works' protocol for any heritage find on site.	Cease works and stabilise the area, under the direction of the Environmental Manager or Site Supervisor. The Environmental Manager is to report the remnants to the client and regulatory authority. Request an archaeologist to assess the significance and archaeological potential of the uncovered feature.	Environmental Manager
Damage / destruction of European heritage	Ensure site investigations detail any heritage items on or in proximity to the site.	Cease works and stabilise the area, under the direction of the Environmental Manager or Site Supervisor. Contact an	Environmental Manager

	Ensure exclusion zones are implemented around heritage structures/items. Work within Safe Working Distances as detailed in the CNVMP Undertake vibration monitoring as detailed in the CNVMP Develop a 'stop works' protocol for any heritage find on site.	archaeologist to assess the significance and archaeological potential of the uncovered feature.	

APPENDIX 7 – Project Permits and Licences Register

Project Permit and Approvals Register	Applicable to the project (Yes / No)	Permit / licence / Approval Number / registration certificate	Commencement date	Expiry date	Surrender requirements	Project custodian	Project briefing date
Environmental Planning and Assessment Act 1979							
Planning Determination under Part 5.1 of the EP&A Act TfNSW required approval of the Minister of Planning NSW under Section 115ZB of the EP&A Act	Yes	SSI 17_8256	12/12/2018	This approval lapses five (5) years after the date on which it is granted, unless works for the purpose of the CSSI are physically commenced on or before that date.	Construction Compliance Report to determine regular periodic status of compliance against the conditions of the planning approval and the approval to be closed out after completion of construction and operation phases to which the approval applies	JHLOR Project Environmental Manager	
Protection of Environment Operations Act 1997							
The SMEW will be completed under an Environment Protection Licence, as required under Protection of Environment Operations Act 1997	Yes	Laing O'Rourke EPL 21147	The Laing O'Rourke EPL premise Maps were updated to include the Sydney Metro City and Southwest Sydenham to Bankstown project boundary between Marrickville and Belmore	Upon surrender by licence holder or when revoked by the NSW EPA. Anniversary date 17 January 2018 – licenced to be reviewed after 5 years.	JHLOR to submit a Licence Surrender Applications to the NSW EPA	Project Environmental Manager	Relevant EPL requirements will be briefed to all project personnel prior to and during construction as per the requirements stated in the Section 10 of this CEMP
Water Act 1912							

Section 10 Surface Water Licence	No						
Part 5 Section 112 Groundwater Licence	No						
Water Management Act 2000							
Section 56 Access Licences	No						
Section 89 Water use approvals	No						
Section 90 Water management work approvals	No						
Section 91 Activity Approvals	No						
Fisheries Management Act 1994							
Division 3 (Sections 199, 200, 201) Dredging and Reclamation	No						
Section 205 Marine vegetation - regulation of harm Permit to Harm Marine Vegetation	No						
Section 220ZW Licence to harm threatened species, population or ecological community or damage habitat	No						
Sydney Water Act 1994							
Section 49 Offence to discharge into works - Trade Waste Permit	No						
Permit to Use Approved Metered Standpipes on Sydney Water Hydrants	Yes	JHLOR Subcontractors may work under these approvals – copies of approvals to be obtained upon engagement of subcontractors	Details to be confirmed once the approval is in place on the Project	Details to be confirmed	Details to be confirmed	Project Construction Manager	Requirements will be briefed to all project personnel prior to and during construction as per the

		and this register will be updated accordingly					requirements stated in the Section 12 of this CEMP
Section 31 Offence to discharge into works - Trade Waste Permit	No						
Dangerous Goods (Road and Rail) Transport Act							
Section 6 Licensing of vehicles transporting dangerous goods	Yes	JHLOR Subcontractors will work under these approvals – copies of approvals to be obtained upon engagement of subcontractors and this register will be updated accordingly	Details to be confirmed once the licence is in place on the Project	Details to be confirmed	Details to be confirmed	Project Environmental Manager	Requirements will be briefed to relevant project personnel
Section 7 Licensing of drivers transporting dangerous goods	Yes	JHLOR Subcontractors will work under these approvals – copies of approvals to be obtained upon engagement of subcontractors and this register will be updated accordingly	Details to be confirmed once the licence is in place on the Project	Details to be confirmed	Details to be confirmed	Project Environmental Manager	Requirements will be briefed to relevant project personnel
Local Government Act							
Section 68 - What activities, general, require the approval of council	No						
Section 68A - Operation of a system of sewage management	No						
Roads Act 1993							

Section 138 Works and structures - permit to undertake works to roads	Yes	TBC	Details to be confirmed once the licence is in place on the Project	Details to be confirmed	Details to be confirmed	Project Construction Manager	Requirements will be briefed to relevant project personnel
Work Health Safety Regulation 2017							
Section 174ZS Notification to WorkCover	TBC	Asbestos Removal Work Notification may be undertaken by LOR Subcontractors where required during construction phase - copies of approvals to be obtained upon engagement of subcontractors and this register will be updated accordingly	TBC	TBC	TBC	Asbestos Removal Work Notification will be undertaken by JHLOR Subcontractors where required during construction phase	Details to be confirmed once the licence is in place on the Project
Section 175L Major hazard facility must be registered or provisionally registered	No						
National Parks and Wildlife Act 1974							
Section 90 Aboriginal heritage impact permit	No						
Heritage Act 1977							
Section 60	No						
Division 3 Applications for approval	No						
Section 139 Excavation permit	No						
Marine Safety Act							
Section 29 Types of marine safety licences	No						
Management of Waters and Waterside Lands Regulations							

Division 3 Occupation of Waters	No						
Rural Fires Act 1997							
Section 89 Issue of permits (includes "hot works" which would constitute lighting a fire)	No						
Environment Protection and Biodiversity Conservation Act 1999 (Cwlth)							
Include details of approvals under this Act where applicable	No						
Other							
List other relevant legislation here							

APPENDIX 8 – Environmental Incident Investigation Guidelines

Class 1 incidents shall be subject to an ICAM or Tap Root investigation. The following section outlines the environmental incident and complaint investigation. The actual detail required will vary depending on the class of the incident. In any case, form E-T-8-1222 Environmental Incident and Complaint Report is to be used to document the incident.

Step 1- Identify the class of incident and obtain the incident or complaint details.

Step 2 - Observation and information gathering.
The first priority is to understand the incident and how the incident occurred.

- **Take samples or obtain results (required for Class 1&2)** - laboratory results or insitu samples (Note: for Class 1 & 2 incidents NATA certified laboratories may be required)
- **Interview persons involved where required** - Include witnesses / supervisors / experts
- **Inspect the incident scene** - Take measurements (do not guess), photos, videos, drawings, diagrams / sketches.

Collect related documentation - Attach additional material as appropriate such as Work Method Statements, JSEA's, Environmental Risk Action Plans (ERAPs), Erosion and Sediment Control Plans, Risk Assessments, induction records, toolbox talks, pre-start, environmental training records, subcontractor/client incident report, relevant design documentation, maintenance records.

Step 3 - Give detailed description of the incident

- Outlined exactly what happened and give the following details as applicable:
- Area or people affected and pollutant type as appropriate
- Time, date and weather conditions
- Plant, equipment, organisations involved
- Potential stakeholders involved
- Describe the nature of the incident including:
- Breach of licence condition, Act or regulation
- Discovery of cultural heritage item, artefact, etc.
- Unauthorised release of harmful substance to environment
- Penalty or fine imposed or protection order or notice issued.
- Performance of the environmental controls
- Describe the immediate remedial actions undertaken:
- Notify relevant parties
- Contain pollution or clean up affected area
- Repair to environmental controls
- Rectify damage and remediate the affected area

Step 4 - Undertake basic level incident analysis
List the elements involved including people, equipment and environment (weather conditions), procedures, organisational elements involved in the incident. List the essential and contributing factors for the items above.

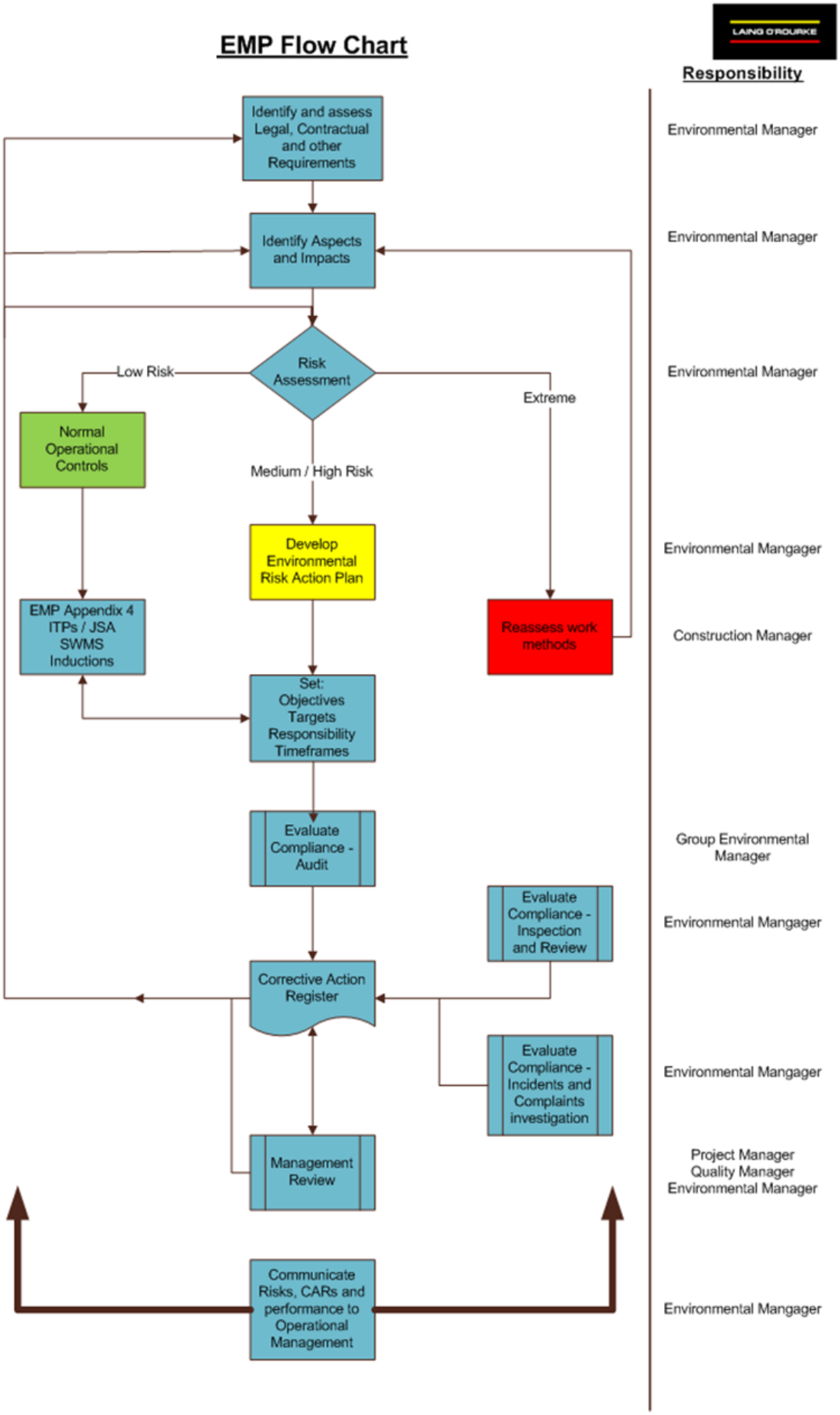
- **Step 5** - Identify the corrective and preventative actions.
- Change to equipment/machinery design / maintenance
- Improve environmental control measures
- Implement additional resources
- Change to work methods, procedures or processes
- Change or additional induction training
- Address organisational issues

Step 6 - Implement the corrective and preventative actions outlined above

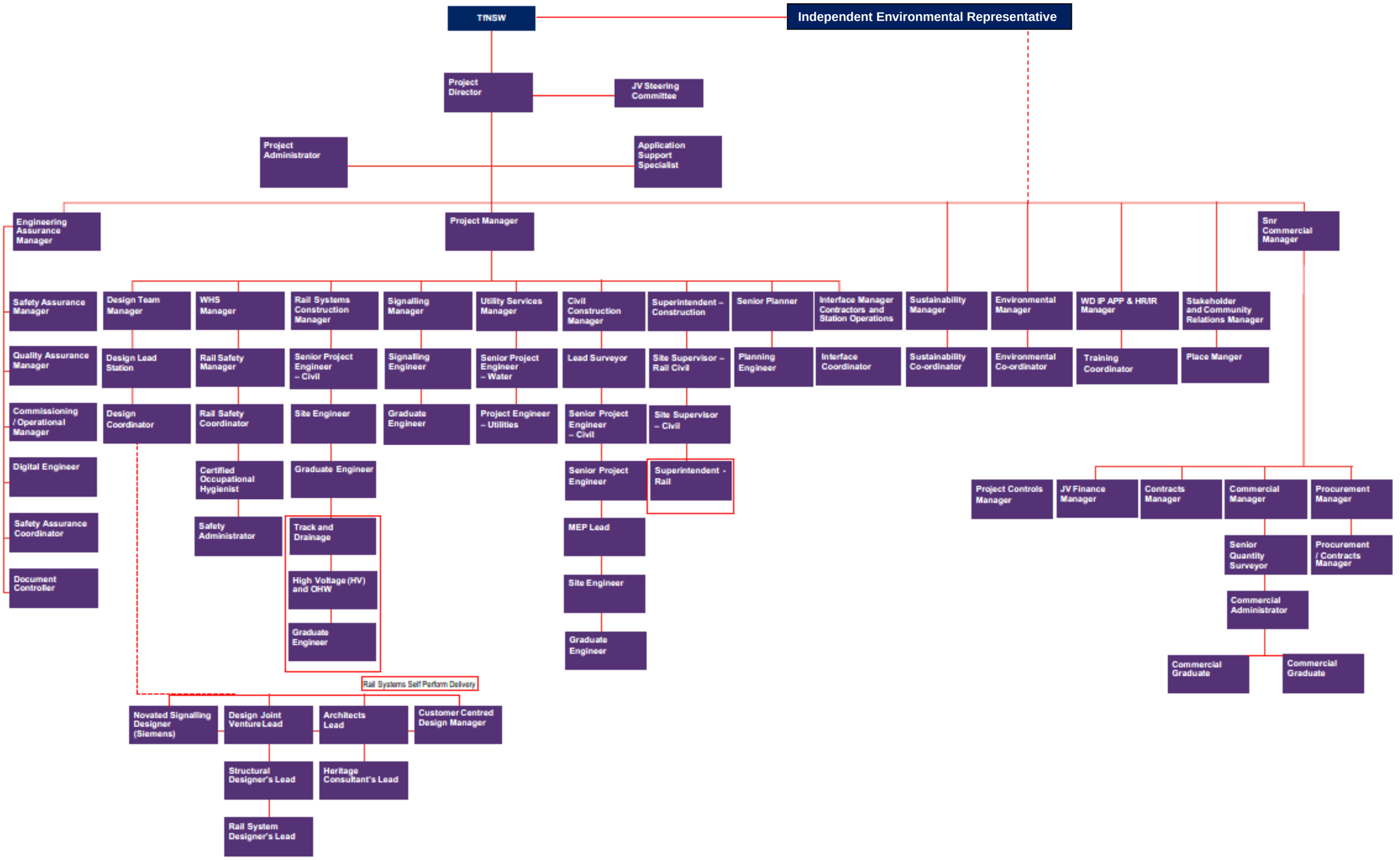
- Outline responsibilities and accountabilities
- Obtain relevant approvals for the corrective and preventative actions (i.e. Regulatory Authority or Client requirement)
- Provide proposed completion dates for the approved actions
- Document actions implemented and close out

Note: where a Class 1 Incident has occurred the HSE Director will initiate the investigation and allocate responsibilities, an external consultant may be engaged. Authorities are to be notified in accordance with the legislative periods in the applicable state.

APPENDIX 9 – EMP Flowchart



APPENDIX 10 – Organisation Chart



APPENDIX 11 – Sydney Metro Environment & Sustainability Policy (SM SE MM 102)

Transport for NSW

Environment & Sustainability Policy

sydney METRO

This Policy reflects a commitment in our delivery of the Sydney Metro program to:

- Align with, and support, Transport for NSW (TfNSW) Environment & Sustainability Policy.
- Optimise sustainability outcomes, transport service quality, and cost effectiveness.
- Develop effective and appropriate responses to the challenges of climate change, carbon management, resource and waste management, land use integration, customer and community expectation, and heritage and biodiversity conservation.
- Be environmentally responsible, by avoiding pollution, enhancing the natural environment and reducing the project ecological footprint, while complying with all applicable environmental laws, regulations and statutory obligations.
- Be socially responsible by delivering a workforce legacy which benefits individuals, communities, the project and industry, and is achieved through collaboration and partnerships.

To deliver on these commitments, the Sydney Metro team will:

Industry leadership

- Implement coordinated and transparent decision making, by engaging with stakeholders and suppliers, encouraging innovation and demonstrating sustainability leadership.
- Explore new benchmarks for the transport infrastructure sector by requiring high standards from our designers, contractors and suppliers, building on experience gained through development of Sydney Metro Northwest.

Community and customer

- Provide accessible, safe, pleasurable, and convenient access and transport service for all customers.
- Establish positive relationships with community and stakeholders to maximise opportunities to add value to local communities.

Land use integration and place making

- Create desirable places, promote liveability, cultural heritage, and optimise both community and economic benefit.
- Balance transit oriented development opportunities with stakeholder expectations.

Embedding environmental and social sustainability

- Establish robust sustainability objectives and targets.
- Maintain an environmental management system that is integrated into all our project activities.
- Ensure thorough and open environmental assessment processes are developed and maintained.
- Develop and maintain an environmental management framework to embed best practice pollution management and sustainable outcomes during construction.
- Apply effective assurance processes to monitor performance against the project environment and sustainability objectives and identify appropriate reward or corrective action, as required.
- Apply environment and sustainability specific processes to the procurement of delivery activities.

Accountability

- Undertake public sustainability reporting.
- Hold employees and contractors accountable for proactively meeting their environmental and social sustainability responsibilities.
- Provide appropriate training and resources necessary to meet our responsibilities.

Rodd Staples
Program Director, Sydney Metro

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APPENDIX 12 – Stakeholder Consultation Details

Stakeholder consultation details will accompany the specific documents that are to be reviewed.

Condition of Approval SSI 8256	CEMP Document	Agency Consultation	Management Plan Consultation Workshop	Status	Comments
C3(a), C6	Construction Noise and Vibration Management Plan (including the Construction Monitoring Program)	City of Canterbury Bankstown	Invited 18/04/2019 Attended 29/04/2019	Submitted 25/04/2019 Follow up email sent - 7/05/2019 Call from Allan Shooter on 14/05/2019 to request extension to 17/05/2019	No comment to date
		Inner West Council	Invited 18/04/2019 Attended 29/04/2019	Submitted 25/04/2019 Follow up email sent - 7/05/2019 Feedback received 14/05/2019	Hi Daniel – comments below on CNVMP for early works for SW Metro. • Given the different nature of early works, a subsequent Construction Noise & Vibration Plan should be submitted for the main construction phase of the project to allow consideration of the 6-monthly Construction Compliance Reports specified in Part 8.3. • Residents living along the proposed Metro line already experience noise impacts as a result of the 24-hour Port Botany freight line and the airport and these cumulative impacts of these noise sources need to be taken into account. Part 7.12 refers to Cumulative Impacts and it should identify cumulative impact of these sources with the intention of minimising clearly audible noise during OOHW. • Part 4.4 (Sleep Disturbance) cites the EIS and table 4-3 establishes Sleep disturbance screening criterion based on the EIS. The criterion in Table 4-3 are considered excessive and should be lowered. In addition Table 4-4 Road traffic noise criteria outlines continuous traffic noise level on Local Roads at night time of 50dB and this is considered excessive. • Table 7-1, Table 7-2 and Table 7-3 outline additional mitigation measures for eligible property owners. Alternative accommodation should be made available for noise clearly audible and above during OOHW Period 2. Additionally, it's considered that when work during OOHW Period 2 attracts many and/or repeated complaints from multiple parties, mitigation measures should include rescheduling of the activity to within hours stated in the consent.
C3(b), C6	Construction Soil and Water Quality Management Plan (including the Construction Monitoring Program)	Office of Environment and Heritage	Invited 18/04/2019 Did not attend	Submitted 20/04/2019 Response received 29/04/2019	Hi Daniel, I have reviewed the Construction Soil and Water Management Plan relevant to the project. It is agreed that the construction works will have negligible impacts on flooding within the catchment, with minimal loss of flood storage and minimal changes or restrictions to existing flood regimes. The management measures outlined in the report will be satisfactory in mitigation of residual flood risk on the project site. Please let me know if there is anything else you require in terms of OEH comment on flood risk relevant to the construction phase of this project.
		City of Canterbury Bankstown	Invited 18/04/2019 Attended 29/04/2019	Submitted 25/04/2019 Follow up email sent - 7/05/2019 Call from Allan Shooter on 14/05/2019 to request extension to 17/05/2019	Hi Daniel, The following is Council's comments to the Construction Soil and Water Management Plan (CSWMP) & Water Quality Monitoring Program : - Page 29 of the Construction Soil and Water Management Plan states that all erosion and sediment controls will be inspected at least weekly, before forecast rain events, before a site closure of more than two days and after rainfall exceeding 10mm in 24 hours. Council believes that these controls should have a more frequent scheduled check regardless of forecast rain, site closure or after rainfall. This is to ensure that checks are undertaken and registered to reduce the potential for a pollution incident to occur. - It is noted that any water that may be discharged from the site (dewatering) to Council's stormwater system is to be tested and signed off by the environmental manager before the discharge is to commence. Will approval be sort from Council before this is undertaken?
		Inner West Council	Invited 18/04/2019 Attended 29/04/2019	Submitted 20/04/2019 Follow up email sent - 7/05/2019 Feedback received 14/05/2019	Hi Daniel - below is a summary of the main points from Inner West Council's submission on SWM and comments relevant to this sub-plan are further below: Cooks River councils are working to make to Cooks River swimmable with the backing of the Commonwealth and State governments. The NSW Water Quality and River Flow Objectives and ANZECC 2000 guidelines are not sufficient for the Cooks River catchment. Inner West Council and the Cooks River Alliance councils apply the targets set by the Botany Bay Water Quality Improvement Program (BBWQIP) recommended by the NSW Government. All levels of government and catchment councils have invested significant resources and funding into improving the

					Cooks River and all water including runoff leaving the construction sites, rail corridor and associated infrastructure must be managed and treated to achieve the BBWQIP targets. Further comments relevant to this sub-plan are as follows: • It should be noted that the scope of the plan covers early works only and not primary construction • There is no commitment to meet the runoff targets specified in the Botany Bay Water Quality Improvement Plan / Sydney Harbour Water Quality Improvement Plan (BBWQIP/SHWQIP). All water including runoff leaving the construction sites and associated infrastructure must be managed and treated to achieve the BBWQIP targets.
		Department of Industry	Invited 18/04/2019 Did not attend	Submitted 20/04/2019 Follow up email sent - 7/05/2019 Called 13/05/2019 - voicemail left – no response	No comment to date
C3(d), C6	Construction Heritage Management Plan Note: submitted CHMP rev08 for comment due to scope changes within SHR curtilage and Archaeological Management Zones	Heritage Council	Invited 18/04/2019 Did not attend	Rev00 Submitted 20/04/2019 Follow up email sent - 7/05/2019 - HC confirmed under review by reply email on 8/05/2019 Rev08 Submitted to Heritage DPC 3/12/2020 Email Heritage DPC 7/12/2020 Spoke to Heritage DPC via phone 7/12/2020 Email reminder on plan reviews sent to Heritage DPC 14/12/2020 - response that plans would be ready prior to Christmas break Response received 22/12/2020	Comments on Rev00 Thanks Dan, Thank you for invitation to review the Construction Heritage Management Plan (CHMP) for the above project. In accordance with the Planning Approval SSI-8256, JHLOR must produce a Construction Environmental Management Plan (CEMP) and several sub-plans. Condition C3 of the Ministers Conditions of Approval for SSI 8256 (approved 12 December 2018) requires that the Heritage Council of NSW (or its delegate) must be consulted for the preparation of Construction Environmental Management Plan (CEMP) sub-plans. Our comments are based on the review of the below documents. • Construction Environmental Management Plan. Sydney Metro City & Southwest. Prepared by John Holland Laing O'Rourke Joint Venture, 20 March 2019 (Revision 1.0) • Sydney Metro City and Southwest – Southwest Metro Early Works. Construction Heritage Management Plan. Prepared by Artefact Heritage, 11 April 2019 (Revision 0). The Southwest Metro Early Works will not enter railway station precincts along the rail alignment. Therefore, no works will occur within the State Heritage curtilages located within the early works project area. The submitted CHMP is considered satisfactory to guide the works required for Southwest Metro Early Works. Comments on Rev08 The submitted CHMP has been reviewed and it is noted that the proposed modifications are minor and would not impact the significance of the above SHR listed items. The CHMP is considered satisfactory to guide the works required the Southwest Metro Early works and the applicant is advised to follow the recommendations contained therein. As the site contains local heritage items, and other local items are in the vicinity, advice should be sought from relevant local councils.
		City of Canterbury Bankstown	Invited 18/04/2019 Attended 29/04/2019	Rev00 Submitted 20/04/2019 Follow up email sent - 7/05/2019 Call from Allan Shooter on 14/05/2019 to request extension to 17/05/2019 Rev08 Submitted to CoCB 3/12/2020 Email reminder on plan updates 14/12/2020 Called Interface Manager on 17/12/2020 and left message Called interface manager 18/12/2020 - awaiting feedback Emailed interface manager 21/12/2020 Called interface manager 22/12/2020 Resent plans 22/12/2020 Comments received 24/12/2020 *Note: further comment may be provided at a later date	Comments on Rev00 **Email 1** Hi Dan, I am Canterbury-Bankstown Council's heritage advisor and following up on the cross sections recently sent to Council for the GST bracket connections to the bridges at Foord Avenue, Hurlstone Park and the Cooks River Bridge . I'm wondering if alternative solutions were considered when determining an appropriate mounting system for the GST? I am not satisfied with the solution proposed at this point. The proposal is very high and visually quite intrusive. Can a more suitable and sympathetic alternative be considered such as ground mounting adjacent to the tracks? Open to other suggestions. **Email 2** In response to Dan's email below with regards to the CHMP the only additional query I have (other than the GST comments emailed to Dan on Monday) is in relation to the South Parade noise wall. I provided comments on it a little while back so my comments may or may not have been passed on. Nonetheless I have copied this in below again just in case. 1. South Parade, Campsie Noise wall. Has this been confirmed as necessary and how effective are they? If it is not required I'd rather not have one as I am of the view that such elements have a significant visual impact on the setting of the railway station and the visual curtilage of the heritage item opposite. If it is necessary can a detailed landscape plan be considered to 'soften' the impact of such a wall.

					Comments on Rev08 Hi Daniel, I received the response from a Council officer on the Early Works HMP. One other officer is also meant to provide comments when she is at work on or after the 7th of January 2021. Comments from Camille: No comments required from my team. Please let me know should you have any queries.
		Inner West Council	Invited 18/04/2019 Attended 29/04/2019	Rev00 Submitted 20/04/2019 Response received 6/05/2019 Rev08 Rev08 Submitted 3/12/2020 Response received 7/12/2020	Comments on Rev00 "The CHMP for early works is considered broadly acceptable. I note it doesn't address the main construction works for SW Metro and a separate plan will be submitted. " Comment on Rev08 "Amend *could* to *should* within the following sentence: A heritage conservation architect could be consulted where direct impacts to significant fabric was proposed in accordance with NAH20." "The responsibility for advice regarding built heritage should rest with a conservation architect"

Correspondence in full in included within the each CEMP sub-plan as listed above.

APPENDIX 13 – Environmental Audit Schedule

Refer to Section 18 for a description of the Internal Audit process.

			2019												2020												2021				
			January	February	March	April	May	June	July	August	September	October	November	December	January	February	March	April	May	June	July	August	September	October	November	December	January	February	March	April	May
Element	**Audit Lead**	**Frequency**																													
JHLOR General EMS or EMS with Environmental Management Plan focus	TfNSW or Parent Company	6 monthly								P											P							P			

*Note: To limit social interactions as part of JHLOR's COVID-19 site management requirements, some audits may be postponed where appropriate

*Note: Environmental Management Plans dictate how the LORAC EMS will be applied on site. As such, an audit on management plan application is consistent with the requirement for an EMS audit under the LORAC EMS.

APPENDIX 14 – Compliance Matrix

Table 10 - Planning Approval Compliance Matrix

A16	Ancillary facilities that are not identified by description and location in the documents listed Condition A1 can only be established and used in each case if: a) they are located within the Construction boundary of the CSSI; and b) they are not located next to a sensitive receiver (including access roads) (unless landowners and occupiers have accepted in writing the carrying out of the relevant facility in the proposed location); and c) they have no impacts on heritage items (including areas of archaeological sensitivity), and threatened species, populations or ecological communities beyond the impacts approved under the terms of this approval; and d) the establishment and use of the facility can be carried out and managed within the outcomes set out in the terms of this approval, including in relation to environmental, social and economic impacts.	Section 21
A17	Ancillary facilities that are not identified by description and location in the documents listed in Condition A1 and do not meet the requirements of Condition A16, can only be established and used with the approval of the Planning Secretary except where they are located within the rail corridor, in which case they may be endorsed by the ER. A review of environmental impacts must be submitted with the request for Planning Secretary's approval or ER's endorsement.	Section 21
A18	The use of an ancillary facility for Construction must not commence until the CEMP required by Condition C1, relevant CEMP Sub-plans required by Condition C3 and relevant Construction Monitoring Programs required by Condition C8 have been approved by the Planning Secretary.	Section 21
A19	Lunch sheds, office sheds, portable toilet facilities, and the like, that are not identified as an ancillary facility in the documents listed **Condition A1,** can be established where they satisfy the following criteria: a) are located within the Construction boundary; and b) have been assessed by the **ER** to have - i. minor amenity impacts to surrounding residences and businesses, after consideration of matters such as compliance with the Interim Construction Noise Guideline (DECC, 2009), traffic and access impacts, dust and odour impacts, and visual (including light spill) impacts, and ii. minor environmental impact with respect to waste management and flooding, and iii. no impacts on biodiversity, soil and water, and heritage items beyond those already approved under other terms of this approval.	Section 21
A20	Boundary screening must be erected around all ancillary facilities that are adjacent to sensitive receivers for the duration of Construction of the CSSI unless otherwise agreed with relevant council(s), and affected residents, business operators or landowners.	Section 21
A21	Boundary screening required under Condition A20 of this approval must minimise visual, noise and air quality impacts on adjacent sensitive receivers.	Section 21
A22	Work must not commence until an ER has been approved by the Planning Secretary and engaged by the Proponent.	Section 7
A23	The Planning Secretary's approval of an ER must be sought no later than one (1) month before the commencement of Work.	Section 7

A24	The proposed ER must be a suitably qualified and experienced person who was not involved in the preparation of the EIS, SPIR or Submissions Report and is independent from the design and construction personnel for the CSSI and those involved in the delivery of it.	Section 7
A26	For the duration of the Work until the commencement of Operation, or as agreed with the Planning Secretary, the approved **ER** must: a) receive and respond to communication from the Planning Secretary in relation to the environmental performance of the CSSI; b) consider and inform the Planning Secretary on matters specified in the terms of this approval; c) consider and recommend to the Proponent any improvements that may be made to work practices to avoid or minimise adverse impact to the environment and to the community; d) review documents identified in **Conditions C1, C3** and **C8** and any other documents that are identified by the Planning Secretary, to ensure they are consistent with requirements in or under this approval and if so: i. make a written statement to this effect before submission of such documents to the Planning Secretary (if those documents are required to be approved by the Planning Secretary), or ii. make a written statement to this effect before the implementation of such documents (if those documents are required to be submitted to the Planning Secretary for information or are not required to be submitted to the Secretary); e) regularly monitor the implementation of the documents listed in **Conditions C1, C3** and **C8** to ensure implementation is being carried out in accordance with the document and the terms of this approval; f) as may be requested by the Planning Secretary, help plan, attend or undertake audits of the development commissioned by the Department including scoping audits, programming audits, briefings and site visits, but not independent environmental audits required under **Condition A34** of this approval; g) as may be requested by the Planning Secretary, assist the Department in the resolution of community complaints; h) assess the impacts of minor ancillary facilities as required by **Condition A19** of this approval; **i)** consider any minor amendments to be made to the documents listed in **Conditions C1, C3** and **C8** and any document that requires the approval of the Planning Secretary that comprise updating or are of an administrative or minor nature and are consistent with the terms of this approval and the documents listed in **Conditions C1, C3** and **C8** or other documents approved by the Planning Secretary and, if satisfied such amendment is necessary, approve the amendment. This does not include any modifications to the terms of this approval; and j) prepare and submit to the Planning Secretary and other relevant regulatory agencies, for information, an Environmental Representative Monthly Report detailing the **ER's** actions and decisions on matters for which the ER was responsible in the preceding month. The k) Environmental Representative Monthly Report must be submitted within seven (7) days following the end of each month for the duration of the **ER's** engagement for the CSSI.	Section 7
A29	Before the commencement of Construction, a Compliance Monitoring and Reporting Program must be prepared, endorsed by the ER and submitted to the Planning Secretary for information.	Section 16
A30	Compliance reports of the CSSI must be carried out for the duration of Construction and for a minimum of one (1) year following commencement of Operation. The Department must be notified of the commencement dates of Construction and Operation of the CSSI in the pre-Construction and pre-Operational compliance reports (respectively).	Section 16

A31	The **Construction Compliance Report** must provide details of any review of, and minor amendments made to, the **CEMP** (which must be approved by the **ER),** resulting from Construction carried out during the reporting period.	Section 16
A32	The **Compliance Monitoring and Reporting Program** in the form required under **Condition A29** of this approval must be implemented for the duration of Construction and for a minimum of one (1) year following commencement of Operation, or for a longer period as determined by the Planning Secretary based on the outcomes of independent audits, **Environmental Representative Reports** and regular compliance reviews submitted through **Compliance Reports.** If staged Operation is proposed, or Operation is commenced of part of the CSSI, the **Compliance Monitoring and Reporting Program** must be implemented for the relevant period of each stage or part of the CSSI.	Section 16
A33	No later than one (1) month before the commencement of Construction an Independent Audit Program prepared in accordance with AS/NZS ISO 19011:2014 – Guidelines for Auditing Management Systems must be submitted to the Planning Secretary.	Section 18
A34	Independent audits of the CSSI must be carried out in accordance with: a) the Independent Audit Program submitted to the Planning Secretary under Condition A33 of this approval and Independent Audit Reports prepared.	Section 18
A35	The Proponent must: a) review and respond to each Independent Audit Report prepared under Condition A34 of this approval; and b) submit the response to the Planning Secretary within six (6) weeks of completing the audit.	Section 18
A36	The Department must be notified in writing to compliance@planning.nsw.gov.au immediately after the Proponent becomes aware of an incident. The notification must identify the CSSI (including the application number and the name of the CSSI if it has one) and set out the location and nature of the incident.	Section 17
A37	Subsequent notification must be given, and reports submitted in accordance with the requirements set out in **Appendix A**	Section 17
C1	A Construction Environmental Management Plan (CEMP) must be prepared in accordance with the Construction Environmental Management Framework (CEMF) included in the documents listed in Condition A1 to detail how the performance outcomes, commitments and mitigation measures specified in the documents listed in Condition A1 will be implemented and achieved during Construction.	This document fulfils the requirements of the Project CEMP. The SMEW Compliance Matrix tracks these requirements.
C2	The CEMP must 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.	Section 18.1
	The CEMP Sub-plans must be prepared in consultation with the relevant government agencies identified for each CEMP Sub-plan and be consistent with the CEMF and CEMP referred to in Condition C1:	Consultation with the relevant government agencies has occurred in accordance with the Consultation Matrix as shown in Appendix 12. *Note: in accordance with the Sydney Metro City & Southwest - Sydenham to Bankstown Staging Report and Waste and Spoil Management Plan is not required. Waste and Spoil is addressed within a procedure, Refer to Appendix 4.

ID	Consultation required for CEMP subplans	Relevant Government Agencies to be consulted for CEMP subplans
a)	Noise and Vibration	Relevant Council(s)
b)	Soil and Water	Relevant council(s), DoI, OEH
c)	*Waste and Spoil	Relevant council(s)
d)	Heritage	Heritage Council (or its delegate) and relevant council(s)

<table>
<tr><td>C4</td><td>The CEMP Sub-plans must be prepared in accordance with the CEMF.</td><td>Refer to Construction Noise and Vibration Management Plan and Construction Soil and Water Management Plan</td></tr>
<tr><td>C5</td><td>Details of all information requested by an agency to be included in a CEMP Sub-plan as a result of consultation, including copies of all correspondence from those agencies, must be provided with the relevant CEMP Sub-Plan</td><td>Refer to Construction Noise and Vibration Management Plan and Construction Soil and Water Management Plan
Appendix 12</td></tr>
<tr><td>C6</td><td>Any of the CEMP Sub-plans may be submitted along with, or subsequent to, the submission of the CEMP but in any event, no later than one (1) month before Construction.</td><td>Section 8.1</td></tr>
<tr><td>C7</td><td>Construction must not commence until the CEMP and all CEMP Sub-plans have been approved by the Planning Secretary. The CEMP and CEMP Sub-plans, as approved by the Planning Secretary, including any minor amendments approved by the ER must be implemented for the duration of Construction. Where Construction of the CSSI is staged, Construction of a stage must not commence until the CEMP and CEMP Sub-plans for that stage have been approved by the Planning Secretary</td><td>Section 8.1</td></tr>
<tr><td>C8</td><td>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 the CSSI against the predicted performance.
<table>
<tr><th>ID</th><th>Consultation required for Construction Monitoring Programs</th><th>Relevant Government Agencies to be consulted for Construction Monitoring Programs</th></tr>
<tr><td>a)</td><td>Noise and Vibration</td><td>Relevant Council(s)</td></tr>
<tr><td>b)</td><td>Water Quality</td><td>Relevant council(s)</td></tr>
</table></td><td>Refer to Construction Noise and Vibration Management Plan and Construction Soil and Water Management Plan</td></tr>
<tr><td>C9</td><td>Each Construction Monitoring Program must provide:
i) details of baseline data available;
j) details of baseline data to be obtained and when;
k) details of all monitoring of the project to be undertaken;
l) the parameters of the project to be monitored;
m) the frequency of monitoring to be undertaken;
n) the location of monitoring;
o) the reporting of monitoring results;
p) procedures to identify and implement additional mitigation measures where results of monitoring are unsatisfactory; and
(i) any consultation to be undertaken in relation to the monitoring programs.</td><td>Refer to Construction Noise and Vibration Management Plan and Construction Soil and Water Management Plan
Appendix 12</td></tr>
<tr><td>C10</td><td>The Construction Monitoring Programs must be developed in consultation with relevant government agencies as identified in Condition C8 of this approval and must include reasonable information requested by an agency to be included in a Construction Monitoring Programs during such consultation. Details of all information requested by an agency including copies of all correspondence from those agencies, must be provided with the relevant Construction Monitoring Program.</td><td>Refer to Construction Noise and Vibration Management Plan and Construction Soil and Water Management Plan
Appendix 12</td></tr>
<tr><td>C11</td><td>The Construction Monitoring Programs 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.</td><td>Refer to Construction Noise and Vibration Management Plan and Construction Soil and Water Management Plan</td></tr>
</table>

C12	Construction must not commence until the Planning Secretary has approved all of the required Construction Monitoring Programs.	Refer to Construction Noise and Vibration Management Plan and Construction Soil and Water Management Plan
C13	The Construction Monitoring Programs, as approved by the Planning Secretary 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.	Refer to Construction Noise and Vibration Management Plan and Construction Soil and Water Management Plan
C14	The results of the Construction Monitoring Programs 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 Construction Monitoring Program.	Refer to Construction Noise and Vibration Management Plan and Construction Soil and Water Management Plan
C15	Where a relevant CEMP Sub-plan exists, the relevant Construction Monitoring Program may be incorporated into that CEMP Sub-plan.	Refer to Construction Noise and Vibration Management Plan and Construction Soil and Water Management Plan

Table 11 - CEMF Compliance

Clause	Requirement	Reference
1.3	Transport for NSW (TfNSW) has developed an Environment and Sustainability Policy (Appendix A) for Sydney Metro Delivery Office (SMDO). Principal Contractors will be required to undertake their works in accordance with this policy. The policy reflects a commitment in the delivery of the project to: • Align with, and support, Transport for NSW (TfNSW) Environment & Sustainability Policy. • Optimise sustainability outcomes, transport service quality, and cost effectiveness. • Develop effective and appropriate responses to the challenges of climate change, carbon management, resource and waste management, land use integration, customer and community expectation, and heritage and biodiversity conservation. • Be environmentally responsible, by avoiding pollution, enhancing the natural environment and reducing the project ecological footprint, while complying with all applicable environmental laws, regulations and statutory obligations. • Be socially responsible by delivering a workforce legacy which benefits individuals, communities, the project and industry, and is achieved through collaboration and partnerships.	Appendix 11
2	The key environmental obligations to be addressed are contained within: • Legislative requirements. • Project approval documentation. • Conditions of Approval. • Environment Protection Licences. • Other permits, approval and licences. • Standards and guidelines.	Section 8 Appendix 2

2.1	Table 1.1 (of the CEMF) identifies key NSW environmental legislative requirements and their application to SM C&SW construction works, current as at the date of this document. TfNSW and its Contractors should regularly review their legislative requirements	Section 8 Appendix 2 Appendix 14
2.2	Sydney Metro Northwest is classified as Critical State Significant Infrastructure and was approved under the following in accordance with Section 115W of the Environmental Protection and Assessment Act 1997: • Staged State Infrastructure Approval (1 October 2011, modified on 25 September 2012) • Stage 1 – Major Civil Construction Works (25 September 2012, modified on 18 April 2013) • Stage 2 – Stations, Rail Infrastructure and Systems (8 May 2013, modified on 20 May 2014). Some components of Sydney Metro Northwest (such as the conversion of the Epping to Chatswood component of the project) have also been approved under Part 5 of the Environmental Protection and Assessment Act. in which case TfNSW is the consent authority. Sydney Metro City and Southwest is also classified as Critical State Significant Infrastructure and requires approval from a consent authority under the requirements of the Environmental Protection and Assessment Act 1997 (Section 115W). Two separate approvals will be sought: • Sydney Metro City and Southwest – Chatswood to Sydenham • Sydney Metro City and Southwest - Sydenham to Bankstown The requirements of the approval are required to be complied with by TfNSW. Responsibility for implementing mitigation measures and conditions of approval will be allocated between TfNSW and Principal Contractors as appropriate. Typically TfNSW will produce a Staging Report which sets out the applicability and allocation of approval requirements within the project's program of works.	Section 1 Section 8 Appendix 2 Appendix 14
2.3	Sydney Metro projects often meet the definition of a number of scheduled activities under Schedule 1 of the Protection of the Environmental Operation Act 1997 (POEO Act) and as such our contractors may be required to obtain an Environment Protection Licence (EPL) or work under the existing EPL held by Sydney Trains. Where required, Sydney Metro Principal Contractors will: a. Apply for and be granted an EPL from the EPA. b. Hold an EPL which covers their scope of works as necessary under the POEO Act. c. Undertake their scope of works in accordance with the conditions of the applicable EPLs as issued by the EPA. d. Work under the existing Sydney Trains EPL.	Section 8
2.4	Numerous environmental publications, standards, codes of practice and guidelines are relevant to TfNSW construction and are referenced throughout this Construction Environmental Management Framework. A summary of these applicable standards and guidelines is provided below: • ISO14001 Environmental Management System – Requirements with Guidelines for Use • Interim Construction Noise Guidelines (Department of Environment and Climate Change, 2009) • Managing Urban Stormwater: Soil and Construction (Landcom, 2008) AS4282:1997 Control of the Obtrusive Effect of Outdoor Lighting • Waste Classification Guidelines (Department of Environment, Climate Change and Water, 2008) • AS 1742.3 Manual of uniform traffic control devices Part 3: Traffic control for works on roads • RMS Traffic Control at Worksites Manual • Australian and New Zealand Guidelines for Fresh and Marine Water Quality	Section 6 Section 8 Appendix 2 Specific sub-plans

3.1(a)	Principal Contractors are required to have a corporate Environmental Management System certified under AS/NZS ISO 14001:2004 and to have transitioned this accreditation into AS/NZS ISO 14001:2015 by September 2018.	Section 4
3.1(b)	Principal Contractors are required to develop a project based Environment and Sustainability Management System (E&SMS). The E&SMS will: (i) Be consistent with the Principle Contractors corporate Environmental Management System and AS/NZS ISO 14001:2004 or 2015; (ii) Be supported by a process for identifying and responding to changing legislative or other requirements; (iii) Include processes for assessing design or construction methodology changes for consistency against the planning approvals; (iv) Include processes for tracking and reporting performance against sustainability and compliance targets; (v) Include a procedure for the identification and management of project specific environmental risks and appropriate control measures; and (vi) Be consistent with the SM C&SW Sustainability Strategy and Sydney Metro Environment and Sustainability Policy	This Plan
3.1(c)	All sub-contractors engaged by the Principal Contractor will be required to work under the Principal Contractor's E&SMS.	Section 4
3.1(d)	The relationship between key documents within the Sydney Metro Environment and Sustainability Management System and the Principal Contractor's Environment and Sustainability Management System is shown in Figure 2 (of the CEMF).	This Plan
3.1(e)	The Principal Contractors Sustainability Plan and its sub plans will capture governance and design requirements as well as social sustainability initiatives as required by the Sydney Metro Sustainability Strategies.	Refer to Sustainability Management Plan
3.1(f)	These plans vary in scope across different delivery packages.	Noted.
3.3 (a)	Principal Contractors are required to prepare and implement a Construction Environmental Management Plan (CEMP) relevant to the scale and nature of their scope of works. The CEMP shall comprise of a main CEMP document, issue specific sub plans, activity specific procedures and site based control maps. The CEMP shall illustrate the relationship between other plans required by the contract, in particular those that relate to design management	This Plan
3.3 (b)	Depending on the scope and scale of the works, TfNSW may decide to streamline the CEMP and sub-plan requirements. For example, depending on the risk associated with particular environmental issues it may be appropriate to remove the need for a sub plan, or replace with a procedure as part of the CEMP.	Refer to the Sydenham to Bankstown Staging Report
3.3 (c)	The CEMP will cover the requirements of the relevant planning approval documentation, the conditions of all other permits and licences, the Principal Contractor's corporate EMS, the environmental provisions of the contract documentation and this Construction Environmental Management Framework.	Section 1 Section 8 Appendix 14
3.3 (d)	As a minimum the CEMP will:	
(i)	Include a contract specific environmental policy;	Section 5
(ii)	Include a description of activities to be undertaken during construction	Section 2
(iii)	For each plan under the CEMP include a matrix of the relevant Conditions of Approval or Consent referencing where each requirement is addressed	Refer to the relevant sub plan
(iv)	For each plan under the CEMP, set objectives and targets, and identify measureable key performance indicators in relation to these;	Refer to the relevant sub plan Section 6

(v)	For each role that has environmental accountabilities or responsibilities, including key personnel, provide a tabulated description of the authority and roles of key personnel, lines of responsibility and communication, minimum skill level requirements and their interface with overall project organisation structure;	Section 7 Appendix 10
(vi)	Assign the responsibility for the implementation of the CEMP to the Environment Manager, who will have appropriate experience. The Principle Contractor's Project Director will be accountable for the implementation of the CEMP;	Section 7
(vii)	Identify communication requirements, including liaison with stakeholders and the community	Section 8 Section 11 Section 17
(viii)	Include induction and training requirements and a summary of the Training Needs Analysis required in Section 3.9(b)	Section 10
(ix)	Management strategies for environmental compliance and review of the performance of environmental controls;	Section 14 Section 16 Section 17 Section 19
(x)	Processes and methodologies for surveillance and monitoring, auditing and review, and reporting on environmental performance including environmental compliance tracking;	Section 14 Section 16 Section 18 Section 20
(xi)	Include procedures for emergency and incident management, non-compliance management, and corrective and preventative action; and	Section 17 Appendix 1 Appendix 6
(xii)	Include procedures for the control of environmental records.	Section 12 Section 13
3.3 (e)	The CEMP and associated sub-plans will be reviewed by TfNSW and/or an independent environmental representative (see Section 3.11) prior to any construction works commencing. Depending on the Conditions of Approval, the CEMP and certain sub-plans may also require the approval of the Department of Planning and Environment (DPI&E).	Section 3 Section 8
3.3 (f)	Where a corresponding systems document exists within the Sydney Metro Integrated Management System, the Principal Contractor's procedures will be required to be consistent with any requirements in those documents.	This plan and supporting documents have been written to meet the Sydney Metro project requirements. Furthermore Southwest Metro Enabling Works will utilise any Sydney Metro forms or systems documentation to facilitate works approval.

3.4(a)	Subject to Section 3.3(b) and Section 3.2(b) the Principle Contractor will prepare issue-specific environmental sub plans to the CEMP and SMP which address each of the relevant environmental impacts at a particular site or stage of the project. Issue specific sub plans will include: (i) Spoil management; (ii) Groundwater management; (iii) Traffic and transport; (iv) Noise and vibration management; (v) Heritage management; (vi) Flora and fauna management; (vii) Visual amenity management; (viii) Carbon and energy management; (ix) Materials management; (x) Soil and water management; (xi) Air quality management; and (xii) Waste management and recycling.	Refer to Staging Report and specific sub-plans
3.5(a)	The principle Contractor will prepare and implement activity specific environmental procedures. These procedures should support environmental management sub plans, but may substitute for sub plans in agreement with TfNSW if a reasonable risk based justification can be made and the sub plans in agreement with TfNSW if a reasonable risk based justification can be made and the sub plan is not a requirement of any approval.	Appendix 4
3.5(b)	The procedures will include; (i) A breakdown of the work tasks relevant to the specific activity and indicate responsibility for each task; (ii) Potential impacts associated with each task; (iii) A risk rating for each of the identified potential impacts; (iv) Mitigation measures relevant to each of the work tasks; and (v) Responsibility to ensure the implementation of the mitigation measures	Appendix 4
3.5(c)	The Principal Contractor will prepare and implement site based progressive Environmental Control Maps (ECM's) which as a minimum: (i) Is a progressive document depicting a current representation of the site; (ii) Indicates which environmental procedures, environmental approvals, or licences are applicable; (iii) Illustrates the site showing significant structures, work areas and boundaries; (iv) Illustrates environmental control measures and environmentally sensitive receivers; (v) Is endorsed by the Principal Contractors Environmental Manager or delegate; and (vi) Relevant workers will be trained in the requirements of and will sign off the procedures prior to commencing works on the specific site and / or activity.	Appendix 5

3.6(a)	Where the requirement for an additional environmental assessment is identified, this will be undertaken prior to undertaking any physical works. The environmental assessment will include: (i) A description of the existing surrounding environment; (ii) Details of the ancillary works and construction activities required to be carried out including the hours of works; (iii) An assessment of the environmental impacts of the works, including, but not necessarily limited to, traffic, noise and vibration, air quality, soil and water, ecology and heritage; (iv) Details of mitigation measures and monitoring specific to the works that would be implemented to minimise environmental impacts; and (v) Identification of the timing for completion of the construction works, and how the sites would be reinstated (including any necessary rehabilitation).	Section 14
3.7(a)	Prior to the commencement of construction the Principal Contractors will offer Pre-construction Building Condition Surveys, in writing, to the owners of buildings where there is a potential for construction activities to cause cosmetic or structural damage. If accepted, the Principal Contractor will produce a comprehensive written and photographic condition report produced by an appropriate professional prior to relevant works commencing.	Refer to sub-plan Construction Noise and Vibration Management Plan. Also refer to Construction Noise and Vibration Impact Assessment.
3.7 (b)	Prior to the commencement of construction the Principal Contractor will prepare a Road Dilapidation Report for all local public roads proposed to be used by heavy vehicles.	Refer to Construction Traffic Management Plan and Business Management Plan
3.8(a)	Principal Contractors will identify hold points, beyond which approval is required to proceed with a certain activity. Example activities include vegetation removal and water discharge. Hold points will be documented in relevant CEMPs	Section 14
3.8(b)	Table 1.4 (of the CEMF) provides the structure for the register of hold points as well as a preliminary list of hold points which will be implemented.	Section 14
3.9(a)	Principal Contractors will be responsible for determining the training needs of their personnel. As a minimum this will include site induction, regular toolbox talks and topic specific environmental training as follows: i. The site induction will be provided to all site personnel and will include, as a minimum: • Training purpose, objectives and key issues; • Contractor's environmental policy and key performance indicators; • Due diligence, duty of care and responsibilities; • Relevant conditions of any environmental licence and/or the relevant conditions of approval; • Site specific issues and controls including those described in the environmental procedures; • Reporting procedure for environmental hazards and incidents; • Communication protocols. ii. Toolbox talks will be held on a regular basis in order to provide a project or site wide update, including any key or recurring environmental issues; and iii. Topic specific environmental training, e.g. erosion and sediment control training will be undertaken for relevant site personnel as determined by the Principal Contractor	Section 10

3.9(b)	Principal Contractors will conduct a Training Needs Analysis which: i. Identifies that all staff are to receive an environmental induction and undertake environmental incident management training ii. Identifies the competency requirements of staff that hold environmental roles and responsibilities documented within the Construction Environmental Management Plan and sub-plans iii. Identifies appropriate training courses/events and the frequency of training to achieve and/or maintain these competency requirements iv. Implements and documents as part of the CEMP a training schedule that plans attendance at environmental training events, provides mechanisms to notify staff of their training requirements, and identifies staff who do not attend scheduled training events or who have overdue training requirements	Section 10
3.10(a)	Principal Contractors will develop and implement a Pollution Incident Response Management Plan, in accordance with the requirements of the POEO Act. Contractors' emergency and incident response procedures will also be consistent with any relevant SMDO procedures and will include: i. Categories for environmental emergencies and incidents ii. Notification protocols for each category of environmental emergency or incident, including notification of TfNSW 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 the EPA) 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 the EPA, DPI&E or OEH that are made by the Contractor or TfNSW.	Section 15 Section 16 Section 17 Appendix 1 Appendix 6 Appendix 16
3.10(b)	The Contractor will make all personnel aware of the plan and their responsibilities.	Section 10
3.11(a)	Independent Environmental Representatives a. TfNSW will engage Independent Environmental Representatives (ERs) to undertake the following, along with any additional roles as required: i. Review, provide comment on and endorse (where required) any relevant environmental documentation to verify it is prepared in accordance with relevant environmental legislation, planning approval conditions, relevant standards and this CEMF. ii. Monitor and report on the implementation and performance of the above mentioned documentation and other relevant documentation. iii. Provide independent guidance and advice to TfNSW and the Contractors in relation to environmental compliance issues and the interpretation of planning approval conditions. iv. Be the principal point of advice for the DPI&E in relation to all questions and complaints concerning the environmental performance of the project. v. Ensure that environmental auditing is undertaken in accordance with all relevant project requirements. vi. Recommend reasonable steps, including 'stop works', to be taken to avoid or minimise adverse environmental impacts.	Section 7

3.12(a)	In relation to Roles and Responsibilities the CEMP will: i. Describe the relationship between the Principal Contractor, TfNSW, key regulatory stakeholders, the independent environmental representative and the independent certifier ii. For each role that has environmental accountabilities or responsibilities, including key personnel, provide a tabulated description of the authority and roles of key personnel, lines of responsibility and communication, minimum skill level requirements and their interface with the overall project organisation structure iii. Provide details of each specialist environment, sustainability or planning consultant who is employed by the Principal Contractor including the scope of their work iv. Provide an overview of the role and responsibilities of the Independent Environmental Representative, the Independent Certifier and other regulatory stakeholders.	Section 7
3.12(b)	All sub-contractors engaged by the Principal Contractor will be required to operate within the EMS documentation of that Principal Contractor	Section 4
3.13(a)	Issue specific environmental monitoring will be undertaken as required or as additionally required by approval, permit or licence conditions	Refer to relevant sub-plans
3.13(b)	The results of any monitoring undertaken as a requirement of the EPL will be published on the Principal Contractor's, or a project specific, website within 14 days of obtaining the results	Section 16
3.13(c)	Environmental inspections will include: i. Surveillance of environmental mitigation measures by the Site Foreman. ii. Periodic inspections by the Principal Contractor's Environmental Manager (or delegate) to verify the adequacy of all environmental mitigation measures. This will be documented in a formal inspection record.	Section 16
3.13(d)	Regular site inspections by the ERs and TfNSW representatives at a frequency to be agreed with the Principal Contractor	Section 16
3.13(e)	Principal Contractors will be required to undertake internal environmental audits. Internal audits will include: i. Compliance with approval, permit and licence conditions. ii. Compliance with the E&SMS, CEMP, SMP, sub-plans and procedures. iii. Community consultation and complaint response. iv. Environmental training records. v. Environmental monitoring and inspection results	Section 18
3.13(f)	TfNSW (or an independent environmental auditor) will also undertake periodic audits of the Principal Contractor's E&SMS and compliance with the environmental aspects of contract documentation, including this Construction Environmental Management Framework.	Section 18
3.14(a)	Environmental Non-compliances Principal Contractors will document and detail any non-compliances arising out of the above monitoring, inspections and audits. TfNSW will be made aware of all on-compliances in a timely manner	Section 17
3.14(b)	Principal Contractors will develop and implement corrective actions to rectify the non-compliances and preventative actions in order to prevent the re-occurrence of the non-compliance. Contractors will also maintain a register non compliances, corrective actions and preventative actions	Section 17
3.14(c)	TfNSW or the Environmental Representative may raise non-compliances against environmental requirement	Section 17

3.15(a)	Principal Contractors will maintain appropriate records of the following: i. Site inspections, audits, monitoring, reviews or remedial actions. ii. Documentation as required by performance conditions, approvals, licences and legislation. iii. Modifications to site environmental documentation (e.g. CEMP, sub-plans and procedures). iv. Other records as required by this Construction Environmental Management Framework	Section 12
3.15(b)	Records will be retained onsite for the duration of works	Section 12
3.15(c)	Additionally records will be retained by the Principal Contractor for a period of no less than 7 years in total. Records will be made available in a timely manner to TfNSW (or their representative) upon request	Section 12 Section 13
3.15(d)	Compliance reports detailing the outcome of any environmental surveillance activity including internal and external audits (refer to Section 3.13) will be produced by the Principal Contractors Environmental Manager or delegate. These reports will be submitted to TfNSW at an agreed frequency	Section 7 Section 12
3.16(a)	Principal Contractors will ensure the continual review and improvement of the E&SMS. This will generally occur in response to: i. Issues raised during environmental surveillance and monitoring ii. Expanded scope of works iii. Environmental incidents iv. Environmental non-conformances.	Section 4 Section 19
3.16(b)	A formal review of the E&SMS by the Principal Contractor's Senior Management Team will also occur on an annual basis, as a minimum. This review will generate actions for the continual improvement of the E&SMS and supporting management plans.	Section 19
5.1(a)	Standard working hours are between 7am – 6pm on weekdays and 8am – 1pm on Saturdays.	Section 2.5
5.1(b)	Works which can be undertaken outside of standard construction hours without any further approval include: i. Those which have been described in respective environmental assessments as being required to take place 24/7. For example, tunnelling and underground excavations and supporting activities will be required 24/7 ii. Works which are determined to comply with the relevant Noise Management Level at sensitive receivers iii. The delivery of materials outside of approved hours as required by the Police or other authorities (including RMS) for safety reasons iv. Where it is required to avoid the loss of lives, property and / or to prevent environmental harm in an emergency v. Where written agreement is reached with all affected receivers.	Section 2.5
5.1(c)	Principal Contractors may apply for EPA approval to undertake works outside of normal working hours under their respective Environment Protection Licences	Section 2.5
5.2(a)	Principal Contractors will consider the following in the layout of construction sites: i. The location of noise intensive works and 24 hour activities in relation to noise sensitive receivers ii. The location of site access and egress points in relation to noise and light sensitive receivers, especially for sites proposed to be utilised 24 hours per day iii. The use of site buildings to shield noisy activities from receivers iv. The use of noise barriers and / or acoustic sheds where feasible and reasonable for sites proposed to be regularly used outside of daytime hours v. Aim to minimise the requirement for reversing, especially of heavy vehicles.	Section 21 Refer to the CNVMP for details on noise attenuation
5.3(a)	Mitigation measures for reinstatement will be produced in consultation with TfNSW, the community and stakeholders.	Section 21

5.3(b)	Mitigation measures required for reinstatement will be incorporated into the CEMP and will include as a minimum: i. Principal Contractors will clear and clean all working areas and accesses at project completion ii. At the completion of construction all plant, temporary buildings or vehicles not required for the subsequent stage of construction will be removed from the site iii. All land, including roadways, footpaths, loading facilities or other land having been occupied temporarily will be returned to their pre-existing condition or better iv. Reinstatement of community spaces, infrastructure and services will occur as soon as possible after completion of construction.	Section 21

Table 12 REMM Compliance

LV4	The management of trees during detailed design and construction planning would be guided by the project's Tree Management Strategy, which would be developed in consultation with councils and include consideration of relevant local plans and strategies. Where removal cannot be avoided, trees would be replaced in accordance with the Tree Management Strategy, including replacement of removed trees in a two for one ratio. Opportunities to retain and protect existing trees would be defined during detailed design and construction planning, in accordance with the project's Tree Management Strategy. The design would aim to reduce tree removal to the extent practicable, particularly where they contribute to screening vegetation or landscape character.	Section 21
LV12	Trees to be retained would be protected prior to the commencement of construction in accordance with AS4970-2009 Protection of trees on development sites and the project's Tree Management Strategy. Any tree pruning would be undertaken in accordance with the project's Tree Management Strategy, guided by a tree report prepared by a qualified arborist.	Section 21
B1	Detailed design and construction planning would avoid direct impacts to vegetation mapped as threatened ecological communities or native plant community types, specifically Downy Wattle Turpentine - Grey Ironbark open forest on shale, Degraded Turpentine - Grey Ironbark open forest on shale and Broad-leaved Ironbark – Grey Box.	Appendix 3 Appendix 4
B2	Pre-clearing surveys and inspections for endangered and threatened flora and fauna species would be undertaken by qualified ecologists prior to any clearing occurring. The surveys and inspections, and any subsequent relocation of species, would be undertaken in accordance with the measures provided in the biodiversity assessment report.	Appendix 3 Appendix 4
B3	Areas of biodiversity value outside the project area would be marked on plans, and fenced or signposted where practicable, to prevent unnecessary disturbance.	Appendix 3 Appendix 4
B4	Impacts to Downy Wattle Turpentine - Grey Ironbark open forest on shale, Degraded Turpentine – Grey Ironbark open forest on shale and Broad-leaved Ironbark – Grey Box would be avoided. The locations of these species and communities would be marked on plans, fenced on site, and avoided.	Appendix 3 Appendix 4
B5	Equipment storage and stockpiling would be restricted to identified compound sites and already cleared land.	Appendix 3 Appendix 4
B6	A trained ecologist would be present during the clearing of native vegetation or removal of potential fauna habitat to avoid impacts on resident fauna and to salvage habitat resources as far as is practicable.	Appendix 3 Appendix 4
B7	Priority weeds would be managed in accordance with the Biosecurity Act 2015. Weeds of national environmental significance would be managed in accordance with the Weeds of National Significance Weed Management Guide.	Appendix 3 Appendix 4
HSR1	A hazard analysis would be undertaken during the detailed design stage to identify risks to public safety from the project, and how these can be mitigated through safety in design.	Section 14.4
HRS3	All utilities adjustments or relocation would be undertaken in accordance with the Utilities Management Framework	Appendix 3
HRS4	All hazardous substances that may be required for construction and operation would be stored and managed in accordance with the Storage and Handling of Dangerous Goods Code of Practice (WorkCover NSW, 2005) and the Hazardous and Offensive Development Application Guidelines: Applying SEPP 33 (Department of Planning, 2011).	Appendix 3 Appendix 4

Table 13 PIR Revised Environmental Performance Outcomes relevant to the CEMP

Biodiversity	The preferred project is designed to minimise impacts on biodiversity and avoid impacts to biodiversity that requires offsets. Where practical, the design minimises the need to clear vegetation. Potential impacts on biodiversity are managed in accordance with relevant legislation, including the EP&A Act, TSC Act, EPBC Act, and the *Biosecurity Act 2015.* The biodiversity outcome is consistent with the *Framework for Biodiversity Assessment* (OEH, 2014a).	Appendix 4 - Operational Control Procedures – ERAP 1 Biodiversity
Utilities	Impacts to utilities during construction are minimised. The design takes into account the input of utility providers and owners.	Appendix 3

*Note: refer to CEMP sub-plans for performance outcomes that relate to the environmental aspects associated with the specific sub-plan.

APPENDIX 15 – Environmental Schedules

This appendix contains the relevant project environmental schedules. It is noted that the attached schedules are indicative only and may be updated over the course of the project to improve environmental outcomes.

The Following schedules are included;

- Environmental Inspection Report
- Management HSE Inspection Report
- Sydney Metro City & Southwest Environmental Reporting Template
- Sydney Metro Water Reuse or Discharge Form
- Non Conformance Report
- Environmental Incident and Complaint Report
- Noise Monitoring Form
- Vibration Monitoring Form
- Water Monitoring Form
- Environmental Training Register
- Waste Tracking Register

E-T-8-1227 ENVIRONMENTAL INSPECTION REPORT

CONTRACT/PROJECT No.:	WORK LOCATION:
DATE:	TIME:

A = ACCEPTABLE **AR = ACTION REQUIRED** **N/A = NOT ASSESSED**

No.	ITEM	CONFORMANCE			RISK CLASS	DESCRIPTION OF NON-COMPLIANCE/ CORRECTIVE ACTION	CORRECTIVE ACTION REQUIRED	RESPONSIBLE	TARGET DATE
		A	AR	NA					
GENERAL									
1	Are good house-keeping practices in place in Work Areas?								
2	Vehicles parked in designated parking zones?								
3									
4									
FIRE CONTROLS									
5	Hot works conducted under Permit?								
6	Any evidence of unapproved fires onsite or offsite along Project boundaries?								
7	Fire extinguishers/equipment available and maintained? (vehicles/work areas)								
DUST									
8	Are fugitive dust emissions travelling beyond Project boundaries?								
9	Are agreed dust control measures being implemented to minimise dust emissions (e.g. – sufficient number of watercarts, handling/transport of materials, application of dust suppressants etc.)?								
10									
11									
AIR POLLUTION									
12	Do excessive black smoke emissions from vehicles and equipment occur >20 seconds?								
13									
MAINTENANCE / EQUIPMENT / REFUELLING									
14	Are vehicles, equipment and plant being serviced on time and according to manufacturer specifications? Maintenance logs up to date & available to view?								
15	All gen-sets and diesel tanks are self contained or in 110% capacity bund with no evidence of water or litter pooling within?								
16	Are refuelling activities taking place at designated zones with spill kits, drip trays and fire extinguishers present?								
WASTE MANAGEMENT									
17	Sufficient waste receptacles available to segregate waste streams (e.g. oily rags, plastics, wood, steel, 'butt out bins') & are they close to work areas?								
18	Are waste streams being segregated into clearly labelled receptacles?								
19	Do all waste receptacles have appropriate lids and/or coverings?								
20	Any evidence of unreported leaks/spills (e.g. – sewerage overflows/leaks, hydrocarbon spills and vehicle wash-down areas and chemical storage areas)?								
21	Are concrete washout areas installed in agreed locations and are they being maintained and emptied?								
22									
23									
CHEMICAL MANAGEMENT AND SPILLS									
24	Are hazardous chemicals/liquids store inside a bund that satisfies the criteria - 110% of the max. storage or 10% of double skinned tank?								
25	Are spill kits (hydrocarbon and/or chemical) located within each Work Area and/or with major vehicles? Are they free from litter and water?								
26	Hazardous materials segregated (no incompatible materials together) and have correct signage, fire extinguishers, ventilation, correct containers & labels)?								
27									
28									
EROSION AND SEDIMENT CONTROL									
29	Are Erosion Control Structures (ESCs) installed as per the current ESCP?								
30	Are all controls being installed correctly and maintained and have a minimum of 75% capacity?								
31	Is there evidence of erosion/sedimentation or surface water discharge occurring external to the Project Footprint?								
32	Are sediment basins of adequate size and constructed so that all water on-site is draining to them?								
33	Is there evidence of sedment tracking on external public roads?								

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Environment Inspection

No.	ITEM	CONFORMANCE A	CONFORMANCE AR	CONFORMANCE NA	RISK CLASS	DESCRIPTION OF NON-COMPLIANCE/ CORRECTIVE ACTION	CORRECTIVE ACTION REQUIRED	RESPONSIBLE	TARGET DATE
34	Is the ESCP up to date for the scope of works and catchment areas?								
35	Clean water diverted to approved locations and dirty/contaminated water contained? No evidence of contaminated water leaving site?								
36									
WATER QUALITY AND MANAGEMENT									
37	Collected water treated and tested prior to discharge offsite?								
38									
39									
FLORA / VEGETATION / WEEDS									
40	Do vehicles have Weed-free Certificates and are Weed Inspection Logs up-to-date?								
41	Are works being carried out within approved cleared boundaries with no unapproved ground disturbance? (i.e. tracks/turning circles etc.)								
42	Is there evidence of adverse impacts to vegetation on-site and up to 5m around site, along Project roads or infrastructure footprints (e.g. - overspray from dust suppression activities, dust settlement, unauthorised clearing)?								
43	Topsoil/ Vegetation/ Weeds are segregated and sign posted?								
44	Physical vegetation protection measures (fencing, flagging tape etc) in place and maintained?								
45									
FAUNA PROTECTION									
46	Are fauna egress points installed in sediment basins and other excavations/trenches?								
47	Is there evidence of vehicular activity or unapproved activities in off-limit areas, known fauna habitats?								
48	During night works is lighting facing downwards and illuminating work areas only?								
49									
50									
NOISE / VIBRATION									
51	Equipment is located/directed away from sensitive areas and where suitable are fitted with sound insulation and/or vibration suppression devices?								
52									
53									
Cultural Heritage									
54	Physical protection measures (fencing, flagging tape etc) in place and maintained?								
55	Is there evidence of unapproved activities or damage to known curltural heritage areas?								
56									
57									
Contaminated land/PASS/ASS									
58	Contamination remediation being undertaken in accordance with approved plan?								
59	Physical controls for known contaminated areas in place and maintained?								
60	All PASS/ASS treatment pads and sumps, maintained as per required specifications?								
61									
VEHICLES AND TRAFFIC									
62	Are vehicles and equipment operating within the approved Project Footprint?								
63									
ADDITIONAL COMMENTS / REQUIRED ACTIONS:									

INSPECTION TEAM:	Risk Class	Environment
SIGNATURE(S):	0	Requirement Complies with system or criteria.

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Process	Document owner	Step	Gateways	Document type
Enabling Process	Project Team (Delivery)	2257 – Environmental Compliance	7 – 8	Template (T)

Environment Inspection

No.	ITEM	CONFORMANCE A	CONFORMANCE AR	CONFORMANCE NA	RISK CLASS	DESCRIPTION OF NON-COMPLIANCE/ CORRECTIVE ACTION	CORRECTIVE ACTION REQUIRED	RESPONSIBLE	TARGET DATE
Project Manager or Leader:					1	Major Noncompliance eg: Nil evidence of implementation, departure from documented system requirement, potential or pending failure leading to long term defect or immediate requirement for rectification or change of work method or construction details. Potential prosecution			
SIGNATURE:					2	Minor Noncompliance. Eg: Issues with system or criteria requirement establishment or implementation, potential failure leading to possible long term defect or review of work method or construction details.			
Note: This form MUST be signed and scanned as electronic copy and saved in the projects Environmental system folder (1430). Hard copy to remain in project file for no less than 12 months. All non-compliances must be uploaded into the Corrective Action Register (E-T-8-					3	Opportunity for Improvement (minor omissions, oversights, identification of recommendations to improve, etc)			

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Management Site Safety and Environment Inspection

PROJECT / LOCATION / CONTRACT NO:									
No.	Item	Evidence Sighted	Risk Class	Responsible	Exact Location	Description of Non Compliance	Action Taken	Close Out**	
								Immediate	Follow up
1.	Access / Egress-Clear / Designated								
2.	Amenities – Clean / Adequate								
3.	Edge protection								
4.	Electrical Equipment – Tagged / Safeguards, leads								
5.	Excavation – Barricades, access								
6.	Fire Hose Reels / Fire Extinguishers (including on plant & contractor owned) Charged & In Test Date								
7.	Hazardous Substances – quantity storage, risk assessment								
8.	Housekeeping / Rubbish Removal								
9.	Ladders – Condition / Usage								
10.	Lighting / Levels acceptable								
11.	Manual Handling								
12.	Noise Management								
13.	Penetrations – Protected, marked								
14.	Plant / Equipment –								

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Sydney Metro City & Southwest

Environmental Reporting Template

Contract:	
Instructions:	

Issues	**This month**	**To date**
Air quality issues raised		
Community, stakeholder and business issues raised		
Design issues raised		
Flora and fauna issues raised		
Heritage issues raised		
Management systems issues raised		
Nosie and vibration issues raised		
Soil and water issues raised		
Traffic transport and access issues raised		
Waste and spoil issues raised		

An Issue or Non-compliance with a CEMP requirement where the Issue or Non-compliance is relevant to multiple Sub-plans should be classified as Management Systems, for example:
• Failure to produce up to date Environmental Control Maps;
• Failure to deliver topic specific environmental training or toolbox talks; or
• Failure to maintain document control of environmental documentation.

An Issue or Non-compliance with a CEMP requirement where the Issue or Non-compliance is unique to the CEMP should be classified as Management Systems, for example:
• Failure to follow the incident management process;
• Failure to conduct regular Management Reviews of the EMS;
• Failure to communicate environmental issues internally; or
• Failure to maintain ISO 14001 certification.

An Issue or Non-compliance with a Sub-plan requirement where the Issue or Non-compliance is unique to that sub-plan should always be classified using the corresponding sub-plan category regardless of whether it could also be seen as a CEMP requirement, for example:
• Failure to maintain waste management records should be classified as Waste and Spoil;
• Failure to deliver topic specific Nosie and Vibration training should be classified as Nosie and Vibration;
• Failure to seeking approval to conduct works out of hours should be classified as Noise and Vibration; or
• clearing vegetation that is within a protected zone should be classified as Flora and Fauna.

Incidents	**This month**	**To date**
Number of Class 1 incident occurrences		
Number of Class 2 incident occurrences		
Number of Class 3 incident occurrences		
Non-compliances	**This month**	**To date**
Number of non-compliances raised		
Number of open non-compliances		
Corrective and Preventative Actions (Incidents and Non-compliances only)	**This month**	**To date**
Number of open Corrective Actions	0	0
Percentage and number of closed Corrective Actions	0	0
Environmental Audit Findings	**This month**	**To date**
Number of audit findings on Environmental Requirements which since the audit date have been open — >120 days		
Number of audit findings on Environmental Requirements which since the audit date have been open — between 120 and 60 days		
Number of audit findings on Environmental Requirements which since the audit date have been open — <60 days		
Number (and percentage) of open environmental audit findings closed in the month	[x(y%)]	
Environmental Protection Licence	**This month**	**To date**
Licence variations		
Emergency out of hours work (OOHW) events		
EPA Inspections		
Environmental Approvals	**This month**	**To date**
Consistency Assessments Determined by Sydney Metro		
Total ongoing Environmental Requirements		
Total Completed Environmental Requirements		
Environmental Training	**This month**	**To date**
Number of environmental training courses delivered		

Management Site Safety and Environment Inspection

PROJECT / LOCATION / CONTRACT NO:									
No.	Item	Evidence Sighted	Risk Class	Responsible	Exact Location	Description of Non Compliance	Action Taken	Close Out**	
								Immediate	Follow up
	daily pre-start, logbooks, OEM Manual, maintenance, operator quals. Damage, faults reported								
15.	PPE (Hard Hats / Boots / Hearing / Glasses, etc)								
16.	Public Protection – Fencing / intact / appropriate / Site Security								
17.	Scaffolding – Design documentation								
18.	Scaffolding (gaps, ties, braces, soleplates, mesh, signs, Handover Certificates)								
19.	Segregation – Vehicle / pedestrian / activity workforce								
20.	Signage								
21.	Traffic Control								
22.	Height work / Edge protection								
Other issues / activities									
23.									
24.									
25.									
26.									

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Management Site Safety and Environment Inspection

PROJECT / LOCATION / CONTRACT NO:									
No.	Item	Evidence Sighted	Risk Class	Responsible	Exact Location	Description of Non Compliance	Action Taken	Close Out**	
								Immediate	Follow up
27.									
ENVIRONMENTAL CONTROLS									
28.	Sediment controls								
29.	Water Quality								
30.	Waste Management								
31.	Noise / Vibration								
32.	Air Quality								
Other issues / activities									
33.									
34.									
35.									
36.									
37.									
38.									
Comment / Description or Additional Items:									
	NOTE: The checklist to be completed by the designated person in the H&S Plan and forwarded to the Project / Workplace Leader and H&S Advisor for review. **CLOSE OUT**** Items identified for "Follow up" are to be registered on the Project C-T-8-**0116** Corrective Action Request Register								
	Personnel/Subcontractors Involved:								

	Risk Class	H&S		Environment

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Management Site Safety and Environment Inspection

PROJECT / LOCATION / CONTRACT NO:									
No.	**Item**	**Evidence Sighted**	**Risk Class**	**Responsible**	**Exact Location**	**Description of Non Compliance**	**Action Taken**	**Close Out****	
								Immediate	**Follow up**
Inspection undertaken by: ……..…… Signature: …… Position: …… Date: …… Project/ Workplace Leader's Signature:……..……			0	Complies			Complies		
			1	Alters the future of an individual permanently, (risk of death or permanent disability.)			Permanent or long term damage to the environment. Damage will take 12 months or more to return to pre-existing conditions		
			2	Alters the future of an individual temporarily (risk of medical treatment.)			Short to medium term damage to the environment. Damage will take up to 12 months to return to pre-existing conditions		
			3	Does no more than inconvenience the person (1st Aid treatment,)			Easily rectified usually within one day. Class 3 incidents do not cause medium or long term damage.		
				DISTRIBUTION: Project/ Workplace Leader, Contract File			Refer: CHSP & EMP		

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Non-Conformance Report (NCR)

Always use the approved project collaboration system where available before using this hard copy system.

1. PROJECT DETAILS

NCR No.:

Contract Title: Contract No.:

Issued To: Attention:

Order/Sub. No.: ITP/ITR Ref.:

Specification: Drawing Ref.:

NCR raised by: Date:

2. DETAILS OF NONCONFORMANCE

NCR Subject: Location/Lot No./Package:

Non-conforming Details:

3. REMEDIAL ACTION PROPOSED (What action will be taken to rectify the non-conformance and prevent recurrence)

Rectification:

- ☐ Rework or repair to meet specified requirements
- ☐ Accept without repair by concession (use as is)
- ☐ Repair with concession
- ☐ Reject and scrap
- ☐ Regrade for alternative application
- ☐ Design Change

Rectification Details:

Cause of Non-conformance: (Categorise and detail the underlying cause of the non-conformance?)

☐ People ☐ Environment ☐ Equipment ☐ Documentation ☐ Organisation

Corrective & Preventative Action: (What action will be taken to eliminate cause and prevent a recurrence of the non-conformance?)

Actions Proposed by: Design Change

Date: Request Required: Yes / No DCR No. _____

4. PROPOSED REMEDIAL ACTION REVIEWED AND ACCEPTED:

Signed: _____ Date: _____ Signed: _____ Date: _____

COMPANY Representative — Client's Representative (if applicable)

Print Name: _____ Print Name: _____

5. REMEDIAL ACTION COMPLETED

- ☐ Rectification completed, inspected and accepted.
- ☐ Corrective action effective

Signed: _____ Date: _____ Signed: _____ Date: _____

COMPANY Representative — Client's Representative (if applicable)

DISTRIBUTION: Recipient to complete section 3 and return/email to COMPANY for acceptance. COPY: To Client and Design if applicable

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File Ref:

ENVIRONMENTAL INCIDENT & COMPLAINT REPORT No. ……

Instructions: This report must be used to record all environmental incidents including pollution events and complaints. Class 1 or 2 incidents as defined in F 1204 Environment Incident Classifications will require a full investigation with supporting information such as photographs, records of interviews, etc, and these should be appended to the report.

SITE DETAILS

Location / Project:	Date of Incident:
Report raised by:	Date of Report:

DETAILS OF PERSONS INVESTIGATING INCIDENT/COMPLAINT

Team Leader Name		Position		Contact Number	
Team Member Name		Position		Contact Number	
Team Member Name		Position		Contact Number	

STEP 1: PROBLEM IDENTIFICATION AND PREPARATION

Incident Class (Refer F 1204)	Class 1 ☐	Class 2 ☐	Class 3 ☐

BASIC DETAILS OF THE INCIDENT/ COMPLAINT (Provide full details of incident)

Incident/ Complaint reported by:	Duration of Incident/ Complaint:
Exact location of Incident/ Complaint:	Time of Incident/ Complaint::

Comments

STEP 2: Observation / Information Gathering

1. **Take samples or obtain results (required for Class 1&2)** – laboratory results or insitu samples (Note: for Class 1 & 2 incidents NATA certified laboratories may be required)
2. **Interview persons involved where required** – Include witnesses / supervisors / experts
3. **Inspect the incident scene –** Take measurements (do not guess), photos, videos, drawings, diagrams / sketches.

List of attachments

No.	Details	No.	Details
1		3	
2		4	

STEP 3: Give a detailed description of the incident/complaint

Nature of Incident/ Complaint: (more than one box may be marked)

- ☐ Complaint from public, client, etc
- ☐ Breach of licence conditions, Act or regulation
- ☐ Discovery of cultural heritage item, artefact, etc
- ☐ Near miss (no actual damage to environment)
- ☐ Unauthorised release of harmful substance to environment
- ☐ Penalty or fine imposed by authority (Amount $ ……..)
- ☐ Environmental controls failed or were ineffective
- ☐ Pollutant (specify type) ……

Details (Explain exactly what happened, why, where, quantity of pollutant, etc):

NOISE MONITORING RECORD

RECORD NUMBER:	**TESTING CONDUCTED BY:**
WEATHER CONDITIONS (i.e. wind/rain/cloud cover %):	**NOISE METER:** **LAST CALIBRATED:**
WORK LOCATION:	**WORK AREA:**
MONITORING LOCATION (e.g. address of sensitive receiver or monitoring location):	
MONITORING DATE:	**MONITORING TIME:**
MONITORING TYPE:	**WORKING HOURS:**
COMPLAINT RELATED:	**OOHW APPROVAL:**
CNVIS:	**NCA:**

NML DAY:	**NML EVENING:**	**NML NIGHT:**

RESULTS

LAeq	Lmax	Lmin	L1	L10	L50	L90	Modelled LAeq (From CNVIS)	Specified Noise Limit	NML

Site Activities / Monitoring Comments:

Is construction noise audible?

Is extraneous noise present during monitoring?

Is construction noise the dominant noise?

Is construction noise continuous or intermittent?

Is construction noise tonal or impulsive?

Have mitigation measures been implemented?

Site layout:

Signature: Date:

File Ref:

ENVIRONMENTAL INCIDENT & COMPLAINT REPORT No. ……

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Remedial action (Action to rectify the problem)

Containment / Rectification / Remediation: (more than one box may be marked)

- ☐ Notify relevant & interested parties
- ☐ Contain pollution / Clean-up site
- ☐ No remedial action possible or practical
- ☐ Repair / improve environmental controls
- ☐ Rectify damage and remediate area
- ☐ ……

Details:

STEP 4: BASIC LEVEL INCIDENT ANALYSIS

List Elements

List the "people", "equipment", and "environment" elements involved in the incident

PEOPLE	EQUIPMENT	ENVIRONMENT

List Essential and Contributing Factors

For each element listed above identify essential & contributing factors. *Essential* = factor is essential for the incident to occur. *Contributing* = factor increases the likelihood of occurrence, but removal may not interrupt incident

- Poor workplace practices
- Lack of or ineffective induction and training
- Lack of resource
- Equipment failure
- Ineffective controls
- Lack of Planning

Details:

STEP 5: IDENTIFY CORRECTIVE / PREVENTATIVE ACTIONS

Corrective and Preventative Actions may include the following:

- Change to equipment/machinery design / maintenance
- Improve environmental control measures
- Implement additional resources
- Change to work methods or processes
- Change or additional induction/induction
- Additional ongoing training

Details:

STEP 6: IMPLEMENTATION

SUPERVISOR'S COMMENTS

Name		Signature	

ENVIRONMENTAL REPRESENTATIVE

Name		Signature	

PROJECT LEADER'S/WORKPLACE MANAGER COMMENTS

Name		Signature	

ACTIONS COMPLETED

- ☐ Rectification completed
- ☐ Corrective and preventive action completed

Signed Project Leader/Workplace Manager: _____ Date:_____

DISTRIBUTION: **Original –** master file**; Copies:** Environmental Manager, other relevant parties**.**

VIBRATION MONITORING RECORD

RECORD NUMBER:	**TESTING CONDUCTED BY:**
WEATHER CONDITIONS (i.e. wind/rain/cloud cover %):	**VIBRATION METER:** **LAST CALIBRATED:**
WORK LOCATION:	**WORK AREA:**
MONITORING LOCATION (e.g. address of sensitive receiver or monitoring location):	
MONITORING DATE:	**MONITORING TIME:**
MONITORING TYPE:	**WORKING HOURS:**
COMPLAINT RELATED:	**OOHW APPROVAL:**
CNVIS:	**RELEVANT VIBRATION STANDARD(S):**

RESULTS

Distance from vibration source (m)	Peak Particle Velocity (mm/s)	Frequency of Vibration (Hz)	Human Comfort Vibration Limit (where applicable)	Structural Vibration Limit (where applicable)	Compliance with limits

Site Activities / Monitoring Comments:

Is construction vibration occurring?

Is extraneous vibration sources present during monitoring?

Is construction vibration the dominant source?

Is construction vibration continuous or intermittent?

Have mitigation measures been implemented?

Site layout:

Signature: Date:

WATER QUALITY MONITORING RECORD

DATE OF TEST: **RECORD NUMBER:**	**TESTING CONDUCTED BY:**
WEATHER CONDITIONS (i.e. rain):	**RAIN IN LAST 24 HOURS (mm):** **RAIN IN LAST 5 DAYS (mm):**
REASON FOR MONITORING:	
WATER QUALITY METER: **LAST CALIBRATED:**	

	RESULTS								
LOCATION:	TIME	Oil or Grease (visual)	Temp (^{0}C)	pH	Conductivity (ms/cm)	Turbidity (NTU)	TSS (mg/L)	Dissolved Oxygen (DO)	Salinity (EC)

Site Activities / Monitoring Comments:	

Signature: Date:

John Holland Laing O'Rourke Joint Ventrure
Sydnenham Station and Junction Project
Environmental Training register

Date	Training Type/Course name	Name of Staff Member or Worker	Key compentancies from training	Course Delivery Method	Was this training a project specific requirement

John Holland Laing O'Rourke Joint Ventrure
Sydnenham Station and Junction Project
Waste Register

Date	Waste Contractor	Waste Type	Classification	Disposal Site	Disposal Site EPL	Weight (t)	% Recycled	Weight Recycled (t)

APPENDIX 16 – Sydney Metro Environmental Incident and Non-Compliance Reporting Procedure

Environmental Incident and Non-compliance Reporting Procedure

SM-17-00000096

Sydney Metro Integrated Management System (IMS)

Applicable to:	Sydney Metro
Document Owner:	Manager, Environment
System Owner:	Executive Director, Safety, Sustainability & Environment
Status:	FINAL
Version:	5.1
Date of issue:	18 February 2019
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Table of contents

1. Purpose and scope 4
2. Introduction 4
3. Definitions 4
4. Accountabilities 5
5. Environmental Events 5
5.1. Worked Example – Classifying Environmental Events 7
5.1.1. Soil and Water Issue 7
5.1.2. Soil and Water Non-compliance 7
5.1.3. Soil and Water Incident 7
5.2. Notifiable Events 8
5.3. Event Types 8
6. Environmental Incident Classification and Management 10
6.1. Incident Classification 11
6.1.1. Class 3 Incidents 11
6.1.2. Class 2 Incidents 11
6.1.3. Class 1 Incidents 12
6.2. Incident Notification 12
6.2.1. Principal's Representative (PR) 12
6.2.2. Environmental Lead (EL) 13
6.3. Incident Notification Reports 14
6.4. Incident Investigations 14
6.5. Environmental Incidents with Health and Safety Impacts 14
6.6. Reporting Pollution Incidents to Relevant Authorities 15
6.6.1. Maritime Related Incident Notification and Reporting 16
6.7. Environmental Compliance Register 16
7. Environmental Non-compliance 17
7.1. Non-compliance Rate 17
8. Corrective and Preventative Actions 18
8.1. Action Status 18
9. Related Documents and References 19
10. Superseded Documents 19
11. Document History 19

Figures

Figure 1: Environmental Event Classification Process 6
Figure 2: Environment Incident notification process for Class 1 and 2 Incidents 13

Tables

Table 1: Examples of Notifiable Events 8
Table 2: Environmental Event Types and their descriptions 9
Table 3: Examples of Environmental Incidents 10
Table 4: Classification System for Environmental Incidents 11
Table 5: Contact details for Relevant Authorities 15

1. Purpose and scope

This procedure documents the process to be used when classifying and reporting Environmental Events.

This procedure applies to Sydney Metro and any contractor Sydney Metro engages to carry out works. Principal Contractors must ensure their processes for managing Environmental Events is consistent with this document. The requirement for consistency is documented in the Construction Environmental Management Framework (Section 3.3(f)) and shall be allocated as a contractual requirement to each delivery partner.

2. Introduction

Sydney Metro is committed to minimising risks to the environment, the rapid identification and rectification of breaches to Environmental Requirements and efficient and effective responses to Environmental Incidents that grows our ability to minimise harm and prevent future re-occurrences.

This procedure defines an approach to classifying Environmental Issues, Incidents and Non-compliances and establishes the immediate, interim and long term actions that are taken in response to Environmental Events.

3. Definitions

All terminology in this Procedure is taken to mean the generally accepted or dictionary definition with the following exceptions:

Term	Definition
Environment	means components of the earth, including: a) land, air and water, and b) any layer of the atmosphere, and c) any organic or inorganic matter and any living organism, and d) human-made or modified structures and areas, and includes interacting natural ecosystems that include components referred to in (a)-(c).
Environmental Event	An occurrence that identifies actual or potential environmental impacts or non-compliances. Events cans include conversations, inspections, incidents, or failures of process.
Environmental Harm	Includes any direct or indirect alteration of the environment that has the effect of degrading the environment and, without limiting the generality of the above, includes any act or omission that results in pollution.
Environmental Incident	An occurrence or set of circumstances, as a consequence of which pollution (air, water, noise, and land) or an adverse environmental impact has occurred or is likely to have occurred.
Environmental Issue	An occurrence or set of circumstances where Environmental Harm or Non-compliance could occur if not rectified.
Environmental Non-compliance	A breach of an Environmental Requirement originating from Planning Approvals, Environment Protection Licenses, lease agreements, and other requirements documented in environmental management plans.

Term	Definition
Material Harm to the Environment	harm to the environment is material if: a) it involves actual or potential harm to the health or safety of human beings or to ecosystems that is not trivial, or b) it results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding $10,000 (or such other amount as is prescribed by the regulations), and c) loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment. It does not matter that harm to the environment is caused only in the premises where the pollution incident occurs.

Terms and jargon specific to this procedure are defined within the Sydney Metro Glossary.

4. Accountabilities

The Executive Director, Safety, Sustainability & Environment is accountable for this Procedure. Accountability includes authorising the document, monitoring its effectiveness and performing a formal document review.

Direct Reports to the Chief Executive are accountable for ensuring the requirements of this document are implemented within their area of responsibility.

The Direct Reports to the Chief Executive who are accountable for specific projects/programs are accountable for ensuring associated contractors comply with the requirements of this document if specified in the relevant contracts.

5. Environmental Events

Environmental surveillance data is relied upon to inform Sydney Metro of performance trends, to provide assurance that legislative requirements are being met and indicate where surveillance activities should be directed. In order to rely upon environmental data for this purpose there needs to be a high degree of consistency in the manner by which it is collected and interpreted. Due to the need for consistency, any incident/Non-compliance procedure produced by a delivery partner to Sydney Metro is required to be consistent with the requirements of this document.

The concept of Environmental Events forms a common starting point for understanding what types of occurrences should be managed and reported as Incidents and what should be reported as Non-compliances or Issues. When an Environmental Event occurs a series of questions can be asked to consistently determine what type of event it is. Commonly, Environmental Events lead to three different processes:

1. Reporting of an Environmental Incident;
2. Reporting of an Environmental Non-compliance; or
3. Reporting of an Environmental Issue.

Incidents and Non-compliances are recorded using the Environmental Incident and Non-compliance Report Form (SM ES-FT-403) and Environmental Issues are recorded through environmental inspection reports using the Environmental Inspection Information & Summary Form (SM ES-FT-406). These paper based records are subsequently entered into the Sydney Metro Compliance Register (Section 6.7) which is used to disseminate the data and facilities reporting internally and externally. Note where a Principal Contractor has submitted alternative processes and these have been approved by Sydney Metro they may also be used.

The figure below shows the process by which Environmental Events are classified (Figure 1).

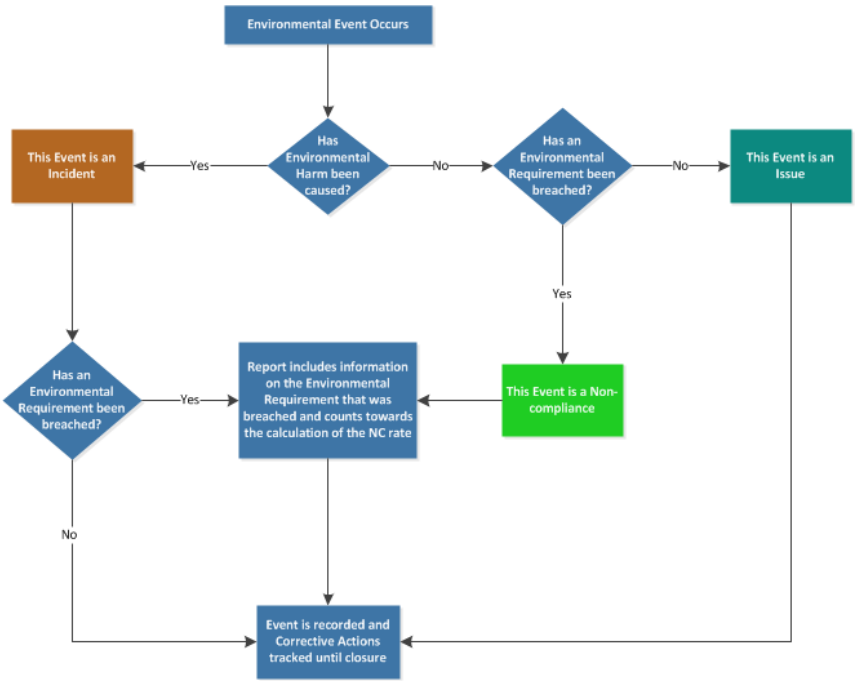

Figure 1: Environmental Event Classification Process

Where Environmental Harm has been caused the event will always be classified as an Environmental Incident regardless of whether one or more Environmental Requirements have been breached. Only when an event occurs without harm being caused to the environment will it be classified as a Non-compliance or Issue. It should be noted that the Incident management process still captures any breaches of Environmental Requirements and these incidents contribute towards the calculation of the NC Rate (Section 7.1).

This flowchart above is intended to be a guide and there may be situations where it is unclear exactly how an Environmental Event should be classified. In these situations a judgement call should be made in consultation with your Manager.

5.1. Worked Example – Classifying Environmental Events

This Section provides a fictitious example of Environmental Events which fall into each of the three different categories. The situations outlined below are provided to explain how event classifications are made. The background for these worked examples is as follows:

Sydney Metro is carrying out works in a newly established site and substantial earthworks are occurring to construct piers for an elevated viaduct. A nearby creek contains a variety of important fish species and the local community are known to use this creek for recreational fishing. The Environmental Impact Statement identified the creek as being at risk of increased sedimentation from dirty water run-off and the Conditions of Approval include a requirement to have a Progressive Erosion and Sediment Control Plan in place. This plan has been produced and indicates that sediment fences must be in place at specific locations to capture dirty water run-off. Regular daily inspections of the sediment controls are carried out by the contractor's Environment Manager and an Independent Environmental Representative has commenced a monthly inspection on this site at 7 am on Thursday morning.

5.1.1. Soil and Water Issue

The Environmental Representative notices a sediment fence has been knocked over in one of the areas indicated as requiring fencing on the ERSED plan. It appears to have occurred recently and there is no record of rainfall in the last few days. During the course of the inspection all other ERSED controls appeared to be in good condition and erected in accordance with the requirements of the Blue Book. In this example no harm has yet been caused and no environmental requirement has been breached so the event is classified as an Environmental Issue which is raised on the inspection report with an action to reinstall the fence.

5.1.2. Soil and Water Non-compliance

Alternatively, the Environmental Representative might have noticed many sediment fences had been knocked down and in some areas an absence of sediment fences where the plan indicates they are required. Despite there being no rain in recent days the Environmental Representative concludes that the requirements of the plan are not being followed and have been breached. The event is raised as non-compliance and actions are set in place to re-enforce the requirements of the ERSED plan for that sites workforce as well as the immediate reinstatement of controls.

5.1.3. Soil and Water Incident

Finally, in a third scenario the Environmental Representative notices many sediment fences are down and some are absent where required by the plan. However, significant rainfall has occurred in recent days and the Environmental Representative determines that it is likely dirty water has escaped through the area into the nearby creek potentially causing harm to the fish population. This event is classified as an Incident by the inspector and immediate notification is undertaken. Similar controls are implemented as described above.

5.2. Notifiable Events

There are a number of Acts and regulations that include a specific requirement to notify a Regulatory Authority. When an Environmental Event triggers one of these notification requirements we then also refer to that event as a Notifiable Event (Table 1).

The Principal Contractor's Environment Manager must determine whether an event is notifiable, and may rely upon advice from Sydney Metro if it is provided.

Table 1: Examples of Notifiable Events

Event type	Legislation		Trigger for Notification
Pollution Incident[1]	POEO Act 1997	Part 5.7	Where Material Harm has occurred contact the EPA Pollution Line as soon as practicable
	POEO (General) Regulation 2009	Section 101	
Land contamination	Contaminated Land Management Act 1997	Section 60(1)	As soon as practicable, after becoming aware of contamination that exceeds the relevant investigation levels in the National Environment Protection Measure, where a person has or will be exposed to the contamination
Discovery of an Aboriginal relic	National Parks & Wildlife Act 1974	Section 89A	Director General of EPA in writing within a reasonable time after becoming aware. Note this is not required for Projects approved under Part 5.2 of the Environmental Planning and Assessment Act (see section 115ZG). Notification and reporting is addressed in the relevant Infrastructure Approval
Discover Aboriginal Remains	Commonwealth Aboriginal & Torres Strait Islanders Heritage Protection Act 1984	Section 20	Commonwealth Minister of the Environment in writing as soon as practicable after becoming aware
Discovery of a relic	Heritage Act 1977	Section 146	Heritage Council in writing within a reasonable time after becoming aware Note -this is not required for Projects approved under Part 5.2 of the Environmental Planning and Assessment Act (see section 115ZG). Notification and reporting is addressed in Infrastructure Approvals

5.3. Event Types

Each Environmental Event is assigned a secondary classification of an Event Type for the purpose of data analysis and general environmental management. They are grouped by areas of environmental management so that targeted auditing, training or awareness initiatives can be initiated in response to emergent trends. Each Event Type is explained in Table 2.

[1] Further information on reporting pollution incidents to EPA is provided in Section 6.6 Environmental Incident/Non-compliance Report

Table 2: Environmental Event Types and their descriptions

Event Type	Applies To:			Description
	Issue	Incident	Non-compliance	
Soil and Water	●	●	●	Covers the physical location, chemical composition and ecology of soils and waterways. Any event which changes these compositions is a Soil and Water event. Within this event type all instances of contamination, erosion and sedimentation of waterways is covered.
Flora and Fauna	●	●	●	Covers vegetation and vegetation communities as well as animals and animal habitat. Any event where vegetation is felled or damaged, animals are killed or injured, or habitat is harmed or destroyed is covered.
Waste and Spoil	●	●	●	Covers the management of Excavated Natural Material (ENM) and Virgin Excavated Natural Material (VENM) including on-site management, and disposal and also the classification and management of Waste materials. **Note:** that the transportation of spoil is covered under Traffic, Transport and Access.
Heritage	●	●	●	Covers the management of known heritage artefacts or sites, and the treatment of unexpected finds, archaeological investigations and other impacts.
Air Quality	●	●	●	Covers the management of emissions of particulate matter, odours, and gasses used as air quality parameters from worksites.
Noise and Vibration	●	●	●	Covers the management of airborne and ground borne noise and vibration and includes hold points on the commencement of any work where Out of Hours Works permits or Construction Noise Impact Statements are required.
Community Stakeholder and Business	●	●	●	Covers the management of Community and Stakeholder requirements and includes complaint response procedure, community management protocols, and the maintenance of information on websites.
Traffic Transport and Access	●	●	●	Covers the management of traffic inside and outside of sites including access points and parking requirements. This event type also covers any requirements in relation to vehicles and vehicle maintenance or the transportation of waste and spoil.
Spills and Leaks	●	●	●	Covers all instances where environmentally sensitive substances are held within a container which has the potential to leak or spill and covers pipes, hoses, fuel tanks, storage tanks and plastic containers. **Note:** Spills and Leaks specifically exclude anything in relation to the transport and deposition of sedimentation.
Management Systems	●	●	●	Covers procedural or administrate processes that are common across all areas. It specifically does not cover procedural or administrate processes which are unique to any of the other event types. For example, not completing a vegetation removal form prior to vegetation clearing is still a Flora and Fauna event. **Note:** A good example of a Management Systems NC would be not reporting an Environmental Incident within required timeframes.

6. Environmental Incident Classification and Management

Sydney Metro has defined an Environmental Incident as:

An occurrence or set of circumstances, as a consequence of which pollution (air, water, noise, and land) or an adverse environmental impact has occurred or is likely to have occurred.

Adverse environmental impact includes contamination, harm to flora and fauna (either individual species or communities), damage to heritage items, or adverse community impacts.

Planning Approvals and Environment Protection Licences permit some environmental impacts and these are not intended to be captured as Environmental Incidents.

Table 3: Examples of Environmental Incidents

Type	Example Incident
Air Quality	Odour that travels beyond the site boundary
Air Quality	Dust exceeding reasonable levels without active management measures in place
Air Quality	Operation or maintenance of plant in a manner that causes or has likely caused excessive air pollution
Soil and Water	Discharge of water on or off site in a manner that causes or has likely caused water pollution without required approvals.
Noise and Vibration	Noise that travels beyond the site boundary as a result of poorly maintained plant or operation of plant in an inefficient manner
Noise and Vibration	Failure to comply with the approved hours of work
Soil and Water	Where the chemical composition of soil or water has been detrimentally modified by a contaminant leading to potential or actual environmental harm. For example, rainfall causes a flow of water across a site that erodes soil and enters a waterway increasing the total suspended solids of that water body.
Spills and Leaks	Where a substance has leaked from, or spilt from a container that is designed to prevent that substance from escaping into the environment (including bunds, fuels tanks, chemical bottles and other containers). Spills and Leaks specifically exclude anything in relation to the transport and deposition of sedimentation.
Soil and Water	Dispose of waste in a manner that harms or is likely to harm the environment
Flora and Fauna	Harm or “pick” a threatened species, endangered population or endangered ecological community without required approvals
Flora and Fauna	Damage to vegetation, fauna or habitat including watercourses without required approvals
Heritage	Damage, disturbance, destruction or works to heritage items/relics without required approvals
Heritage	Damage, disturbance, or destruction of Aboriginal objects or places without required approvals

6.1. Incident Classification

Environmental Incidents are classified into one of three Classes that are based upon the consequence descriptors for environmental risks in the Sydney Metro Risk Matrix (refer to Sydney Metro Risk Management Standard). Each of these classifications trigger a variety of management actions and/or legislative requirements depending on the severity of the consequence described where Class 3 represents minor consequences and Class 1 represents major consequences.

This matrix is further sub-divided into consequence ratings ranging from C6 (low impact) to C1 (high impact). An incident transitions between a Class 3 to a Class 2 incident once material harm has been caused, and transitions into a Class 1 incident once it is determined that the Environmental Harm caused in large-scale and cannot be remediated (Table 4).

Table 4: Classification System for Environmental Incidents

Class 3			Class 2		Class 1
C6	**C5**	**C4**	**C3**	**C2**	**C1**
No appreciable changes to environment and/or highly localised event	Change from normal conditions within environmental regulatory limits and environmental effects are within site boundaries	Short-term and/or well-contained environmental effects. Minor remedial actions probably required	Impacts external ecosystem and considerable remediation is required	Long-term environmental impairment in neighbouring or valued ecosystems Extensive remediation required	Irreversible large-scale environmental impact with loss of valued ecosystems

6.1.1. Class 3 Incidents

These Incidents are events which cause Environmental Harm, but do not cause Material Harm to the environment. Normally Class 3 Incidents are not Notifiable Events and therefore a simple notification protocol is adopted whereby Sydney Metro must be notified within 48 hours verbally, and in writing.

In some cases it will be unclear whether Material Harm has been caused in the early stages of Incident Management. If this is the case then the process for Class 2 Incidents is followed (see Section Class 2 Incidents) until it is clear that Material Harm has not been caused.

A formal Incident Investigation report is not required for Class 3 Incidents, however, it is expected that the person responsible for completing the Incident Notification Report makes appropriate enquiries to determine the likely causal factors involved and assigns effective corrective actions.

6.1.2. Class 2 Incidents

These Incidents are events which cause Material Harm to the environment and they always trigger notification of Regulatory Authorities. These Incidents represent events that are far more serious than Class 3 Incidents and therefore strict communication protocols are required to ensure that effective and informed decisions are made (Figure 2).

The Environmental Lead, contract Environment Manager and the Independent Environmental Representative must be notified verbally as soon as possible after the observer becomes aware of a Class 2 Incident.

Class 2 Incidents must be investigated and the investigation must produce an investigation report containing corrective or preventative actions. This investigation report must be provided to Sydney Metro within 7 days of the event unless another timeframe is agreed with the EL.

Despite any arrangements for the submission of investigation reports, an Incident Notification Report must be provided with all available information and submitted to Sydney Metro within 48 hours. It is not expected that initial Incident Notification Reports for Incidents under investigation initially include actions as these will be informed by the findings of the investigation. The report should be updated with actions resulting from the investigation when available.

6.1.3. Class 1 Incidents

Class 1 Environmental Incidents are managed in the same manner as Class 2 Incidents expect where a determination is made by the Chief Executive (or delegate) that a Crisis Management Team should be activated. In this situation the Sydney Metro Crisis Management Implementation Plan is followed.

6.2. Incident Notification

When and Environmental Event occurs which causes Environmental Harm in all cases both verbal and written communication of the incident must be carried out immediately and within 48 hours respectively. For Class 1 and 2 Incidents the notification process shown in Figure 2 must be followed. Written communication of Environmental Incidents is via an Incident Notification Report (Section 6.3).

This process includes specific roles and responsibilities within Sydney Metro and our delivery Partners who are required to take notification actions in response to Incidents.

This notification process has been developed to ensure that crucial information about Incidents is captured early and communicated to specific individuals who can ensure the Environmental Impacts are minimised and efficient and effective responses to the event are implemented.

In particular the Principals Representative and the Environmental Lead for Sydney Metro play a crucial role in the communication of Incidents within Sydney Metro and these roles are explained in more detail below.

6.2.1. Principal's Representative (PR)

Each works package establishes a contractual interface for communication between the contracted party and Sydney Metro. Generally this interface is between the Principal Contractors Project Director and an appointed representative of Sydney Metro called the Principals Representative.

All formal written communications must pass between these two individuals electronically using TeamBinder. The Principals Representative holds certain responsibilities in the Incident management Process outlined in Figure 2.

6.2.2. Environmental Lead (EL)

Where this procedure is applied to a works package an Environmental Lead (EL) will be selected for the relevant works package. The Environmental Lead must possess environmental experience and competency in managing Incidents and be a representative of Sydney Metro for those works. This representative holds specific responsibilities outlined in Figure 2.

Figure 2: Environment Incident notification process for Class 1 and 2 Incidents

6.3. Incident Notification Reports

For all Incidents an Incident Notification Report must be completed and submitted to Sydney Metro within 48 hours. These reports satisfy the requirement for written communication to Sydney Metro and are completed using the Environmental Incident and Non-compliance Notification Report (SM ES-FT-403) or a similar and consistent form approved by Sydney Metro.

6.4. Incident Investigations

Environmental Incident Investigations must be carried out for all Class 1 and Class 2 Incidents. Investigations may also be requested for any other Environmental Event at the discretion of Sydney Metro. This discretion is likely to be exercised where incidents of a similar nature are occurring repetitively.

When conducting an Environmental Incident investigation, they must:

- Be led by a lead investigator who is suitably independent investigator capable of arriving at objective findings and is experienced in conducting environmental incident investigations;
- Consider the need for legal privilege during the investigation process in consultation with legal counsel;
- Be informed by all available information that is relevant to the investigation;
- Analyse the timeline of events which led up to and followed the occurrence of Environmental Harm including the immediate incident response;
- Be conducted in a manner that is consistent with recognised investigation techniques such as ICAMS;
- Gather and record evidence;
- Seek the input of key stakeholders; and
- Identify Preventative and Corrective actions and document these in the Incident Notification Report.

6.5. Environmental Incidents with Health and Safety Impacts

It is possible that where an Event occurs that causes Environmental Harm, harm is also caused to the health, safety or wellbeing of people. In these situations there will also be a Health and Safety Incident process undertaken which is separate to the process outlined in this document.

While the definition of the Environment covers people under the POEO Act, the management of impacts upon them are carried out using the Health and Safety Incident Management protocols. This is because Health, Safety and Wellbeing requirements are governed by a range of legislation other than the POEO Act and this procedure is not comprehensive in that regard. Sydney Metro has well established processes to manage impacts on people without the need for the Environmental Incident Process to intervene.

Furthermore, where Environmental Events cause harm to both the 'environment' and people it is possible that the root causes for the respective impacts are different. It is also possible that differences in the severity of the impacts trigger inconsistent notification requirements and investigation levels. It is prudent to identify appropriate and effective corrective actions that reduce the risk of impacts to both people and the environment, therefore separate Incident Management Processes are undertaken in these situations.

For more detail on the management of Health and Safety Incidents please refer to the Health & Safety Incident Reporting & Investigation Standard (SM-17-00000040).

6.6. Reporting Pollution Incidents to Relevant Authorities

If an Incident or Non-compliance is a Notifiable Event, then a report must be provided to the relevant Regulatory Authority within the timeframe(s) specified by the relevant legislation. Pollution Incidents which are causing or threatening Material Harm to the environment must be reported to each of the following authorities immediately after project personnel become aware of the Incident, as required by Section 148 of the POEO Act 1997. The contact numbers for these authorities are listed in Table 5.

Table 5: Contact details for Relevant Authorities

Type	Example incident
EPA Environment Line	131 555
Local Authority	Local Council (specific to area)
Ministry of Health	Public Health Unit (refer to http://www.health.nsw.gov.au/Pages/default.aspx to confirm local area contact details)
SafeWork NSW	131 050 or contact@safework.nsw.gov.au
Fire and Rescue NSW	000

Relevant information required to be given to EPA when making a notification is specified in Section 150 of the POEO Act 1997 as follows:

- Time, date, nature, duration and location of the incident;
- Location of the place where pollution is occurring or is likely to occur;
- Nature, the estimated quantity or volume and the concentration of any pollutants involved;
- Circumstances in which the Incident occurred (including the cause of the Incident, if known);
- Action taken or proposed to be taken to deal with the Incident and any resulting pollution or threatened pollution; and
- Other information prescribed by the regulations.

All relevant information known at the time of making the notification must be reported. If the information required by (c), (d) or (e) above is not known at the time of initial notification but becomes known afterwards, it must be reported to each authority immediately after it

becomes known. Verbal notification must be followed by notification in writing within seven days of the date on which the Incident occurred.

Pollution Incidents are not required to be reported if the Incident has already come to the attention of the EPA or the Incident involves only the emission of an odour.

Failure to report a pollution Incident as required by the POEO Act 1997 is an offence.

Where any work or activity is regulated by an Environment Protection License (EPL), notification of a pollution Incident to the EPA should be made by the licensee. Thus, where the contractor holds the EPL for the project, notification to EPA shall be made by the contractor.

For any work or activity that is not regulated by an EPL, notification of pollution Incidents to EPA shall be made by Sydney Metro, unless the contractor is instructed otherwise by Sydney Metro. This includes pollution Incidents that occur as a result of pre-construction activities which may be undertaken prior to an EPL being required for a project. Pre-construction activities are determined by the Planning Approval and may include, for example, geotechnical investigations or surveys.

Where the Environmental Representative determines there to have been a significant off-site impact on people or the biophysical environment, the program Director Sustainability Environment and Planning will notify the Secretary of the Department of Environment and Planning within 48 hours in accordance with Project Infrastructure Approval Conditions. This notification will be followed by a full written report within seven days of the date on which the incident occurred.

6.6.1. Maritime Related Incident Notification and Reporting

Marine Incidents involving vessels and personnel on board vessels must be reported to the Australian Maritime Safety Authority in accordance with the guidance published on their website at:

- Australian Maritime Safety Authority Incident Reporting; and
- Reporting obligations of owners and masters of domestic commercial vessels.

6.7. Environmental Compliance Register

The Environmental Compliance Register is used to manage the information associated with reporting of Environmental Events. This register is maintained by the Manager Environment and may be used by a variety of individuals to input data. For access to the register or information on its use contact the Manager Environment.

This register analyses the data it contains and produces environmental compliance statistics that are used to meet a range of reporting and environmental management requirements.

7. Environmental Non-compliance

An Environmental Non-compliance is a breach of an Environmental Requirement originating from Planning Approvals, Environment Protection Licenses, lease agreements, and other requirements documented in environmental management plans. It is important to note that regardless of whether an event is classified as a Non-compliance or an Incident the process behind managing the event remains the same, with the following exceptions:

- Non-compliances are not notifiable to Regulatory Authorities under the POEO Act;
- Non-compliances are reported to have occurred on the day the breach was raised as opposed to the date when the requirement was breached (this is to preserve historical reporting and analysis – see Section 7.1);
- Non-compliances are not divided into severity classes (Section 5.2);
- Non-compliances do not have the potential to trigger crisis or emergency management processes; and
- There is an informal notification process in the immediate timeframe following a Non-compliance being raised.

When an Environmental Event occurs that causes Environmental Harm and also breaches one or more Environmental Requirements, then an Incident Notification Report will be created which records what requirements were breached.

If a Non-compliance is identified then it must be raised using the Environmental Incident and Non-compliance Report Form within 48 hours by the party responsible for the breach.

7.1. Non-compliance Rate

A key environmental performance statistic used by Sydney Metro is the Non-compliance Rate. This statistic provides a standardised way of comparing the performance of different projects or contractors. The NC Rate is calculated using the following formula:

$$= \left(\frac{(NCs + Incidents\ with\ breaches\ raised\ in\ month) + (Open\ NCs + Open\ Incidents\ with\ breaches\ from\ previous\ months)}{Total\ Number\ of\ Ongoing\ Requirements} \right) X\ 100$$

Each month a count of the number of NCs raised, and Incident raised where Environmental Requirements have also been breached is counted. Added to this number is the number of these events which were raised in previous months that still held an Open status in the current reporting period. Non-compliance and incident Events are considered Open if any of the associated Actions are Open. The total is divided by the number of Environmental Requirements which are actively being complied with (Ongoing Requirements) and a multiplying factor of 100 is applied.

8. Corrective and Preventative Actions

Whenever an Environmental Event is raised actions will be assigned to the event irrespective of whether it is an Issue, Incident or Non-compliance. These actions will generally be Corrective Actions which are implemented to eliminate the cause of the Incident, Non-compliance or Issue and can be thought of as reactive measures in response to the Environmental Event.

Preventative Actions may also be assigned to prevent the occurrence of an Incident, Non-compliance or Issue and can be considered pro-active measures which may be recommended following a detailed investigation of the event.

Actions must:

- Limit impacts as far as is reasonably practicable;
- eliminate risk where practicable;
- where is it not practicable to eliminate the risk, follow the hierarchy of controls;
- address root causes and contributing factors; and
- be prioritised based on risk.

The Executive Director, Safety Sustainability & Environment must ensure there are systems in place to:

- monitor corrective action status;
- escalate issues to the executive where progress on a corrective action is inadequate; and
- retain all corrective action responses for recording purposes.

8.1. Action Status

Actions are allocated to a person who will take accountability for ensuring it is carried out within a timely manner and completed by the due date.

Actions are either closed immediately if the Action has already been carried out and verified by Sydney Metro, or are created with an open status. The Action will remain in an open state until such a time as Sydney Metro verifies that the responsible person has completed the Action in a satisfactory manner. Until all actions associated with an Incident, Non-compliance or Issue are closed the original Environmental Event is considered to be open as well. This is relevant when calculating the NC Rate as open Non-compliances and Incidents contribute toward the calculation of this statistic.

Verification is determined by the Environmental Lead by sighting evidence of the Actions implementation.

9. Related Documents and References

Related Documents and References
• Environmental & Sustainability Management Manual • Risk Management Standard • Health & Safety Incident Reporting & Investigation Standard (SM-17-00000040) • Crisis Management Implementation Plan • Environmental Incident and Non-compliance Notification Report • Environmental Inspection Information & Summary • Sydney Metro Glossary

10. Superseded Documents

Superseded Documents
There are no documents superseded as a result of this document.

11. Document History

Version	Date of approval	Notes
1.0	31 March 2015	New document
2.0	7 July 2016	IMS Review
3.0	7 April 2017	IMS Review
4.0	23 November 2018	IMS Review
5.0	11 February 2019	IMS Review
5.1	18 February 2019	Minor correction to formula

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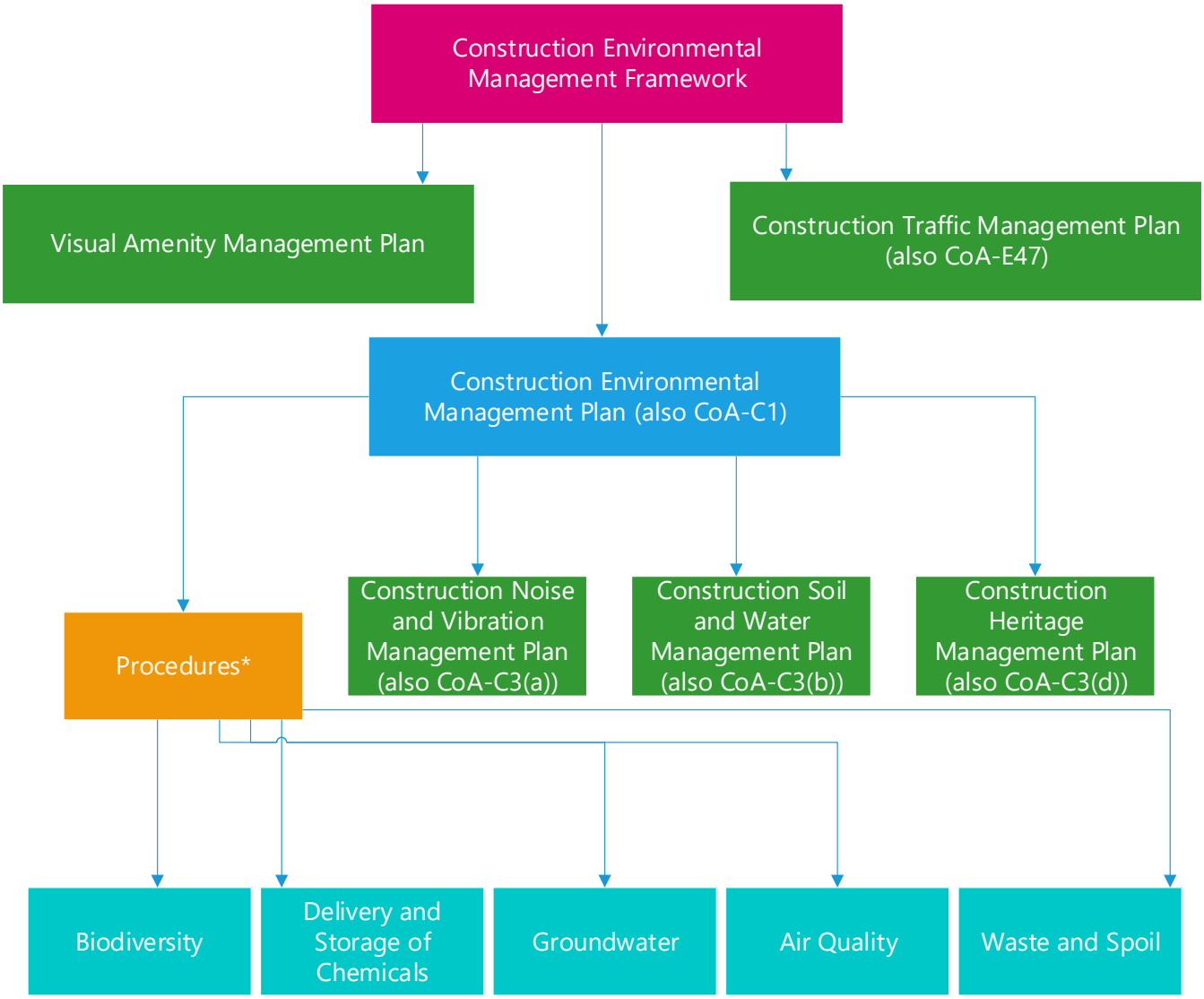
Appendix 17 – CEMP Structure Overview



*Note 1; in accordance with the Sydney Metro City & Southwest Sydenham to Bankstown Staging Report Biodiversity, Groundwater, Air Quality and Waste and Spoil are included within the CEMP as Procedures.

Note 2; the Sustainability Management Plan and its sub-plans and procedures, as required under the Sydney Metro City & Southwest Sydenham to Bankstown Staging Report are not included here.